Mariana Viollaz[1], Mauricio Salazar–Saenz[2],*, Luca Flabbi[3], Monserrat Bustelo[4], Mariano Bosch[5]

The COVID-19 Pandemic in Latin American and Caribbean countries: Gender Differentials in Labor Market Dynamics[†]

Abstract

We study gender differences in changes in labor market dynamics before the pandemic and during the COVID-19 pandemic in four Latin American and Caribbean (LAC) countries: Brazil, Chile, Dominican Republic, and Mexico. Specifically, we look at differences in labor market states and at differences in the transitions of workers across labor market states. To identify the pandemic's impact, we compare labor market stocks and labor market flows for a number of balanced panels of workers during the pandemic and before the pandemic. We find that the pandemic has negatively affected employment and labor market participation of both men and women, but that the effect is significantly stronger for women, magnifying the already large gender gaps observed in LAC countries. The main channel generating this stronger impact is the increase in child care work performed by women with school-age children.

1   CEDLAS, Argentina and IZA, Bonn, Germany. E-mail: mviollaz@cedlas.org

2   Pontificia Universidad Javeriana, Bogotá, Colombia. E-mail: mauriciosalsa@gmail.com

3   University of North Carolina – Chapel Hill, NC and IZA, Bonn, Germany. E-mail: luca.flabbi@unc.edu

4   Inter-American Development Bank, Washington, DC. E-mail: MONSERRATB@iadb.org

5   Inter-American Development Bank, Washington, DC. E-mail: MBOSCH@iadb.org

1 Introduction

The crisis associated with the COVID-19 pandemic is unprecedented and has generated widespread economic impacts that affected labor markets all over the world. Employment losses have been documented for both sexes but unlike recent recessions where men lost employment more than women, the COVID-19 shock seems to have larger negative impacts on women (Alon et al., 2021; Shibata et al., 2021; Nieves et al., 2021). This asymmetry –the so-called "she-cession"– is due to the combination of women being over-represented in the services and retail sectors hardest hit by the pandemic and of women playing a larger role in caring for children.

This paper assesses if the COVID-19 pandemic has implied a she-cession also in Latin American and Caribbean (LAC) countries as it did in most high-income countries. It also attempts to identify the channels that may have led to a she-cession or, on the contrary, may have prevented it. Given the paucity of data, we focus on one aspect of the labor market that can be measured well on representative samples of workers in multiple LAC countries: the dynamic of workers between labor market states. In particular, we compare employment status of women and men during the pandemic with respect to a relevant pre-pandemic period, as done in recent contributions on high-income countries. In addition, we compare the individual dynamic through those states before and after the pandemic. No paper so far has conducted such analysis on multiple LAC countries using comparable data.

Studying the impacts in LAC is relevant for three reasons. First, the economic crisis caused by the pandemic in the LAC region has been one of the most devastating in recent decades and one of the worst in the world. Overall GDP fell by 7.4 percent in 2020, more than three times the fall during the Great Recession of 2009, and more than twice the fall during the Debt Crisis of 1983. This drop in GDP is significantly larger than the one experienced by other emerging economies or by most high-income economies (IMF, 2021). The recession has caused a large drop in employment: over a sample of 15 LAC countries with available data, total employment fell by almost 15 percent between February 2020 and July 2020. Despite representing 42 percent of the workforce, by March 2020 women had sustained 56 percent of all job losses, bringing back female labor force participation to 2010 levels (IADB, 2021).

Second, gender labor market gaps in the LAC region before the pandemic were larger than the ones in regions of comparable income and much larger than the ones in high-income countries (Bustelo et al., 2019; Gasparini and Marchionni, 2015b). A she-cession on top of this initial conditions could risk to further increase these gaps.

Third, there are no empirical contributions that have studied the issue on representative samples of workers in multiple LAC countries collected before and after the start of the pandemic. Although there are demographic and economic differences between LAC countries (i.e., country size, population, GDP per capita), there are also common structural and persistent factors that impact the observed gender gaps such as the cultural expectation of the role of women as the main caregiver, the high level of informality, and the high level of occupational segregation (Berniell et al., 2023; Bustelo et al., 2019; Gasparini and Marchionni, 2015b). The value of analyzing the impacts of the COVID-19 pandemic in multiple countries in a comparable way is making possible to assess whether there were common patterns between them. To achieve this, we use data from the only four LAC countries with longitudinal

data covering the pandemic period and previous comparable periods that were available as of December 2021. The four countries (and data sets) are: Brazil (*Pesquisa por Amostra de Dom'ıcilios Contínua* (PNADC)); Chile, (*Encuesta Nacional de Empleo* (ENE)); the Dominican Republic, (*Encuesta Nacional Continua de Fuerza de Trabajo* (ENCFT)); and Mexico, (*Encuesta Nacional de Empleo y Ocupaciones* (ENOE) and the *Nueva Encuesta Nacional de Empleo y Ocupaciones* (ENOE-N)). For all countries we build a series of year-long balanced panel data spanning the period 2017-2020, we use similar definitions of variables in each country/year and apply consistent methods of processing the data, and we estimate the same econometric models.

The evidence for developing countries, and specifically for those from the LAC region, is still scarce and mainly country-specific. Descriptive evidence based on phone surveys has shown that the rate of work stoppage has been larger for women than for men in May-August 2020 in comparison to February 2020 (Cucagna and Romero, 2021; Kugler et al., 2023). Country-specific studies using longitudinal data and comparing the pre- and post-pandemic periods have found that women lost their jobs at a higher rate than men in Peru (Cueva et al., 2021; Higa et al., 2023) and that women faced lower chances of being employed and higher chances of having an informal job than men in Mexico (Monroy-Gomez-Franco, 2021; Hoehn-Velasco et al., 2022; Juarez and Villaseñor, 2022). When considering the presence of children at home, Juarez and Villaseñor (2022) find that Mexican women with children decreased their labor supply more than women without children in the first months of the pandemic but then recovered faster in the later months. Evidence using cross-sectional data from Colombia finds a negative impact on women's employment rates, employment quality, and participation rates (Garcia-Rojas et al., 2020). Finally, Berniell et al. (2023) report results from a large study collecting phone surveys during the pandemic in 13 LAC countries. They compare the labor market status of women and men from May to August 2020 with their pre-pandemic status and find that the COVID-19 shock led to larger job losses for women than men, specially those living with children 5 to 18 years old.

The literature analyzing the labor market impacts of the COVID-19 pandemic by gender in high-income countries is larger and growing. These studies mainly use labor force surveys covering both a pre-pandemic and a post-pandemic period. Some also employ real-time survey data collected during the pandemic with retrospective information on employment status. Thanks to this type of data, they can compare labor market outcomes of men and women before and after the pandemic. The main findings from this literature show that women faced larger employment reductions than men in the U.S., Canada, and Spain (Alon et al., 2021; Fairlie et al., 2021), larger declines in labor force participation in the U.S. (Albanesi and Kim, 2021), larger reductions in hours of market work in the U.S., Canada and Germany (Alon et al., 2021), and larger rates of job loss in the U.S., the U.K. and Spain (Adams-Prassl et al., 2020; Farre et al., 2021).[1] There is only one study comparing labor market flows before and during the pandemic using longitudinal data, Albanesi and Kim (2021). They construct monthly labor transitions for women and men in the U.S. and find that movements from employment to unemployment grew more for women compared to men in the spring and summer for 2020.

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1   Important exceptions to these findings are the lack of differential job loss between women and men in the U.K. reported by Hupkau and Petrongolo (2020) using data from a web-based survey, and the lack of gender gaps in the pandemic impacts on employment and hours of work in the Netherlands, Germany, and the U.K. reported by Alon et al. (2021)

These studies also find relevant heterogeneous effects regarding the presence of children at home. In the U.S., Canada, Spain, and the U.K., the COVID19 pandemic led to larger gender gaps in employment among workers with school-age children with respect to workers with younger children or no children (Qian and Fuller, 2020; Alon et al., 2021; Albanesi and Kim, 2021; Fairlie et al., 2021). Hansen et al. (2022) find that in US locations where schools reopened more quickly, employment and hours of work of married women with school-aged children increased more quickly, too.

Our results in LAC countries broadly confirm those found in high-income countries: the pandemic negatively affected labor market participation and employment for both men and women, but the effects are significantly stronger for women. The main channel generating this greater impact was the increase in child care work carried out by women with children of school age. That is, women with children between the ages of 6 and 17 who live at home. Our findings highlight these common patterns in Brazil, Chile, and the Dominican Republic, where women with school-age children were 2.2, 5.8, and 3.8 percentage points less likely to participate in the labor market than men during pandemic, respectively. However, this result is not observed in Mexico. We speculate that the absence of data for the second quarter of 2020, the quarter of the pandemic with the greatest negative impacts on the Mexican labor market (Secretaría de Hacienda y Crédito Público, 2021), could be behind the lack of a greater average negative effect on labor participation and employment of women, as we found for the other countries. The results on flows are also novel for LAC and provide a more nuanced picture of the differential impact of the pandemic by gender in the four countries studied: greater labor mobility for women, since it increased both their probability of losing a job and their probability of finding one. However, while in Brazil, Chile and the Dominican Republic the relative increase in the probability of finding a job during the pandemic was not enough to close the gap with respect to men in overall employment rates, in Mexico it was.

The paper is organized as follows. Section 3 briefly describes the methodology and the data requirements. Section 2 defines and describes the data we use in the analysis. Section 4 presents the results and Section 5 concludes. An Appendix with the complete sets of results and additional material is also included in the paper.

2 **Data**

Since we focus on workers' labor market dynamics, we need to observe the labor market state of the same individual at different points in time. No LAC countries collect representative longitudinal sample covering a long period, such as the PSID[2] in the US. But a number of countries collect national household surveys using a sample refreshment with a rotating structure, such as the CPS[3] in the US. This structure allows for the construction of short panels (typically a year) where the same individual is observed for different months or different quarters over a

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2   The Panel Study of Income Dynamics (PSID) began in 1968 with a nationally representative sample of individuals. Information on these individuals and their descendants has been collected continuously since, generating many years of data for the same individual.

3   The Current Population Survey (CPS) is the primary source of labor force statistics for the population of the United States. Households are in the survey for 4 consecutive months, out for 8, and then return for another 4 months before leaving the sample permanently, generating multiple months of data for the same individual over a year.

year. We work with this type of data for the four LAC countries that have them available before and after the pandemic hit the region: Brazil, Chile, Dominican Republic, and Mexico.

2.1 **Data Sources and Definitions**

We use data from national household surveys covering the 2017-2020 period. We focus on this period since the pandemic hit the region in the second quarter of 2020, which we will denote with 2020Q2. For Brazil, we use the *Pesquisa por Amostra de Domícilios Contínua* (PNADC); for Chile, the *Encuesta Nacional de Empleo* (ENE); for the Dominican Republic, the *Encuesta Nacional Continua de Fuerza de Trabajo* (ENCFT); and for Mexico, the *Encuesta Nacional de Empleo y Ocupaciones* (ENOE) and the *Nueva Encuesta Nacional de Empleo y Ocupaciones* (ENOE-N) that started being collected on the third quarter of 2020.

As mentioned before, these four surveys follow a rotating sampling structure. In the Dominican Republic and Mexico, 20% of the sample is refreshed every quarter. In Brazil and Chile, a household is interviewed in a given month, leaves the sample for the next two months, and it is interviewed again in the next month. This sequence is repeated five times in Brazil and six times in Chile. Then 20% of the sample is refreshed every quarter in Brazil and 16% is refreshed in Chile. The panel structure of the Dominican Republic, Mexico, and Brazil allows to follow the same household over five consecutive quarters, while in Chile the same household is followed over six consecutive quarters.[4]

Based on these data, we create 13 short panels for each country. In each short panel, the same individual is followed for either four or five consecutive quarters. Table 1 reports sample size and dates of coverage. For example, Panel 13 covers the last available period: from the first quarter in 2020 (2020Q1) to the last quarter in 2020 (2020Q4). For Brazil, 15,193 individuals are observed in all four quarters, generating a total of 60,772 quarter-individual observations. For Chile, the Dominican Republic and Mexico, the number of unique individuals observed is lower but still in the multiple thousands. At the time of this project, 2020Q4 is the last period of available data for all four countries. For this reason, at most 4 quarters are observed in Panel 13. To make the pre-pandemic data comparable, we build 4-quarters panel starting in the first quarter of 2019 (Panel number 9), in the first quarter of 2018 (Panel number 5), and in the first quarter of 2017 (Panel number 1). All the other panels cover 5 quarters because that is the longest interval we can cover with the data at our disposal.

To create the panels, we follow the recommendations of the National Statistical Offices that are responsible for collecting the data in each country. Specifically, we use appropriate variables that allow for the unique identification of households and persons over time. For Chile and Brazil, where a household is interviewed in a given month and gets temporarily removed from the sample for the next two months before being interviewed again, we pool the information of the three months corresponding to the same quarter to create quarterly data. For Mexico, we do not use data collected in 2020Q2. In doing this, we follow the recommendation

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4　As with any panel dataset, attrition may be a concern. In Brazil and Mexico, where we can calculate attrition rates, we find they were around 10% and 5% between consecutive quarters and that they increased during the pandemic. Section A.2 in the Appendix provides a detailed analysis of attrition rates and discusses the balance of characteristics for different groups of observations.

Table 1　Sample Size by Panels Periods and Countries

Panel ID	Panel Period		Observations			
			Brazil	**Chile**	**Dom. Rep.**	**Mexico**
1	2017Q1-2017Q4	Observations	85,728	24,012	2,784	49,496
		Individuals	21,432	6,003	696	12,374
		Quarters	4	4	4	4
2	2017Q2-2018Q2	Observations	104,560	30,010	3,465	–
		Individuals	20,912	6,002	693	
		Quarters	5	5	5	
3	2017Q3-2018Q3	Observations	104,165	30,175	3,645	61,160
		Individuals	20,833	6,035	729	12,232
		Quarters	5	5	5	5
4	2017Q4-2018Q4	Observations	104,345	30,415	2,730	63,725
		Individuals	20,869	6,083	546	12,745
		Quarters	5	5	5	5
5	2018Q1-2018Q4	Observations	85,084	24,960	3,028	50,820
		Individuals	21,271	6,240	757	12,705
		Quarters	4	4	4	4
6	2018Q2-2019Q2	Observations	102,350	25,925	3,635	–
		Individuals	20,470	5,185	727	
		Quarters	5	5	5	
7	2018Q3-2019Q3	Observations	102,695	10,210	3,695	64,010
		Individuals	20,539	2,042	739	12,802
		Quarters	5	5	5	5
8	2018Q4-2019Q4	Observations	98,025	4,985	2,965	62,210
		Individuals	19,605	997	593	12,442
		Quarters	5	5	5	5
9	2019Q1-2019Q4	Observations	77,252	916	3,256	54,880
		Individuals	19,313	229	814	13,720
		Quarters	4	4	4	4
10	2019Q2-2020Q2	Observations	87,235	3,365	6,325	–
		Individuals	17,447	673	1,265	
		Quarters	5	5	5	
11	2019Q3-2020Q3	Observations	88,260	9,365	8,765	32,340
		Individuals	17,652	1,873	1,753	8,085
		Quarters	5	5	5	4
12	2019Q4-2020Q4	Observations	83,800	8,020	10,875	26,888
		Individuals	16,760	1,604	2,175	6,722
		Quarters	5	5	5	4
13	2020Q1-2020Q4	Observations	60,772	19,184	8,320	22,290
		Individuals	15,193	4,796	2,080	7,430
		Quarters	4	4	4	3

Notes: Sample includes 25-55 years old women and men living in urban areas.

D*ata Sources*: For Brazil: PNADC, for Chile: ENE, for Dominican Republic: ENCFT, and for Mexico: ENOE and ENOE-N.

of the National Statistical Office responsible for collecting the data (INEGI[5]). INEGI advices against using 2020Q2 when constructing panels because the data were collected by phone and were not representative of the national population.[6] Brazil and the Dominican Republic also started to collect data by phone in March 2020 but the change in the data collection strategy did not bias the labor market statistics (BCRD, 2020; IBGE, 2020). Chile conducted interviews by phone or web starting in the initial months of the pandemic but also added an update of the sampling methodology that was already scheduled to start in January 2020.[7] Touron et al. (2020) show that neither change had a significant impact on how representative the labor market statistics were over the period December 2019–February 2020. Section A.1 in the Appendix provides more details on the data collection methodology followed by each country during the pandemic.

We impose the following restrictions to extract the estimation samples. To reduce selection problems due to education and retirement decisions, we only consider women and men aged 25 to 55. To build a more appropriate sample for the labor market dynamic we study, we only focus on urban areas and on individuals that –when employed– are either wage employees or self-employed. We describe labor market dynamic by studying transitions between labor market states such employment, unemployment and non-participation. In rural areas, these labor market states are less clearly defined than in urban areas. For example, agents may mix working on their own field with working as employee for larger landowners and many family members may work in a common family enterprise making non-participation very difficult to define. In addition, the structure of rural labor markets is systematically different from the one of urban labor markets, so focusing on one of them may lend clarity to the analysis.

Throughout the analysis, we use similar variables definitions in each country and year and we apply consistent methods of processing the data. To define the labor market states, we assign each individual in a given quarter to one of the following five categories: formal wage employment, informal wage employment, self-employment, unemployment, non-participation. Wage employment and self-employment is defined based on self-reported information about the type of employment. A wage employee is classified as informal when she does not have social security contributions linked to her job and as formal when she does. Unemployed individuals are those who are not working but actively looked for a job in the past week. Non-participation captures individuals who are not working and are not looking for a job. The additional variables we use in the analysis, either as controls or as observables to estimate heterogeneous effects, are defined as follows. *Age* measured in years and extracted from the surveys demographic information. Three *education level* dummies defined according to the years of education reported in each survey: low (0 to 8 years of education), medium (9 to 13 years of education) and high (14 or more). Three *presence of children* dummies extracted from the household information linked to individual workers reporting their labor market state. We define them based on children's presence in the household and their age as follows:

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5   INEGI is the Instituto Nacional de Estadística y Geografía and it is responsible for collecting the ENOE and ENOE-N datasets.

6   Because of this data restriction, panel 10 in Table 1 is not used in Mexico. In panel 10, 2020Q2 is the only quarter that is part of the pandemic period. The lack of data on this quarter prevents us from considering this panel as one affected by the pandemic. To make the pre-pandemic data comparable, we do not use panels 2 and 6 for this country.

7   For our purposes, the main effect of the update in the sampling methodology is a change in the identifiers used to build the panels. INE provided us with both the original and new identifiers to properly build panels on individuals observed before and after January 2020.

pre-schoolers (if only children aged 0 to 5 years old); school-age (if at least one 6 to 17 years old); no children (no children 0 to 17). Three *economic sectors* defining primary, secondary and tertiary sector. We use only these three broad categories to assure comparability across countries. Finally, we define within-country *regional* dummies. This is the only variable varying in number depending on the country since different countries contain different states or macro regions.[8]

2.2 Data Description

In Table 2 we present descriptive statistics for the pre-pandemic period (panels not including any pandemic quarter, i.e. panels 1 to 9 in Table 1) and for the post-pandemic period (panels including at least one pandemic quarter, i.e. panels 10 to 13 in Table 1) by gender. Overall sample sizes range from about 63,000 observations in Dominican Republic to more than 1.2 million observations in Brazil. These figures correspond to about 13,500 unique individuals for Dominican Republic and to more than 250,000 for Brazil. In addition to standard demographic characteristics, the Table presents statistics on labor market status. After the pandemic, all countries register an increase in the shares of women and men out of the labor force and a decrease in employment rate.

In Figure 1, we report the employment rate of women and men by years and quarters. In all countries, there is a clear change in employment between the eve of the pandemic (2020Q1) and the beginning of the pandemic (2020Q2.) In Brazil and Dominican Republic, the reduction was evident for both men and women. The gender gap (calculated as male minus female employment rates) shows that the decline in employment was larger for women than for men in the first two quarters of the pandemic and that the gap stopped increasing in the last quarter of 2020. In Mexico, there is a decline in female and male employment when comparing 2020Q1 and 2020Q3[9] with no apparent effect on the gender employment gap, and a recovery in employment and decline in the gender gap in the last quarter of 2020. Finally, in Chile the reduction in employment was slightly larger for men than for women, leading to a small reduction in the gender gap.

Taking advantage of the panel structure of our data, we present conditional labor market transitions in Figure 2 for women and in Figure 3 for men. We condition on the labor market state in the first quarter of each year and we report the percentage of the *same* individuals in each labor market state in the last quarter of that year. For example, for women in Brazil in the post-pandemic period, we observe that 80% of those formally employed in 2020Q1 are still formally employed in 2020Q4. For the pre-pandemic transition matrices, we pool together panels containing the first quarter of each year for 2017, 2018, and 2019.

First, we observe that, *independently from the pandemic*, women have a higher probability to move out of the labor force than men (gray areas are always higher for women) and that women have a lower probability to move to formal employment than men (dark blue areas are always smaller for women). In Dominican Republic and in Brazil, women have a higher probability to move to informal employment than men (red areas are always higher for women).

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8   We do not use marital status for any country as a control variable because this information is not available in Brazil and we want to use the same information across all countries.

9   Recall that we did not use 2020Q2 for Mexico because of data issues.

Table 2 Descriptive Statistics by Gender and Pandemic Period

	Brazil		Chile		Dom. Rep.		Mexico	
	Women	Men	Women	Men	Women	Men	Women	Men
Pre-pandemic period								
Demographics								
Age	40.18	39.69	40.99	40.12	39.54	38.82	39.97	39.36
0-8 years of educ	0.32	0.38	0.12	0.11	0.33	0.43	0.17	0.16
9-13 years of educ	0.44	0.44	0.47	0.47	0.41	0.42	0.56	0.55
14+ years of educ	0.25	0.18	0.41	0.42	0.26	0.15	0.28	0.29
At least one children 0-5	0.25	0.24	0.30	0.26	0.36	0.31	0.30	0.29
At least one children 6-12	0.33	0.30	0.38	0.30	0.48	0.36	0.42	0.38
At least one children 13-17	0.27	0.23	0.30	0.24	0.38	0.29	0.34	0.29
Employment								
Employee formal	0.41	0.50	0.47	0.66	0.34	0.40	0.35	0.58
Employee informal	0.09	0.09	0.07	0.07	0.15	0.09	0.15	0.20
Self employed	0.12	0.23	0.11	0.13	0.16	0.43	0.10	0.13
Unemployed	0.08	0.07	0.05	0.06	0.04	0.02	0.02	0.03
OLF	0.30	0.11	0.29	0.09	0.30	0.06	0.38	0.06
Observations	476,332	387,872	103,131	78,477	15,455	13,748	227,556	178,745
Individuals	102,085	83,159	22,041	16,775	3,333	2,961	49,851	39,169
Quarters	4.67	4.66	4.68	4.68	4.64	4.64	4.56	4.56
Post-pandemic period								
Demographics								
Age	40.14	39.76	41.14	40.56	39.89	39.12	40.03	39.38
0-8 years of educ	0.27	0.34	0.10	0.10	0.31	0.43	0.15	0.15
9-13 years of educ	0.45	0.45	0.45	0.43	0.42	0.42	0.56	0.55
14+ years of educ	0.28	0.21	0.45	0.46	0.27	0.15	0.29	0.30
At least one children 0-5	0.24	0.24	0.25	0.22	0.36	0.32	0.28	0.27
At least one children 6-12	0.33	0.29	0.39	0.33	0.46	0.36	0.40	0.36
At least one children 13-17	0.26	0.21	0.30	0.24	0.37	0.29	0.33	0.28
Employment								
Employee formal	0.40	0.50	0.45	0.67	0.34	0.40	0.35	0.56
Employee informal	0.09	0.08	0.04	0.04	0.14	0.08	0.13	0.19
Self employed	0.12	0.23	0.09	0.09	0.15	0.42	0.10	0.13
Unemployed	0.08	0.07	0.06	0.07	0.04	0.02	0.02	0.04
OLF	0.31	0.12	0.36	0.12	0.33	0.08	0.39	0.08
Observations	175,873	144,194	23,840	16,094	18,286	15,999	45,155	36,363
Individuals	36,829	30,223	5,343	3,603	3,877	3,396	12,302	9,935
Quarters	4.78	4.77	4.46	4.47	4.72	4.71	3.67	3.66

Notes: Sample includes 25-55 years old women and men living in urban areas. Post-pandemic period includes panels covering at least one pandemic quarter: panels number 10 to 13 in Table 1. Pre-pandemic period includes panels not affected by the pandemic: panels number 1 to 9 in Table1.

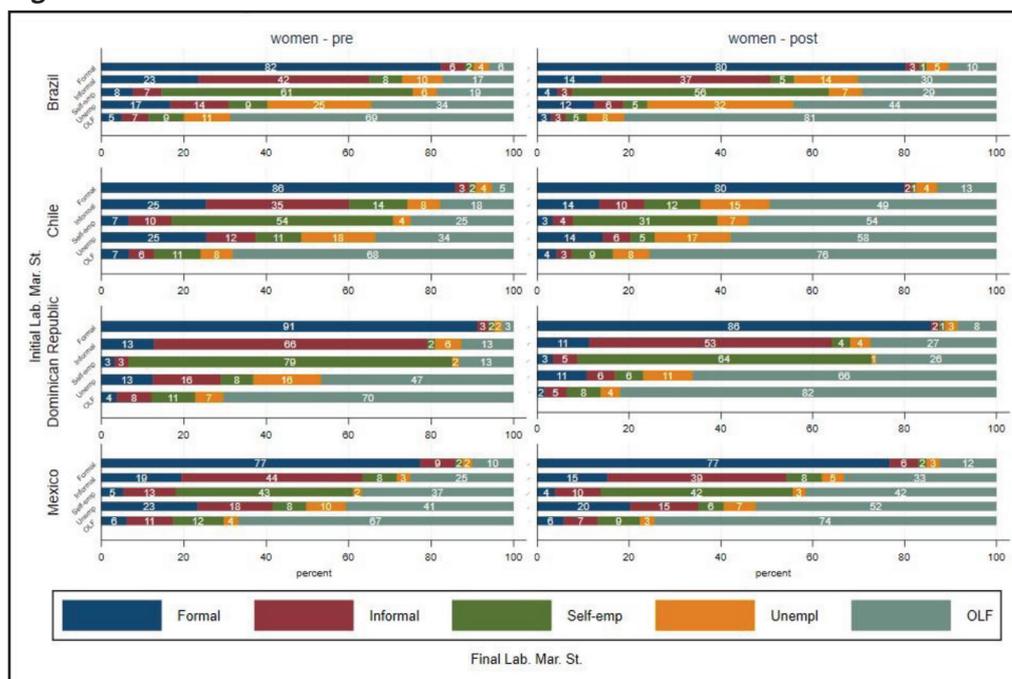*Data Sources*: For Brazil: PNADC, for Chile: ENE, for Dominican Republic: ENCFT, and for Mexico: ENOE and ENOE-N.

Figure 1   Female and Male employment rates and Gender Gap over Time.
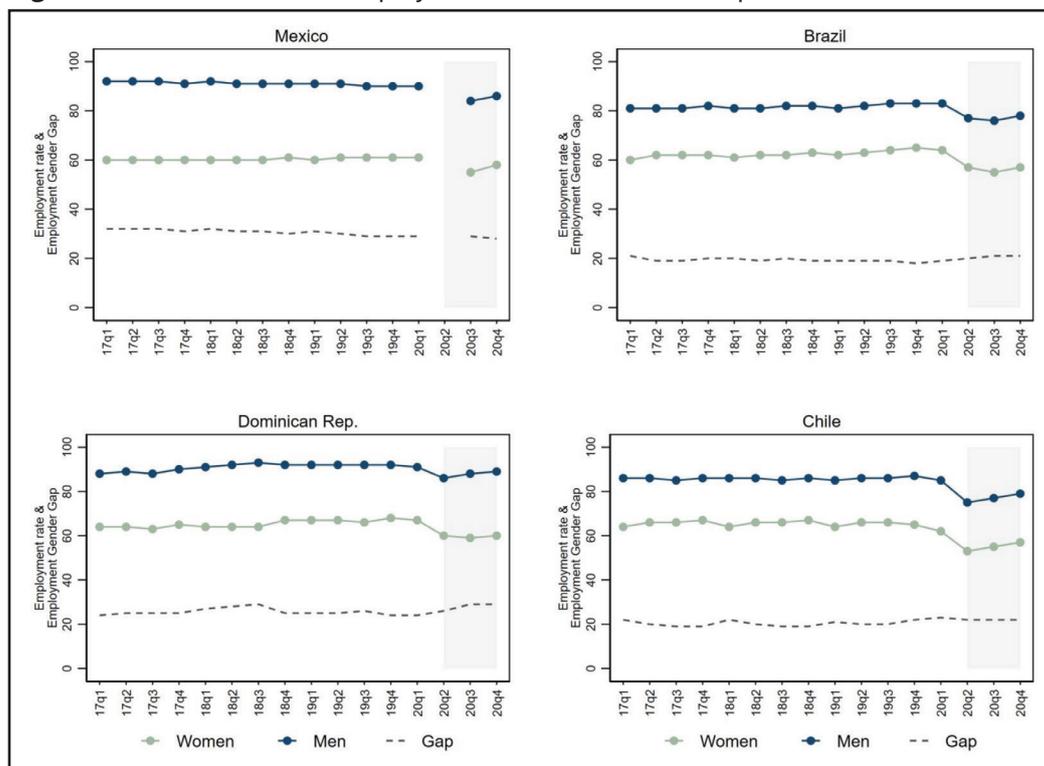
Source: PNADC for Brazil, ENE for Chile, ENCFT for the Dominican Republic, and ENOE and ENOE-N for Mexico.

Note: Employment rates in percentage. The gender gap is calculated as the male minus the female employment rates and is expressed in percentage points.
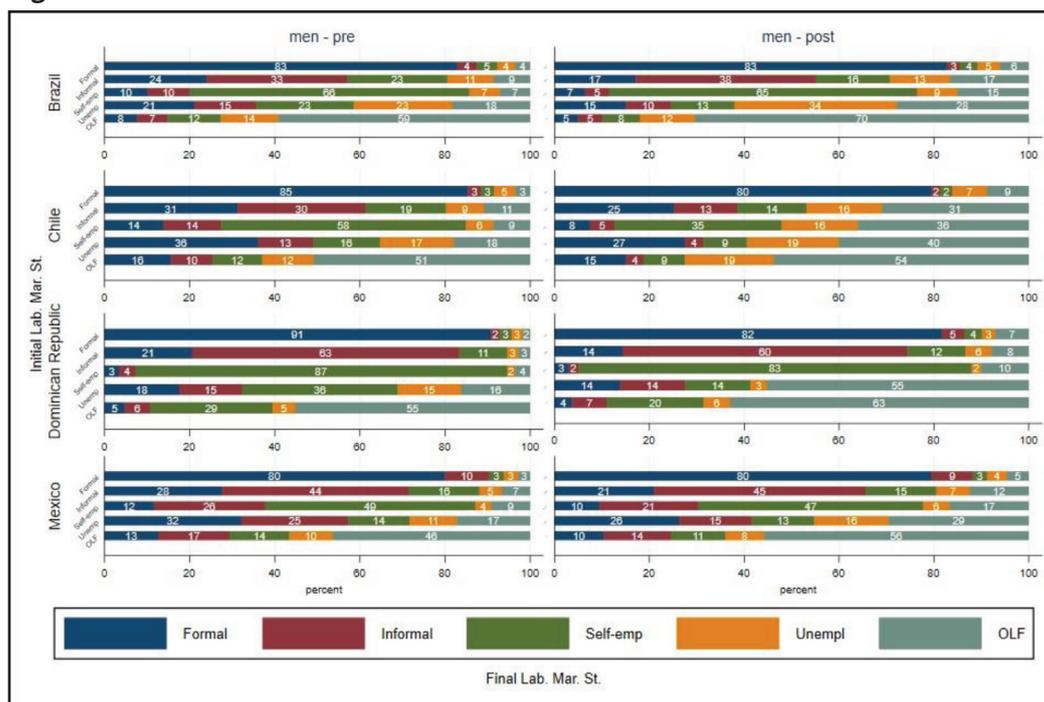
Figure 2   Labor market transitions: Pre- and Post-Pandemic – Women.

Note: Table reports the percentage of individuals in a given labor market state, given their labor market state one year earlier. The Post-pandemic period starting labor market state is 2020Q1. Pre-pandemic period starting labor market state are 2017Q1, 2018Q1, 2019Q1. We pool together different panels to compute the Pre-pandemic statistics.

Source: For Brazil: PNADC, for Chile: ENE, for Dominican Republic: ENCFT, and for Mexico: ENOE and ENOE-N.

Figure 3   Labor market transition matrices Pre- and Post-Pandemic – Men.

Note: Table reports the percentage of individuals in a given labor market state, given their labor market state one year earlier. The Post-pandemic period starting labor market state is 2020Q1. Pre-pandemic period starting labor market state are 2017Q1, 2018Q1, 2019Q1. We pool together different panels to compute the Pre-pandemic statistics.
Source: For Brazil: PNADC, for Chile: ENE, for Dominican Republic: ENCFT, and for Mexico: ENOE and ENOE-N.

Second, in the pandemic period, both women and men leave the labor force at higher rates that in the pre-pandemic periods. This is true for all countries but the effect is much larger in Chile and it occurs for only some labor market states in Mexico. In Chile before the pandemic, about 18% and 25% of women transit to non-participation from, respectively, informal employment and self-employment. After the pandemic, 49% and 54% do. The same large increase is observed for men, moving from about 10% before the pandemic to more than 30% after the pandemic. In Mexico, the higher proportion of transitions to non-participation is present but the differential with respect to the pre-pandemic period is generally smaller.

In conclusion, as expected the pandemic has negatively affected the labor market state of all workers in all countries: they moved to informal jobs and to out of the labor force at higher rates than in a regular year. For women, these movements are more intense than for men, but this is true also in a regular pre-pandemic year. From these preliminary descriptive statistics is therefore not yet clear if the pandemic has been a "she-cession" in LAC countries or not.

3 **Methodology**

We identify the impact of the COVID-19 pandemic by comparing proportions in labor market states and transitions between labor market states before and after the start of the pandemic. This comparison identifies the impact of the pandemic as long as no other relevant labor market event is shocking the market over the same period. Given the large, exceptional, and

unanticipated nature of the pandemic, we think this condition is likely to be met. In addition, the descriptive statistics reported in Figure 1 shows a relative stability in labor markets states for men and women in the years immediately before the pandemic, i.e. the years we will use as control group.[10]

Another identification concern is that the impact of the shock may have not yet displayed its entire effect. Given the scale of the shock, this is very likely to be true. Our estimates will then capture relative short-term effects of the pandemic since, as shown in Section 2, our observation period ends at the end of 2020.

3.1 *Stock regressions*

What we label as *stock regression* is the standard specification run by previous contributions on high-income countries[11] but still missing on representative samples of LAC countries. The regression is a linear probability model where an indicator function for a given labor market state –labor force participation or employment– is regressed on dummies for the pandemic period. The difference between men and women is captured by an interaction term between the pandemic dummies and a dummy for being a woman. The identification is straightforward: the difference in, say, employment between men and women during the pandemic is compared with the difference in employment between men and women before the pandemic. The difference between these two differences is the differential impact of the pandemic on female employment with respect to male employment.

Formally, we estimate the following specification:

$$y_{it} = \beta_0 + \beta_1 P_t + \beta_2 F_i + \beta_3 P_t \times F_i + x'_{it}\beta_4 + z'_t\beta_5 + s'_i\beta_6 + \epsilon_{it} \tag{1}$$

where y_{it} is, alternatively, an indicator function equal to 1 if i participates in the labor market or is employed in time t. P_t is an indicator function equal 1 if t belongs to the pandemic period. As shown in Section 2, the pandemic period in our application runs from the second quarter of 2020 to the fourth quarter of 2020. F_i is an indicator function equal 1 if i is female, x'_{it} is a set of individual-specific time-varying controls (age and its square, dummies of education level, and dummies of presence of children in different age ranges), z'_t is a set of time-varying controls (year and quarter fixed effects), s'_i is a set of individual-specific time-invariant controls (region fixed effects), and ϵ_{it} is the error term. The main coefficient of interest is β_3, which estimates the relative difference in the impact of the pandemic for women with respect to men.

In addition to the baseline specification reported in equation (1), we also estimate two richer specifications. The first aims at recovering impacts at different quarters within the pandemic period. To this end, we add to equation (1) interaction terms between $P_t \times F_i$ and each pandemic quarter: 2020Q2, 2020Q3 and 2020Q4. The formal specification is defined in Appendix B, equation (B.1).

The second richer specification estimates heterogeneous effects in the impact of the pandemic. We are particularly concerned with how the pandemic affected women with school-age children and women with low education levels. Both characteristics are major determinants

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10　This stability reflects a trend which started in the mid- and early-2000s (Gasparini and Marchionni, 2015a).

11　As mentioned in Section 1, they include for example Alon et al. (2021) and Fairlie et al. (2021). Their equations, respectively, (1) and (V.1) correspond to our equation (1).

of women's labor supply and have been found to correlate with the extent of the pandemic's impact. For example, Alon et al. (2021) find that the gender-specific impact of the pandemic is largest among parents with school-age children. With respect to education, results change by country: in the US and Canada, they find the largest gender gaps among those with low levels of education; in Spain and the UK, among those with high levels of education. Fairlie et al. (2021), using CPS data for the US, also find that the pandemic had a disproportionate impact on women with school-age children. With regard to education, they perform a decomposition showing that the average higher education level of women with respect to men has contributed to reduce this disproportionate impact. To study this type of heterogeneous effects, we add to equation (1) interaction terms for different education levels and for the presence of children belonging to different age groups, using the variables defined in Section 2.1. The formal specification is defined in Appendix B, equation (B.2).

3.2 *Flow regressions*

What we label as *flow regression* is a specification that identifies the differential impacts of the pandemic on labor market dynamics. Unlike equation (1), no contribution has ever run this regression on a LAC country and Albanesi and Kim (2021) is one of the very few published papers doing so on a high income country. The dependent variable of interest is the change in labor market state that a given individual may experience during the pandemic. Specifically, we define the dependent variable *job loss* to be equal 1 if the individual was employed right before the pandemic (2020Q1) but was not employed anymore at some point after the pandemic hit (2020Q2–2020Q4). Analogously, we define the dependent variable *job gain* to be equal 1 if the individual was unemployed or out of the labor force right before the pandemic but became employed at some point after the pandemic hit. If no change in labor market state occurred, both variables record a 0. Notice that to construct this variable is necessary to observe the same individual over four quarters. This stringent data requirement is not necessary to estimate the stock regressions described in Section 3.1 and has prevented previous contributions to implement the flow regressions on LAC countries.

The data requirement is made more stringent by the necessity to create a control group with a similar construction. Take our last panel reported in Table 1: panel number 13, covering 2020Q1–2020Q4. Individuals belonging to this panel are affected by the pandemic and we build the dependent variable *job loss* to be equal 1 if the individual was employed in 2020Q1 but was not employed anymore at some point in the following three quarters 2020Q2–2020Q4. We want to build a control group allowing for the same event but over a period not affected by the pandemic. Panels numbers 9, 5, and 1 constitute such control group. For all of them, we can observe if the individual was employed in the first quarter of the year and if she was not employed anymore at some point in the following three quarters. The same procedure and comparison applies to the *job gain* variable.

To gain sample size and empirical identification, we extend this treatment-control comparison to the other panels affected by the pandemic: panels 10, 11 and 12 in Table 1. The difference is that the period of exposure to the pandemic for these three panels varies and the controls must take this into account. Take for example Panel number 10: we build the dependent variable *job loss* to be equal 1 if the individual was employed in 2020Q1 (as before) but

was not employed anymore in 2020Q2. We stop at 2020Q2 because we do *not* observe individuals belonging to this panel *after* 2020Q2. In building a control, we have therefore to take into account that the event is different: it is not the probability of not being employed anymore at some point in the following three quarters but only in the following quarter. We use panel 6 (comparing 2019Q1 with 2019Q2) and panel 2 (comparing 2018Q1 with 2018Q2) to obtain the same event but over a period not affected by the pandemic. The same procedure applies by comparing Panel 11 (treated) with Panels 7 and 3 (controls) and Panel 12 (treated) with Panels 8 and 4 (controls).

As in Section 3.1, these dependent variables are regressed on a set of controls, a pandemic period dummy and an interaction between the pandemic period and the female dummy. The pandemic period dummy identifies if the probability of finding or losing a job has increased or decreased during the pandemic. The interaction identifies if this impact was larger or smaller for women with respect to men.

Formally, we can describe the procedure as follows. For the treated panels, we condition on individuals in a given labor market state in 2020Q1. We then create a dependent variable equal to 1 if the individual changes labor market state in the following δ pandemic-affected quarters, where $\delta \in \{1, 2, 3\}$. To build the control group, we repeat the procedure over a similar time span but for a period never affected by the pandemic. We denote the dependent variable created with this procedure with $d_{i\tau}$ where $\tau = 2$ denotes the panels affected by the pandemic while $\tau = 1$ denotes the panels not affected by the pandemic. Depending on the labor market transition considered, $d_{i\tau} = 1$ may denote *job loss* or *job gain*.

For both dependent variable, we estimate the following regressions:

$$d_{i\tau} = \alpha_0 + \alpha_1 F_i + \alpha_2 R_\tau + \alpha_3 R_\tau \times F_i + x'_{i\tau}\beta_4 + z'_\tau\beta_5 + s'_i\beta_6 + u_{it} \tag{2}$$

where: R_τ is an indicator function equal 1 if $\tau = 2$; F_i is an indicator function equal 1 if *i* is female; x, z, s'_i is a set of controls defined as in equation (1); when the dependent variable is the indicator of *job loss* we also control for dummies of sector and type of employment; and u_{it} is the error term. The main coefficient of interest is α_3, which estimates the relative difference in the impact of the pandemic for women with respect to men.

As we explained in Section 3.1, we extend the baseline model to allow for separate impacts in each pandemic quarter and to allow for heterogeneous effects. The specifications needed to estimate such effects are straightforward extensions of equation (2), just as equations (B.1) and (B.2) are straightforward generalization of equation (1).

3.3 **Estimation Method**

As mentioned in the previous sections, the dependent variables of interest in both equation (1) and equation (2) are binary. The empirical models can therefore be estimated either as a Linear Probability Model by OLS or by a nonlinear model such as a Probit or a Logit model. While the non-linear models have advantages (prediction in the unit interval and parametric correction for heteroskedasticity), we prefer to follow the approach advocated in Angrist and Pischke (2009) and Deaton (1997): estimate a Linear Probability Model and correct for

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heteroskedasticity by computing robust standard errors. The advantage of this approach is a more direct interpretation of the coefficients and a lower reliance on distributional assumptions.

4 Results

4.1 Baseline

Figure 4 reports the main coefficients of interest for what we defined as *stock* regressions in Section 3.1.[12] We report results on only two labor market states: participation in the labor market (LFP) and being in one of the employment states (Employment). In this baseline specification we do not separate the three employment states (informal employee, formal employee, self-employed) but we build one aggregate labor market state for all of them to generate a more compact and parsimonious discussion. We discuss results for each separate employment state in Section 4.3 when presenting heterogeneous effects. The coefficients we report in the Figure refer to the impact of being female (Female) and to the differential impact of the pandemic for women with respect to men (Female*Post) on the labor force participation (LFP) and employment rates. We present two specifications: one without any additional controls (No Controls) and one with all the controls listed in Section 2.1 (Controls). More formally, and using the notation of equation (1), the LFP figure defines the dependent variable $y_{it} = 1$ if individual i in quarter t participates in the labor market, while the Employment figure defines $y_{it} = 1$ if individual i in quarter t is employed. All the figures report only the coefficient β_2 (Female) and β_3 (Female*Post). The No Controls specification only includes a constant and the variables $\{P_t, F_i, P_t \times F_i\}$, the Controls specification adds $\{x'_{it}, z'_t, s'_i\}$.

The main results are as follows. First, and confirming previous literature, women are less likely to participate in the labor market and to be employed than men. The gender gaps are large, ranging from about 20 percentage points in Brazil to about 30 in Mexico. Second, the negative impact of the pandemic on LFP and employment, present for both men and women, is significantly stronger for women in all countries except Mexico. The magnitudes are not negligible since they took place over a short time period. For LFP, our estimates indicate that the pandemic increased the gender gap in 3.6 percentage points in Chile, 3.2 in the Dominican Republic and 1.3 in Brazil. For employment, the increase in the gender gap during the pandemic was of 2.2 percentage points in the Dominican Republic, 1.9 points in Chile and 1.2 in Brazil. The difference observed on Mexico could be, at least in part, due to the absence of data for 2020Q2, the quarter when the pandemic impact was arguably greatest (Secretaría de Hacienda y Crédito Público, 2021). Not observing agents when the pandemic impact was at its peak means that we loose some empirical identification because we compare the pre-pandemic period with a period of the pandemic when its impact could be already waning.

Figure 5 reports results by quarters, as estimated using equation (B.1). We only focus on point estimates from regressions containing the full set of controls and we report results on the differential impact for women with respect to men in the first, second and third quarters of the pandemic (F*Q1P, F*Q2P and F*Q3P, respectively). The stronger negative impact of the pandemic on women's LFP in comparison to men's participation appears in all quarters in Brazil,

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12   Table C.3 in Appendix C contains point estimates, standard errors and additional statistics. We use the same structure for all the results: we comment on the Figures and we report in Appendix C a selection of the estimated coefficients.

Figure 4   Labor Market Stocks.
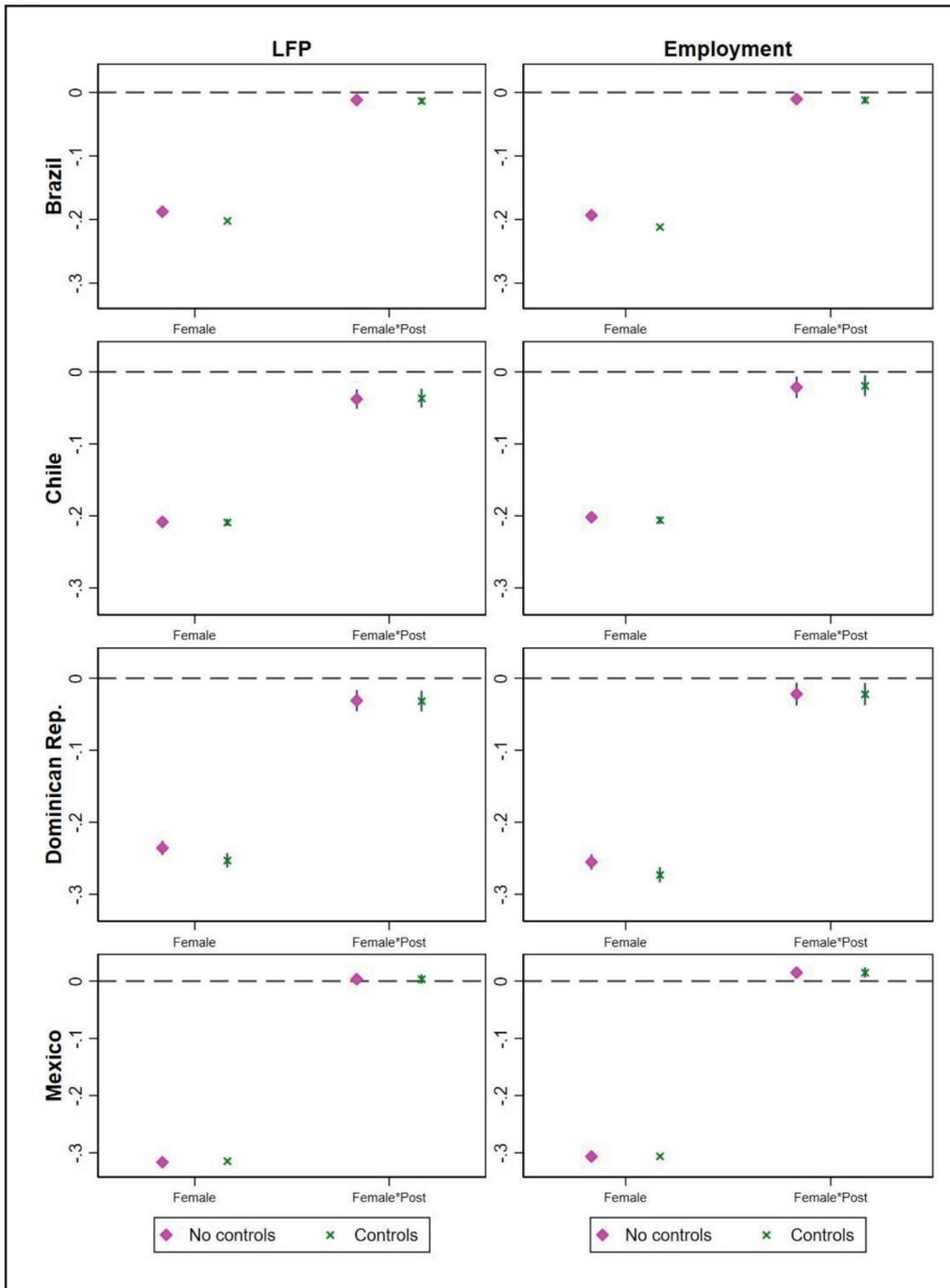
Note: *LFP* and *Employment* denote dependent variable =1 if, respectively, labor market participant and employed. *Female* denotes coefficients for the impact of being female (β_2 in equation (1)); *Female*Post* denotes the differential impact of the pandemic for women with respect to men (β_3 in equation (1)). Vertical lines denote 95% confidence intervals. A more complete set of results is available in Table C.3.

Figure 5 Labor Market Stocks by Quarter.
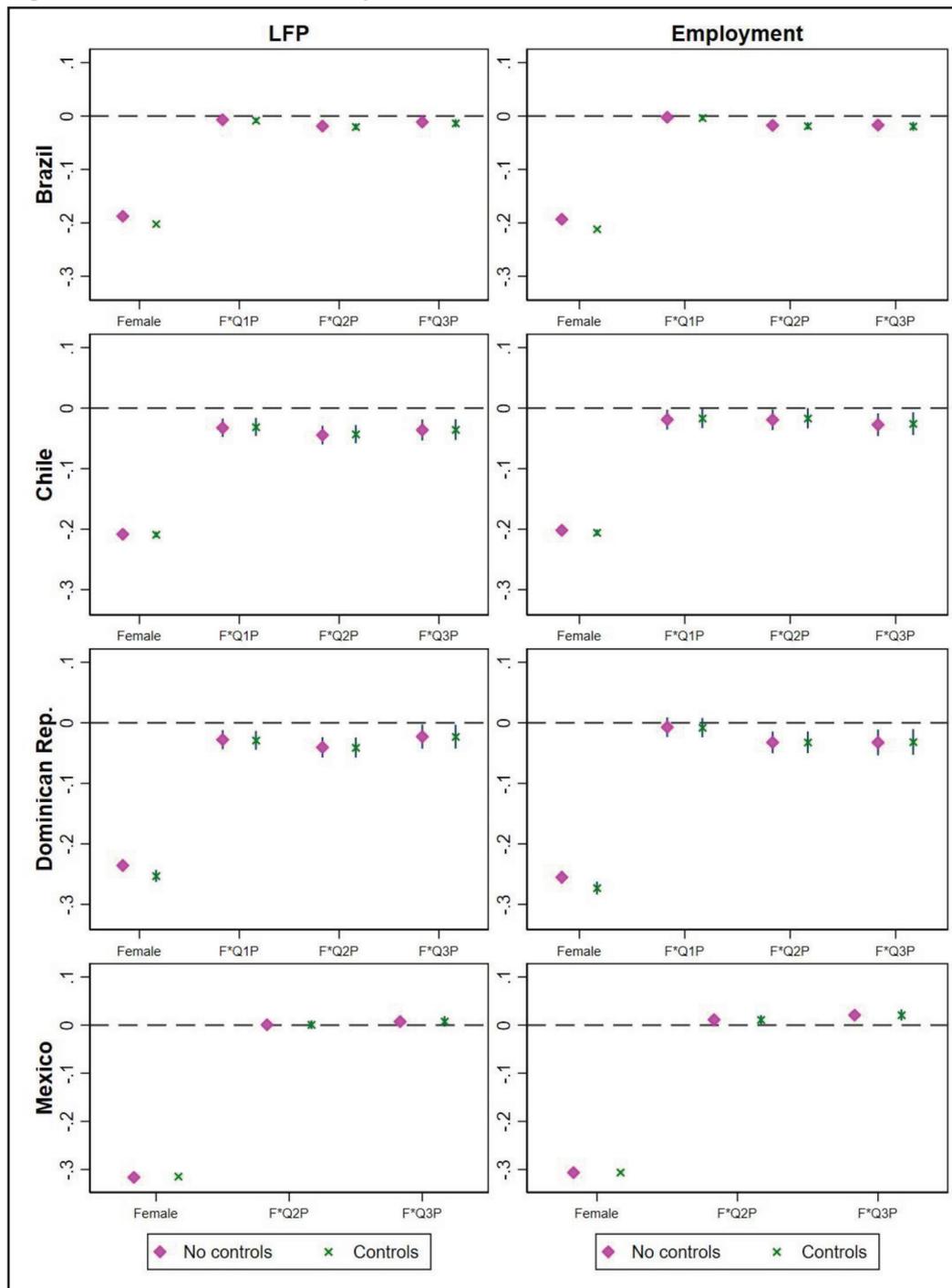
Note:: *LFP* and *Employment* denote dependent variable =1 if, respectively, labor market partici-pant and employed. *Female* denotes coefficients for the impact of being female (β_2 in equation (B.1)); *F*QKP* denotes the differential impact of the pandemic for women with respect to men in pandemic quarter K (δ_k in equation (B.1)). Vertical lines denote 95% confidence intervals. A more complete set of results is available in Table C.4.

Figure 6 Labor Market Flows.
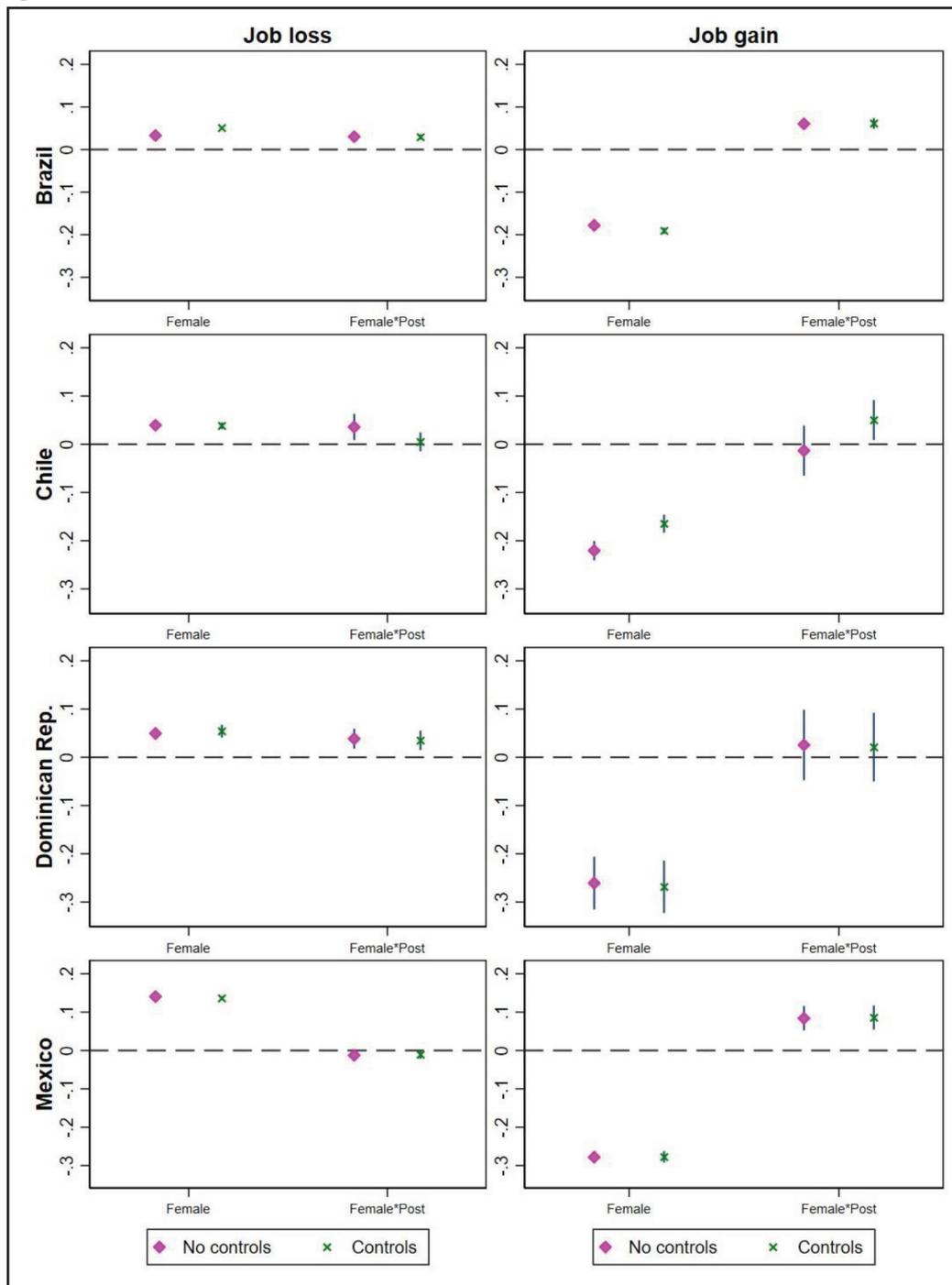
Notes: *Job loss* and *Job gain* denote dependent variable = 1 if, respectively, workers lost their job or non-workers found a job, taking as initial condition the first quarter of each year. *Female* denotes coefficients for the impact of being female (β_2 in equation (2)); $R_\tau \times F_i$ denotes the differential impact of the pandemic for women with respect to men (β_3 in equation (2)). Vertical lines denote 95% confidence intervals. A more complete set of results is available in Table C.3.

Chile and the Dominican Republic, and the size of the effect is larger in the second pandemic quarter (2020Q3). Regarding employment, the effect –i.e. larger negative impact for women than men– increases with the passing of time in these three countries. As with the average impacts presented in Figure 4, Mexico is the exception when separating the pandemic impact by quarters. We find that the pandemic did not deferentially affect women's LFP in comparison to men's participation and had a positive impact on female employment compared to male employment. The analysis of the flows presented below provides some insights on the dynamics behind these results.

Figure 6 reports the main coefficients of interest for what we defined as *flow* regressions in Section 3.2. We report results on both the *job loss* and *job gain* dependent variables. As in Figure 4, we report only coefficients for the impact of being female (Female) and of being female during the pandemic (Female*Post) and we present two specifications, with and without controls. More formally, and using the notation of equation (2), the Job loss column reports results where the dependent variable $d_{i\tau} = 1$ if individual i was employed at the beginning of the period but lost the job afterward; the Job gain column reports results where the dependent variable $d_{i\tau} = 1$ if individual i was not employed at the beginning of the period but became employed afterward. We only report coefficients α_1 (Female) and α_3 (Female*Post).

The main results are as follows. In most countries, the pandemic generated more job mobility for women since it increased both their probability of losing a job and their probability of finding one compared to men. However, the relative increase in the probability of finding a job during the pandemic was not enough to close the gap with respect to men on overall employment rates except in Mexico, as we have seen in the stock regressions. In Brazil, where all the coefficients are very precisely estimated, women are more likely to lose a job by about 5 percentage points in a regular year and by about 8 percentage points during the pandemic. At the same time, women are less likely to find a job than men by about 19 percentage points in a regular year, a level that decreases to about 13 percentage points during the pandemic. Similar but less precisely estimated patterns are observed for Chile and the Dominican Republic. Mexico is an exception again: it does not report a significant gender gap of the pandemic's impact on job loss but reports a significant gender gap in favor of women on job gain which helps us understand the positive impact on female employment discussed before. As was mentioned above, the differential pattern of results in Mexico compared to the other countries could be related with the absence of data for 2020Q2. In addition, the analysis of flows point out that the positive impact of the pandemic on women's employment in comparison to men's employment in this country is explained by a higher job gain rate for women and no differential impact on the job loss rate during the pandemic defined as 2020Q3 and 2020Q4.

Figure 7 reports results by quarters, as estimated using the extension of equation (2) that corresponds to equation (B.1). As in the stock regressions by quarters, we only focus on point estimates from regressions containing the full set of controls. The patterns on job loss show a strong significant negative impact on the first pandemic quarter for all countries, i.e. women are much more likely to lose a job than men when the pandemic starts. This impact monotonically decreases and changes its sign in the last pandemic quarter we observe, i.e. women are less likely to lose a job than men when the (first wave of the) pandemic ends. A similar pattern appears in Mexico where women were more likely than men to lose a job in 2020Q3 but less likely in 2020Q4. On job gain, we find that at the beginning of the pandemic the impact is

Figure 7 Labor Market Flows by Quarter.
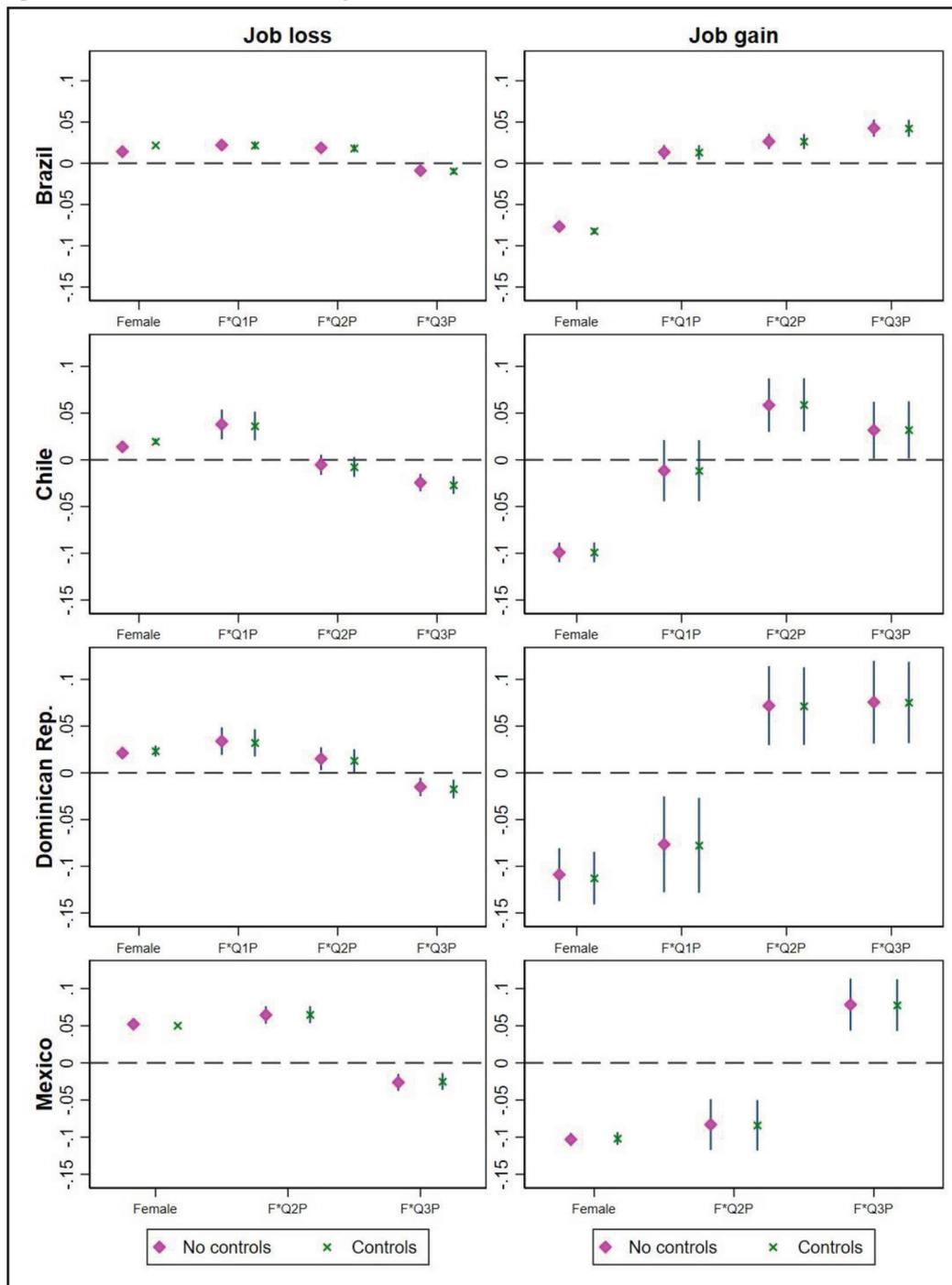
Notes: *Job loss* and *Job gain* denote dependent variable =1 if, respectively, workers lost their job or non-workers found a job, taking as initial condition the first quarter of each year. *Female* denotes coefficients for the impact of being female; *F*QKP* denotes the differential impact of the pandemic for women with respect to men in pandemic quarter K. Vertical lines denote 95% confidence intervals. A more complete set of results is available in Table C.4.

positive for women in Brazil and negative for the other countries (although not significant in Chile); but toward the end of the period, it is positive across the board, i.e. women are significantly more likely to find a job than men. The changes in magnitudes over the period are important: for Chile, women are 3.6 percentage points more likely than men to lose a job at the beginning of the pandemic period and 2.7 points less likely to do so at the end; for the Dominican Republic, women are 7.8 percentage points less likely than men to find a job at the beginning of the pandemic period and 7.5 points more likely to do so at the end.

Overall results of Figure 6 show that on average, the stronger job loss of women with respect to men in Brazil and the Dominican Republic is mostly driven by the early pandemic period, while in Chile and Mexico, the change in the direction of the effect with the passing of time leads to a non significant average impact. For the job gain rate, the higher effect for women than men in Brazil, Chile and Mexico is mostly driven by the late pandemic period. In the Dominican Republic the lack of an average effect is explained by an early negative impact for women compared to men that turned positive in the late pandemic period.

In conclusion, results on stocks for three of the four LAC countries analyzed (Brazil, Chile and the Dominican Republic) confirm what was found by previous literature: the pandemic had a significant negative impact on participation and employment for both men and women but the impact was disproportionately stronger for women, in particular at the beginning of the pandemic. The magnitude of the impacts differs depending on the country considered, possibly due to differences in how the pandemic shock affected each specific labor market –e.g. by economic sectors and occupations– and how policymakers responded to the crisis. Results on flows are novel for LAC and relatively rare for other world regions too. They paint a more nuanced picture of the the differential impact of the pandemic by gender: if women are more likely to lose or leave their jobs during the pandemic, they are also more likely to find and accept one. Therefore, more churning and more job mobility seems the most striking difference between men and women in terms of labor market dynamic over the period. Results by quarters show that the higher rate of job loss for women is mostly driven by the early pandemic period while the higher job gain rate is mostly driven by the late pandemic period. Mexico appears as an exception to the general pattern of results on stocks. The lack of a negative impact on female LFP compare to male participation and a positive differential effect on female employment on average could be related to the lack of data on 2020Q2. The analysis of flows, however, shows in Mexico a pattern of results similar to the other countries; but while in the other countries the higher job gain rate for women was not enough to close the pandemic employment gap with men, it was in Mexico.

4.2 Heterogeneous Effects: the Presence of Children

The first heterogeneity dimension we focus on is the presence of children in the household. Due to childcare duties and the closing of schools and child care services, previous literature[13] has already shown that the labor supply of mothers with children is potentially the most affected by the pandemic. We study the issue by estimating the same stocks and flows regressions presented in the previous section but now allowing for heterogeneous effects based on the presence

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13   See in particular Alon et al. (2021) and Fairlie et al. (2021) for high-income countries and Berniell et al. (2023) for LAC countries.

of children of different ages. In the specification, we allow different effects of the pandemic for three different groups: those without children younger than 17 living at home; those with only children younger than 6 living at home; those with at least one children of age 6 to 17 living at home. This last group is the one we expect to be the most affected by school closures due to the pandemic. Formally, we are estimating specifications of the form described by equation (B.2) where we report coefficients β_9 (overall impact of being female in that specific group) and β_{10} (impact of the pandemic on women compared to men for that specific group). Equation (B.2) is an example with only one heterogeneous category. In most specifications we actually estimate, we will have more than one. For example, not only the presence of children but the presence of children of different age groups. We will then estimate a generalized version of equation (B.2) where the source of heterogeneity is categorical and described by a set of dummies. Finally, we will specialize the equation to run flows regression of the form corresponding to equation (2).

Figure 8 reports heterogeneous effects by presence of children in different age ranges estimated from the stock regressions. In line with previous evidence, women with young children are less likely to participate in the labor market and less likely to be employed than men and than women without young children. The pandemic significantly magnified these effects for women with schoolage children in all countries with the exception of Mexico. In this country, the lack of a differential effect of the pandemic on female LFP compared to male participation found in the aggregate appears in all the categories defined by presence and age of children. For women with pre-schoolage children the impact is more mixed, possibly as a result of child-care centers being more flexible in being open for service or thanks to the presence of alternative forms of care (nannies, family members). The magnitudes are relevant: in Chile, women with school-age children are 5.8 percentage points less likely to participate in the labor market during the pandemic than men, 3.8 in the Dominican Republic, and 2.2 in Chile. Women with younger children in Brazil experience, instead, impacts in the order of magnitude of one percentage point, although not significant statistically. The differential impact of the pandemic on women with children with respect to men confirms the well-known asymmetry in household production and care provision: women provide more household production than men and devote more hours to the care of family members, even if they supply labor in the market.[14] We also run regression to decompose the impact by pandemic quarter. Results reported in Figure 9 show a small trend for Brazil and the Dominican Republic: the impact for women with school-age children becomes worse as the pandemic progresses. The other heterogeneous impacts are too imprecisely estimated to draw meaningful inference.

Figure 10 reports heterogeneous effects by presence of children in different age groups estimated from the flows regressions. Results show that the higher churning and mobility of women during the pandemic was mainly driven by women with children. In Brazil, women with school-age children are 3.7 percentage points more likely to lose or leave a job than men and 7.3 percentage points more likely to find one. In Chile, women with school-age children are the only ones that are significantly more likely than men to leave or lose a job during the pandemic. In Mexico, results are more mixed; in the Dominican Republic, are very imprecisely estimated. Figure 11 reports impacts by pandemic quarter. They show a small trend for Brazil and a stronger one for Mexico, with impacts becoming more marked as the pandemic

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14 For data on LAC countries, see OECD (2020); for an empirical model taking into account these asymmetries in a LAC country, see Salazar-Saenz (2021).

**Figure 8**　Labor Market Stocks by Children Presence and Age.
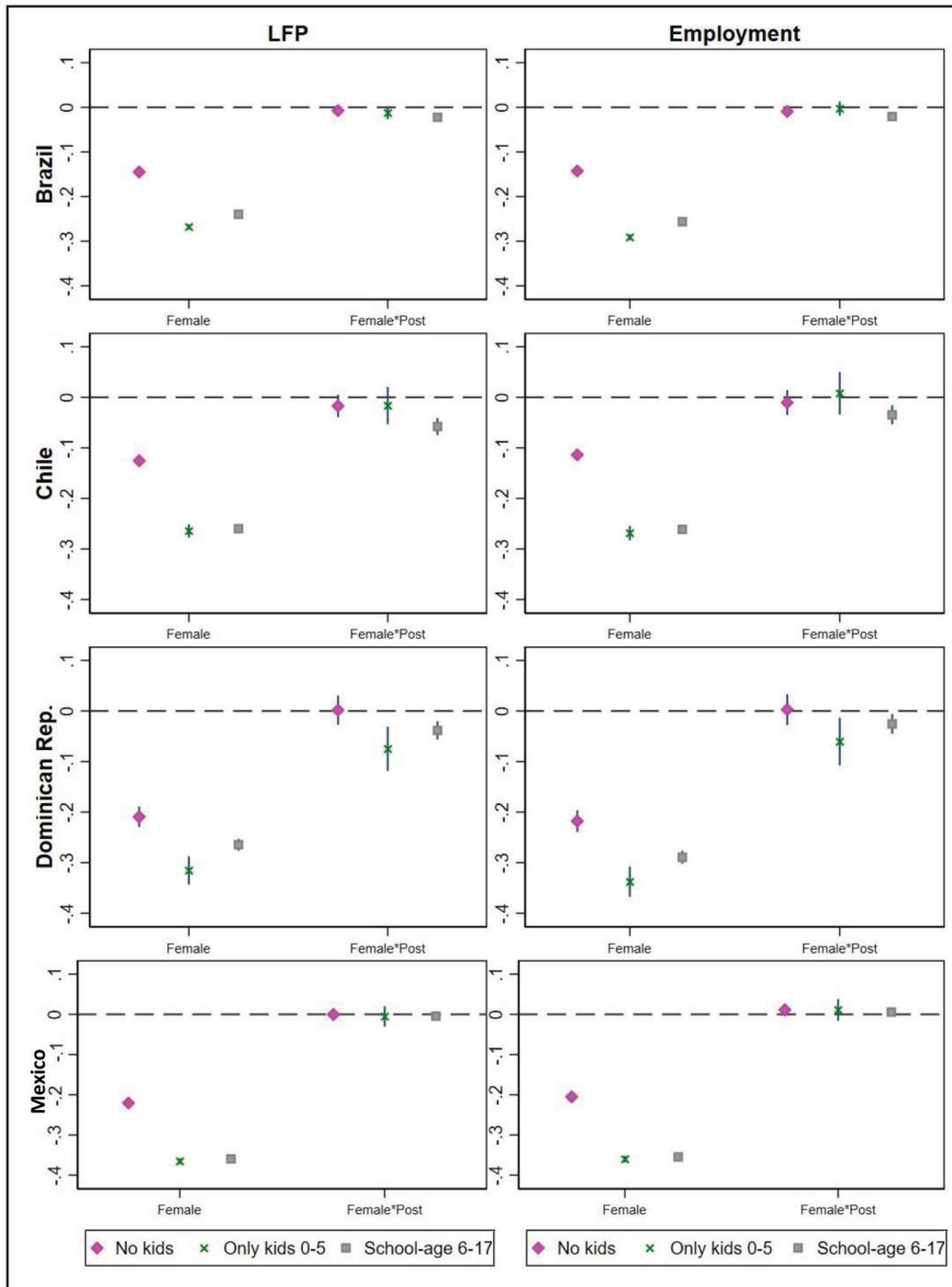
Notes: *LFP* and *Employment* denote dependent variable = 1 if, respectively, labor market participant and employed. *Female* denotes coefficients for the impact of being female with the corresponding age and presence of children with respect to men; *Female*Post* denotes the differential impact of the pandemic for women with the corresponding age and presence of children with respect to men. *No Kids* includes both women without children at home and women with children at home older than 17. Vertical lines denote 95% confidence intervals. A more complete set of results is available in Table C.5.

Figure 9   Labor Market Stocks by Children Presence and Age and Quarter.
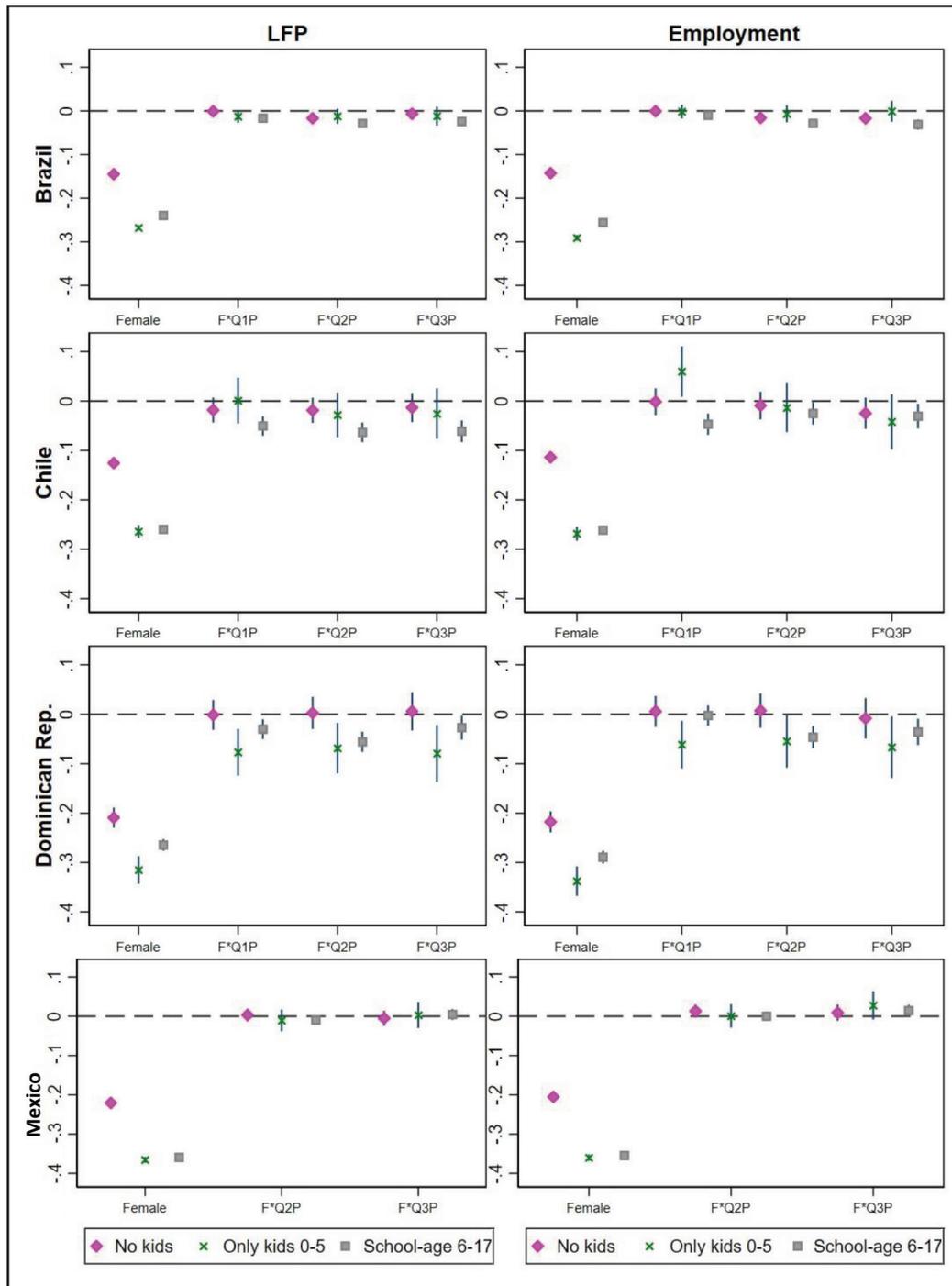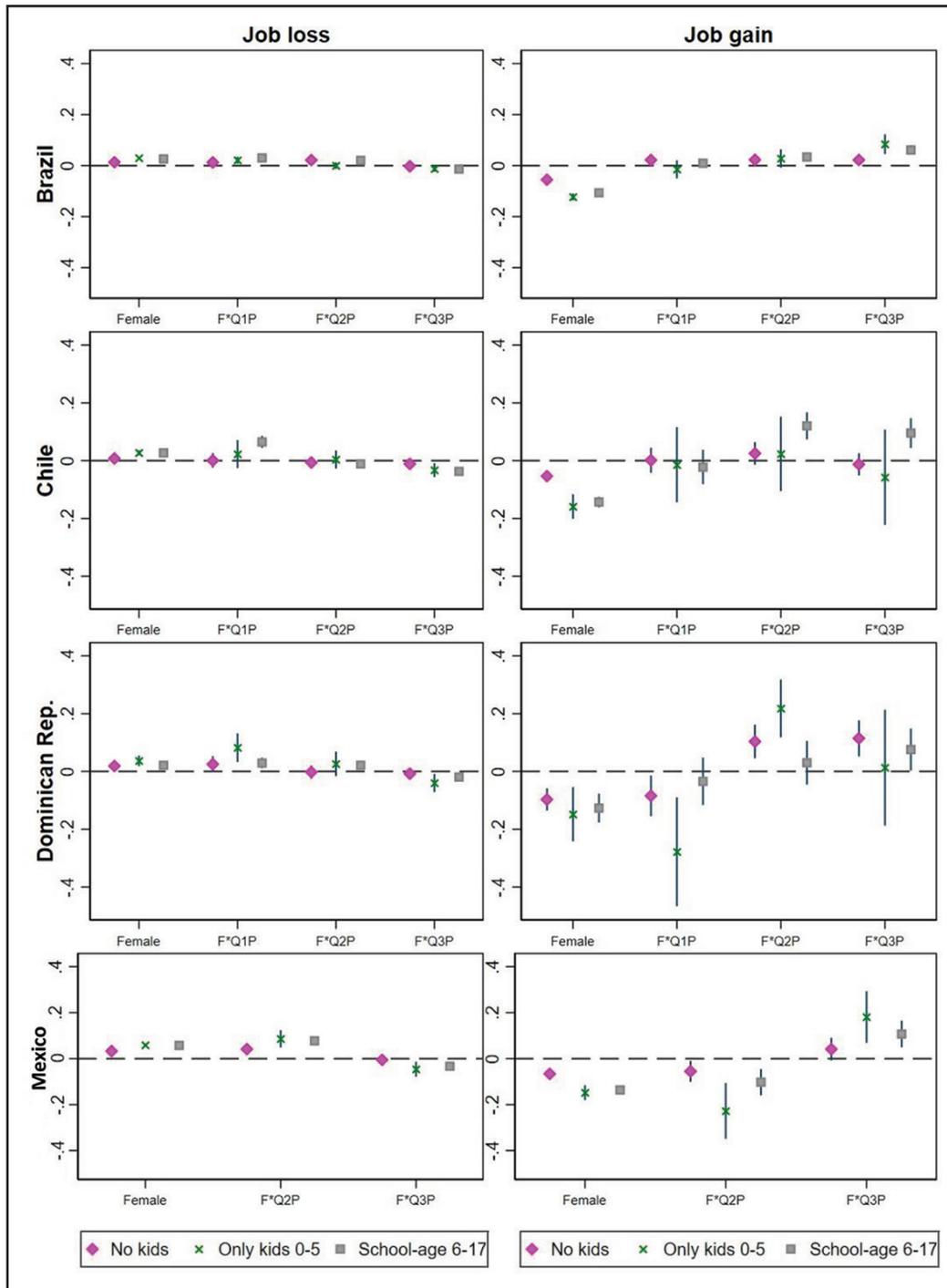

Notes: *LFP* and *Employment* denote dependent variable = 1 if, respectively, labor market participant and employed. *Female* denotes coefficients for the impact of being female with the corresponding age and presence of children with respect to men; *F*QKP* denotes the differential impact of the pandemic for women with the corresponding age and presence of children with respect to men in pandemic quarter K. *No Kids* includes both women without children at home and women with children at home older than 17. Vertical lines denote 95% confidence intervals. A more complete set of results is available in Table C.6

Figure 10   Labor Market Flows by Children Presence and Age.
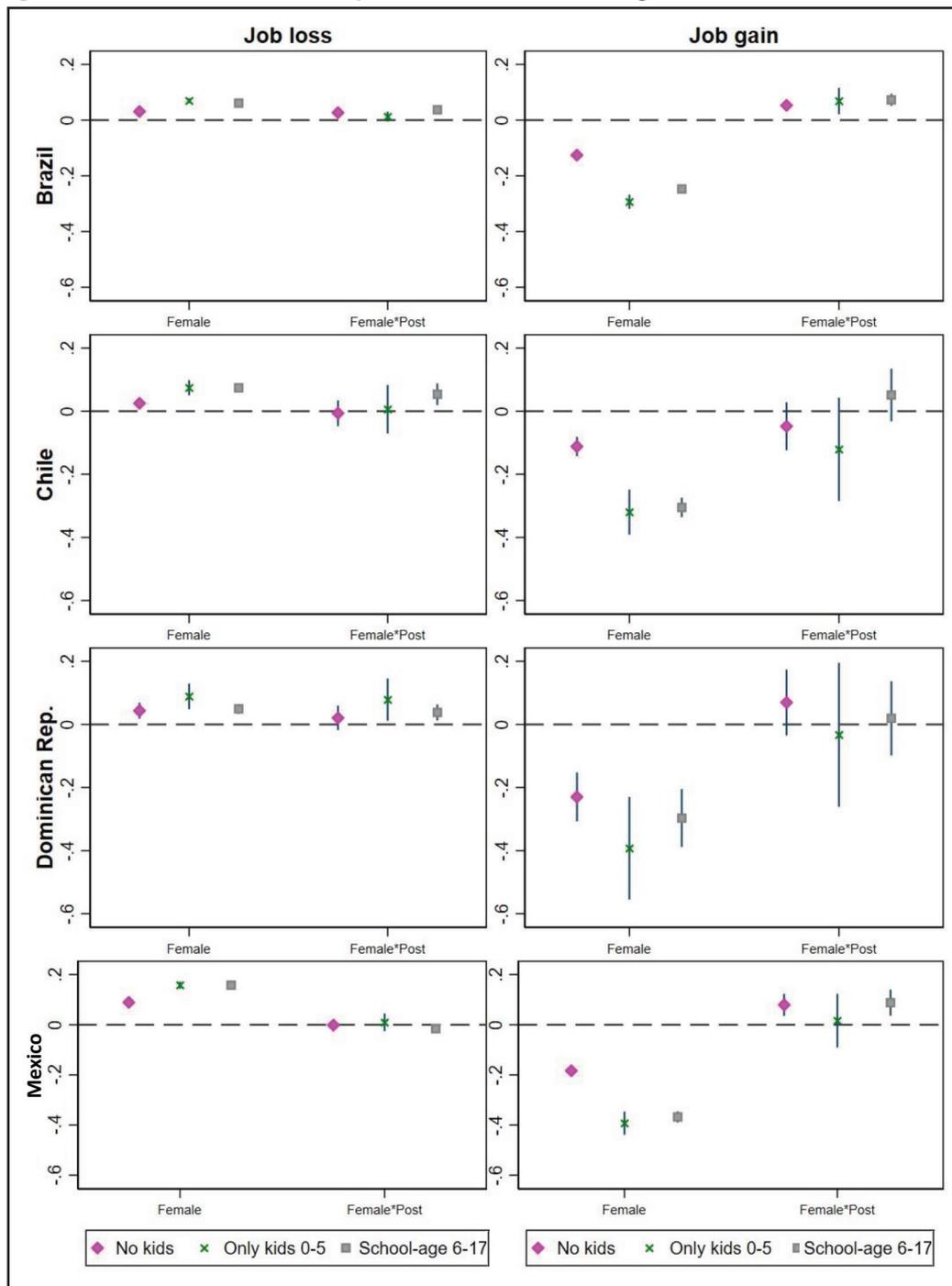
Notes: *Job loss* and *Job gain* denote dependent variable =1 if, respectively, workers lost their job or non-workers found a job, taking as initial condition the first quarter of each year. *Female* denotes coefficients for the impact of being female with the corresponding age and presence of children with respect to men; *Female*Post* denotes the differential impact of the pandemic for women with the corresponding age and presence of children with respect to men. *No Kids* includes both women without children at home and women with children at home older than 17. Vertical lines denote 95% confidence intervals. A more complete set of results is available in Table C.5.

Figure 11 Labor Market Flows by Children Presence and Age and Quarter.

Notes:*Job loss* and *Job gain* denote dependent variable =1 if, respectively, workers lost their job or non-workers found a job, taking as initial condition the first quarter of each year. *Female* denotes coefficients for the impact of being female with the corresponding age and presence of children with respect to men; *F*QKP* denotes the differential impact of the pandemic for women with the corresponding age and presence of children with respect to men in pandemic quarter K. *No Kids* includes both women without children at home and women with children at home older than 17. Vertical lines denote 95% confidence intervals. A more complete set of results is available in Table C.6.

progresses. A similar but noisier trend is present in Chile and in the Dominican Republic. We confirm that the aggregate results we found in Section 4.1 are mainly driven by women with children: in the first quarter of the pandemic, women with school-age children in Brazil are 3 percentage points more likely to lose or leave a job than men, while they are 1.4 point *less* likely to do so in the third quarter of the pandemic; in Chile, the values are, respectively, 6.5 and 3.7. With respect to the probability to find a job, it is 6.1 percentage points higher for women with school-age children than men in Brazil in the third pandemic quarter while it was one (not significant statistically) in the first pandemic quarter. In Chile, the values are, respectively, 9.5 and -2.2 (not significant statistically).

The conclusion of estimating heterogeneous effects by presence of children in different age ranges is that having children is the main source of the differential impact of the pandemic on women with respect to men reported in the aggregate for Brazil, Chile and the Dominican Republic. Among women with children, those with school-age children are the ones experiencing the stronger impacts. For Mexico, the lack of an average effect on the gender gap in LFP is confirmed in all the groups defined by presence and age of children.

4.3   Heterogeneous Effects: Education and Job Type

The second heterogeneity dimension we focus on is the level of education. As the presence of children, the education level is a major determinant of women's labor supply and has been found to correlate with the extent of the pandemic's impact (Alon et al., 2021; Fairlie et al., 2021). We consider the three education levels defined in Section 2.1 and we replicate the analysis on stocks and flows regressions presented so far. We estimate the effects in the same way we described at the beginning of the previous section: by introducing additional interactions terms for each heterogeneity component. See equation (B.2) for the formal definition.

Figure 12 reports the stock regressions results. An interesting result emerge: while in a regular year the gender gap is much larger for women with less than High School completed (*Low* and *Medium* categories), the pandemic has deferentially affected women with respect to men in the three education levels in a similar way. For example, in Chile the gender gap in employment is about 11 percentage points in a regular year for women with at least High School completed, while it is more than 27 percentage points for women with a level of education lower than that. The differential impact of the pandemic, instead, is not statistically different at usual significance level between the three education levels. Only in Brazil there is a statistically significant difference between High and Middle education but the magnitude is very small. Figure 13 reports the flow regression results which differ by country and educational level. In Brazil and in all educational groups, women were more likely than men to lose a job but the size of the effect gets smaller the higher the education category considered. In Chile, women with low (medium) level of education were less (more) likely to lose a job than men, while there is not differential impact of the pandemic in the high education group. In the Dominican Republic, women with low and medium levels of education faced higher job loss rates than men with similar education level, while there is not differential impact by gender for those with high level of education. Finally, in Mexico, women with medium level of education were less likely to lose a job than men. Regarding job gain, results also differ depending the education level and country considered. It is worth mentioning that the higher job gain rate for

Figure 12 Labor Market Stocks by Education.
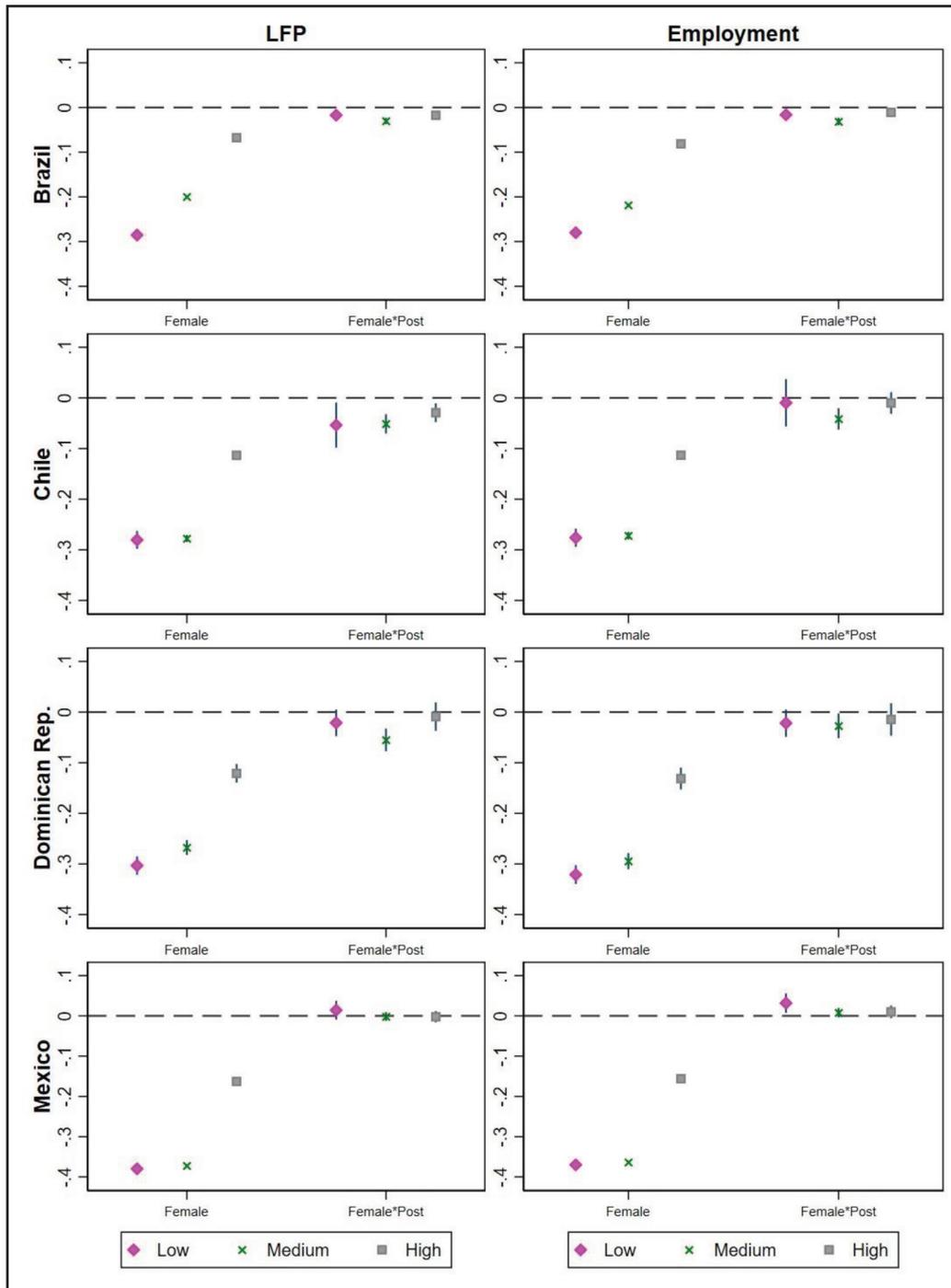
Note: *LFP* and *Employment* denote dependent variable =1 if, respectively, labor market participant and employed. *Female* denotes coefficients for the impact of being female with the corresponding education level with respect to men; *Female*Post* denotes the differential impact of the pandemic for women with the corresponding education level with respect to men. *Low* denotes 0 to 8 years of education completed; *Medium* 9 to 13 years; and *High* 14 or more. Vertical lines denote 95% confidence intervals. A more complete set of results is available in Table C.7.

Figure 13   Labor Market Flows by Education.
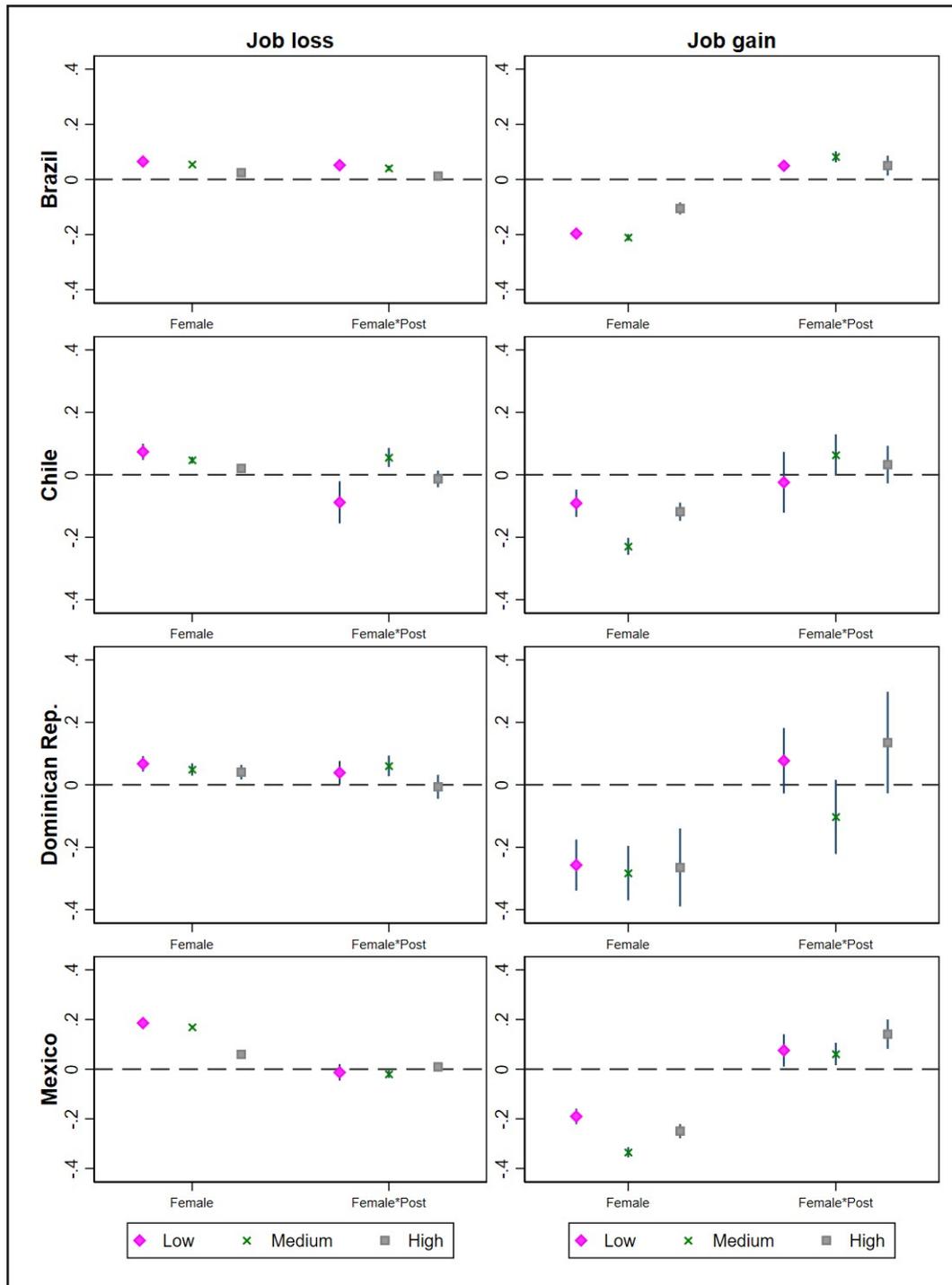
Note: *Job loss* and *Job gain* denote dependent variable =1 if, respectively, workers lost their job or non-workers found a job, taking as initial condition the first quarter of each year. *Female* denotes coefficients for the impact of being female with the corresponding education level with respect to men; *Female*Post* denotes the differential impact of the pandemic for women with the corresponding education level with respect to men. *Low* denotes 0 to 8 years of education completed; *Medium* 9 to 13 years; and *High* 14 or more. Vertical lines denote 95% confidence intervals. A more complete set of results is available in Table C.7.

Figure 14   Labor Market Stocks and Flows by Job Type
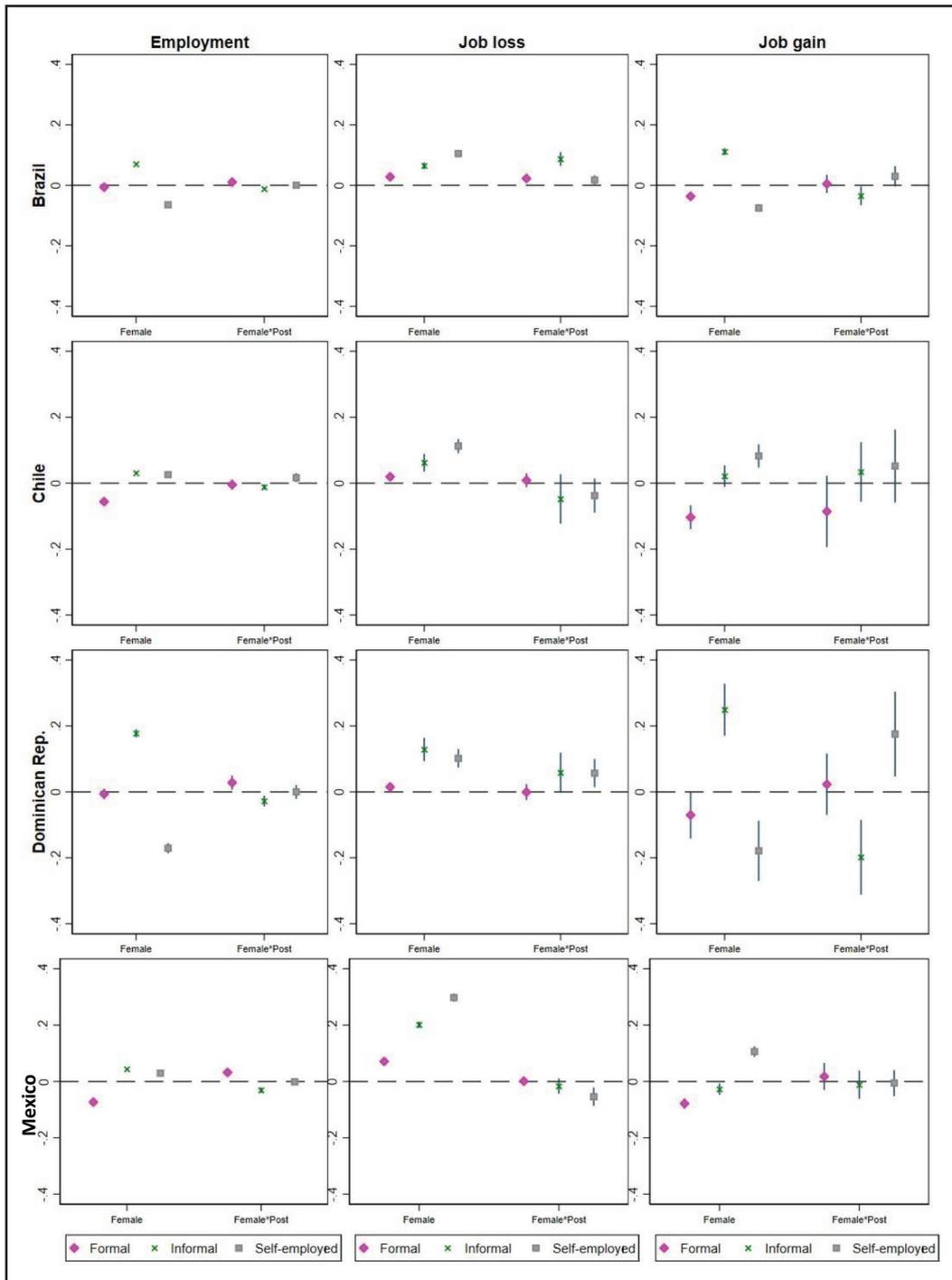
Note: *Employment* denotes dependent variable =1 if employed. *Job loss* and *Job gain* denote dependent variable = 1 if, respectively, workers lost their job or non-workers found a job, taking as initial condition the first quarter of each year. *Female* denotes coefficients for the impact of being female with a given job type with respect to men; *Female*Post* denotes the differential impact of the pandemic for women with a given job type with respect to men. *Formal, Informal, Self-Employed* denotes that the state of employment of reference is, respectively, in a formal job, an informal job or as self-employed. Vertical lines denote 95% confidence intervals. A more complete set of results is available in Table C.8.

women with respect to men during the pandemic in Mexico found in the aggregate appears in all educational categories.

The third heterogeneity dimension we focus on is the formality level of the job. In the data we can observe if individuals are formally or informally employed or if they are self-employed, a very relevant third employment state very close to formality for low skilled workers and closer to formality for high skilled workers.[15] Given the widespread informality levels in LAC countries and given the lower firing costs associated with informal employment, it becomes very relevant to see if the pandemic has disproportionately affected this more flexible and frequently more vulnerable workers. Women belong to a vulnerable labor market group also because they are relatively more likely to work informally. We repeat on these three job-type categories the same analysis run on the three education levels but with one difference: we have to condition on the individual being employed to assign the job type. Therefore, we cannot run the stock LFP regressions.

Figure 14 collects the main results both from stock and flow regressions. The dynamic in a typical year is for women to be significantly more likely to work as informal employees in all countries. The probability of being self-employment, instead, differs between countries. The pandemic impacted negatively on female informal wage employment relative to men in all countries and positively on formal wage employment in all countries except Chile. Self-employment only changed significantly during the pandemic for women in comparison to men in Chile where it increased. We conjecture that the change in the employment distribution for women with respect to men –i.e a decline in informal wage employment and an increase in formal wage employment– could be due to a selection effect. Women who remained employed during the pandemic have more labor market attachment (because they do not have children or have more help with childcare) and are employed in "better" jobs –i.e formal jobs. Conversely, those who lost heir job were employed in more flexible and vulnerable positions –i.e informal jobs. For the flow regressions we find that the pandemic had some differential impacts in Brazil and, partially, in the Dominican Republic and Mexico. In Brazil, among workers informally, women were 8.7 percentage points more likely to leave or loose a job than man during the pandemic; the differential is only 2.3 points for women working in formal jobs. In the Dominican Republic, self-employed women were 5.7 percentage points more likely to lose their job compared with self-employed men during the pandemic. On the contrary, in Mexico self-employed women were 5.4 percentage points less likely to lose their job compared to self-employed men. In terms of the probability to find a job during the pandemic if not-employed before, self-employment seems the favorite outcome for women with respect to men in Brazil, Chile and the Dominican Republic but the differences are rarely statistically significant.

In conclusion, unlike the analysis by presence of children at home, we do not find common patterns across countries when distinguishing by level of education or employment type. The exception is the larger negative impact on employment for women compared to men in the informal wage employment category in all countries and the positive impact on the formal wage employment category in all countries except Chile. In the analysis of flows, results differ depending on the country and employment type considered, similarly when distinguishing by level of education.

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15 For the relevance of these definitions in a country as Mexico, see Bobba et al. (2022); for Brazil, see Meghir et al. (2015); for a broader reference, see Bosch and Maloney (2010). For Chile the issue is less relevant but still non-negligible.

5 Conclusion

We compare a series of balanced panel data samples for Brazil, Chile, the Dominican Republic and Mexico to study how the COVID-19 pandemic has affected labor market states and transitions of men and women. We focus on these four countries because they are the only ones that, so far, have collected and reported comparable and representative panel data before and after the pandemic. We define the start of the pandemic with the second quarter of 2020 and follow individuals until the last quarter of 2020. We use data from 2017, 2018 and 2019 as comparison. We focus, as most of the previous literature, on comparing the labor market state of workers before and after the pandemic, including the participation decision. We add, as few previous contributions have done, labor market dynamic outcomes: the probability to lose a job during the pandemic if employed before and the probability to find one if non-employed before. Methodologically, we run regressions exploiting both the difference before and after the pandemic and the difference between men and women. We also allow for some heterogeneous effects based on observable characteristics. No paper so far has conducted such analysis on multiple LAC countries using comparable data.

The analysis shows that the pandemic has magnified the significant gender gaps already present in these markets in Brazil, Chile and the Dominican Republic. For these three countries the results show several common patterns: (i) the pandemic had a larger negative impact on female LFP and employment than on male outcomes, in particular at the beginning of the pandemic; (ii) women were more likely than men to lose a job and also to find one during the pandemic compared to the pre-pandemic period; (iii) differences between men and women were mainly driven by women with children and in particular by women with school-age children living at home; (iv) among women and men who kept their jobs, the pandemic led to a change in the employment distribution by type as women became less likely to work as informal wage employees and more likely to do so as formal wage employees (in Brazil and the Dominican Republic) or self-employed (in Chile) than men.

Results for Mexico are different along a number of dimensions. The pandemic did not have a different impact by gender on LFP and led to a rise in female employment in comparison to male employment. In addition, the higher job gain rate of women during 2020Q3 and 2020Q4 helped them to recover any pandemic employment gap with respect to men, while in the other countries the higher job gain of women compared to men was not enough to close the gap. The peculiarity of results for Mexico could be due, at least in part, to the absence of data for 2020Q2, the quarter when the pandemic impact was arguably greatest. Not observing agents when the pandemic impact was at its peak means that we loose some empirical identification for Mexico because we compare the pre-pandemic period with a period of the pandemic when its impact could be already waning.

Our results for three of the four LAC countries analyzed (Brazil, Chile and the Dominican Republic) broadly confirm those found on high-income countries: the pandemic as a *she-cession* of women with school-age children.[16] Therefore, any policy able to support the care of children or to reduce the asymmetric contribution within the household to the care of children should generate more resilience and a better distribution of the costs of the pandemic.

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16   See for example, Alon et al. (2021); Shibata et al. (2021); Nieves et al. (2021).

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Appendices

A　Data

A.1　Data Collection During the Pandemic

All countries started conducted interviews by phone in March 2020. The change in the data collection strategy had implication in terms of sample size and representativeness in some of the countries.

In the Dominican Republic, the usual rotation of the panel sample (20% of refreshment every quarter) was interrupted; only households interviewed in the first quarter of 2020, and for which a phone number was available, were kept in the sample over the entire 2020. This is explained by the lack of phone contact numbers for households that had not been interviewed before, for instance, households that should have entered the panel sample in the second quarter of 2020. For households interviewed in the first quarter of 2020 but for which a phone contact number was not available, the field staff visited the household to obtain a phone number. The implication of interrupting the rotation of the sample was an increase in the panel sample size in the last four panels included in our analysis (Panels 10 to 13 in table 1), i.e. panels capturing at least one pandemic quarter. According to the Central Bank of the Dominican Republic –the institution in charge of data collection– the change in the data collection methodology did not bias the labor market statistics (BCRD, 2020).

In Mexico, the ETOE (Encuesta Telefonica de Ocupacion y Empleo) was collected in the second quarter of 2020 instead of the usual ENOE (Encuesta Nacional de Ocupacion y Empleo). Data was entirely collected by phone in April and May of 2020 and started incorporating some face-to-face interviews in June 2020 (INEGI, 2020a). Unlike what happened in the Dominican Republic, contact phone numbers were not available for an important share of households that had been interviewed in the first quarter of 2020. This had important implications in terms of sample size and representativeness of the data. The size of the ETOE was 45,547 households, while the ENOE covered 116,367 households in the first quarter of 2020. In our analysis, we follow INEGI's (Mexican National Statistical Office) recommendation of not using data from the ETOE when constructing panels, which means not using the second quarter of 2020.

In the third quarter of 2020, the ENOE-N (Nueva Encuesta Nacional de Ocupacion y Empleo) started being collected in Mexico. The ENOE-N is a subsample of the ENOE. A share of the sample in the ENOE-N of the third and fourth quarters of 2020 corresponds to phone interviews of households that were interviewed in the second quarter of 2020 through the ETOE. The sample size of the ENOE-N in the third quarter of 2020 was 63.9% of the regular sample of the ENOE (INEGI, 2020b) and 21.4% of the total was collected by phone. Due to the problem of representativeness of the ETOE, in our analysis we do not include data collected by phone thorough the ENOE-N in the third and fourth quarters of 2020.

In Chile, the INE (Instituto Nacional de Estadistica) added an update of the sampling methodology that was already scheduled to start in January 2020, and, due to the pandemic, the INE stopped doing in person interviews and switched to collecting information by phone

or by web in mid-march.[17] Touron et al. (2020) show that neither change had a significant impact on how representative the labor market statistics were over the period December 2019–February 2020.

In Brazil, the IBGE (Brazilian National Statistical Office) had contact phone numbers for households that had been interviewed before the pandemic. For households where a phone number was not available, the IBGE implemented a matching strategy with different databases to obtain a contact number. The response rate in April 2020 was 60.2%, while it had been 87.9% in February of the same year. However, the reduction ins sample size did not bias the labor market statistics according to IBGE (IBGE, 2020).

A.2   Analysis of Sample Attrition

As with any panel dataset, attrition may be a concern. Table A.1 presents quarterly attrition rates for Brazil and Mexico. The usual attrition rates before the pandemic were around 10% in Brazil and 5% in Mexico. The change in the data collection strategy during the pandemic (from face-to-face to phone interviews) meant a loss of observations in these two countries as explained in subsection A.1. The attrition rates increased to approximately 15% in Brazil and to more than 20% in Mexico.

In Chile and the Dominican Republic we are not able to compute attrition rates. When creating the panels, we combine the data from different quarters using unique individual and household identifiers. But in order to calculate attrition rates we also need to know who are the persons that in certain quarter did their first interview but in some of the following quarters did not answer the survey –i.e persons who attrited from the panel. Because in these two countries we do not have a variable indicating the number of interview each household is conducting, we cannot differentiate between households (and persons) who attrited from the panel and households (and persons) who do not appear in the survey because they were not part of the panel.

In Table A.2 we present a comparison of demographic characteristics for three groups of observations: (i) the entire samples of women and men in the first quarter of each panel (2017Q1 in panel 1, 2017Q2 in panel 2, etc.); (ii) the samples of women and men in the first quarter of each panel that are part of the panel sample (columns 3 and 4). This includes persons that in the following quarters completed all the interviews and persons who attrited at some point; (iii) the sample of women and men who completed all the panel interviews (columns 5 and 6). We present the comparison for women and men separately and for the pre- and during-pandemic periods. For the Dominican Republic and Chile we do not include statistics in columns 3 and 4 because, as was explained before, we are not able to identify persons who attrited from the panel.

In general, the demographic characteristics between the three group of observations are very stable between group of observations. Some exceptions include a higher educated panel sample in Brazil (columns 5 and 6) compared to the all observations (columns 1 and 2) and observations in the panel including persons who attrited at some point (columns 3 and 4). In

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17   For our purposes, the main effect of the update in the sampling methodology is a change in the identifiers used to build the panels. INE provided us with both the original and new identifiers to properly build panels on individuals observed before and after January 2020.

Table A.1   Attrition rates in Brazil and Mexico

Panel ID	Panel	t1-t2	t2-t3	t3-t4	t4-t5	Average
				Brazil		
1	2017Q1-2018Q1	12%	9%	9%	8%	10%
2	2017Q2-2018Q2	12%	10%	8%	10%	10%
3	2017Q3-2018Q3	13%	10%	10%	8%	10%
4	2017Q4-2018Q4	12%	10%	8%	8%	10%
5	2018Q1-2019Q1	12%	10%	9%	8%	10%
6	2018Q2-2019Q2	13%	10%	9%	8%	10%
7	2018Q3-2019Q3	13%	10%	9%	10%	10%
8	2018Q4-2019Q4	13%	10%	12%	10%	11%
9	2019Q1-2020Q1	13%	13%	11%	12%	12%
10	2019Q2-2020Q2	16%	13%	14%	16%	15%
11	2019Q3-2020Q3	14%	15%	18%	10%	14%
12	2019Q4-2020Q4	19%	20%	11%	9%	15%
13	2020Q1-2021Q1	25%	12%	11%	.	16%
				Mexico		
1	2017Q1-2018Q1	7%	6%	4%	4%	5%
2	2017Q2-2018Q2					
3	2017Q3-2018Q3	7%	6%	4%	4%	5%
4	2017Q4-2018Q4	7%	5%	4%	3%	5%
5	2018Q1-2019Q1	7%	5%	5%	3%	5%
6	2018Q2-2019Q2					
7	2018Q3-2019Q3	7%	5%	3%	3%	5%
8	2018Q4-2019Q4	7%	5%	5%	3%	5%
9	2019Q1-2020Q1	7%	6%	4%	3%	5%
10	2019Q2-2020Q2					
11	2019Q3-2020Q3	7%	5%	.	48%	20%
12	2019Q4-2020Q4	8%	.	49%	18%	25%
13	2020Q1-2021Q1	.	52%	21%	.	36%

Sources: For Brazil: PNADC and for Mexico: ENOE and ENOE-N.

Notes: Sample includes 25-55 years old women and men living in urban areas. t1 to t5 refer to the quarters that are part of each panel. Quarter 2 of 2020 and Panels 2, 6 and 10 are not used in Mexico. See Section 2.1 for more details.

the Dominican Republic, the panel sample (columns 5 and 6) includes persons who are older, less educated, and who are less likely to have children 0-5 but more likely to have children 6-12 and 13-17. This pattern appears in the pre- and during-pandemic periods. Chile oversampled rural areas in the panels 7 and 8, thus the observations we keep in our estimation sample drops (see Table 1). However, when comparing characteristics of persons in the panel and in the entire sample of the pre-pandemic period, the effects observed over the demographic characteristics are similar to the other countries. Comparable to the Dominican Republic, in the pre-pandemic periods, the persons in panel are less educated than the persons in the entire sample. In Chile, in the pre- and during pandemic periods, persons in the panel are less likely to have children 0-5 and more likely to have children 13-17.

Table A.2   Comparison of demographic characteristics between different samples

	All		All in panel + All who attrited		All in panel	
	Women	Men	Women	Men	Women	Men
	(1)	(2)	(3)	(4)	(5)	(6)
Brazil						
Pre-pandemic period: 2017Q1 to 2020Q1						
Age	39.61	39.22	39.52	39.13	40.72	40.33
Low educ level	0.32	0.39	0.32	0.39	0.31	0.38
Medium educ level	0.44	0.44	0.44	0.44	0.44	0.44
High educ level	0.24	0.18	0.24	0.18	0.25	0.18
At least one kid 0-5	0.25	0.25	0.25	0.25	0.24	0.24
At least one kid 6-12	0.33	0.29	0.33	0.29	0.33	0.30
At least one kid 13-17	0.27	0.23	0.26	0.22	0.27	0.23
During-pandemic period: 2020Q2 to 2020Q4						
Age	39.73	39.38	39.63	39.29	40.62	40.36
Low educ level	0.29	0.36	0.30	0.37	0.26	0.33
Medium educ level	0.45	0.45	0.44	0.44	0.45	0.45
High educ level	0.26	0.19	0.26	0.19	0.29	0.22
At least one kid 0-5	0.25	0.24	0.25	0.24	0.23	0.23
At least one kid 6-12	0.33	0.29	0.33	0.28	0.33	0.29
At least one kid 13-17	0.26	0.22	0.25	0.21	0.26	0.22
Mexico						
Pre-pandemic period: 2017Q1 to 2020Q1						
Age	39.37	38.99	39.33	38.92	40.05	39.66
Low educ level	0.17	0.17	0.17	0.16	0.16	0.16
Medium educ level	0.54	0.53	0.54	0.53	0.55	0.54
High educ level	0.29	0.31	0.29	0.31	0.28	0.29
At least one kid 0-5	0.30	0.29	0.30	0.29	0.29	0.28
At least one kid 6-12	0.41	0.36	0.40	0.36	0.41	0.37
At least one kid 13-17	0.32	0.28	0.32	0.28	0.33	0.30
During-pandemic period: 2020Q2 to 2020 Q4						
Age	39.53	39.14	39.39	39.06	40.02	39.57
Low educ level	0.15	0.16	0.15	0.15	0.15	0.15
Medium educ level	0.55	0.54	0.55	0.54	0.56	0.54
High educ level	0.30	0.31	0.30	0.31	0.29	0.30
At least one kid 0-5	0.29	0.27	0.29	0.28	0.28	0.26
At least one kid 6-12	0.40	0.35	0.40	0.35	0.40	0.36
At least one kid 13-17	0.32	0.27	0.31	0.27	0.32	0.28

Table A.3 Comparison of demographic characteristics between different samples (Cont.)

	All		All in panel + All who attrited		All in panel	
	Women	Men	Women	Men	Women	Men
	(1)	(2)	(3)	(4)	(5)	(6)
Dominican Republic						
Pre-pandemic period: 2017Q1 to 2020Q1						
Age	38.30	38.02			40.12	39.54
Low educ level	0.32	0.40			0.33	0.43
Medium educ level	0.41	0.43			0.41	0.41
High educ level	0.27	0.17			0.26	0.16
At least one kid 0-5	0.37	0.32			0.33	0.30
At least one kid 6-12	0.45	0.34			0.47	0.35
At least one kid 13-17	0.35	0.26			0.38	0.28
During-pandemic period: 2020Q2 to 2020Q4						
Age	38.36	38.09			39.90	39.48
Low educ level	0.29	0.39			0.31	0.42
Medium educ level	0.44	0.45			0.43	0.43
High educ level	0.27	0.17			0.26	0.15
At least one kid 0-5	0.35	0.31			0.35	0.31
At least one kid 6-12	0.43	0.32			0.47	0.35
At least one kid 13-17	0.32	0.23			0.36	0.27
Chile						
Pre-pandemic period: 2017Q1 to 2020Q1						
Age	40.07	39.63			41.72	41.72
Low educ level	0.18	0.20			0.24	0.27
Medium educ level	0.46	0.46			0.46	0.46
High educ level	0.36	0.34			0.31	0.27
At least one kid 0-5	0.30	0.26			0.28	0.24
At least one kid 6-12	0.39	0.31			0.39	0.31
At least one kid 13-17	0.29	0.23			0.30	0.23
During-pandemic period: 2020Q2 to 2020Q4						
Age	40.21	39.65			41.92	41.40
Low educ level	0.17	0.18			0.17	0.18
Medium educ level	0.46	0.46			0.46	0.45
High educ level	0.38	0.36			0.37	0.37
At least one kid 0-5	0.29	0.25			0.24	0.22
At least one kid 6-12	0.39	0.31			0.38	0.33
At least one kid 13-17	0.29	0.22			0.31	0.23

Sources: For Brazil: PNADC, for Mexico: ENOE and ENOE-N, for Dominican Republic: ENCFT, for Chile: ENE.

Notes: Sample includes 25-55 years old women and men living in urban areas. Columns 1 and 2 include all observations in the first quarter of each panel. Columns 3 and 4 include panel observations plus observations who attrited from the panel. Columns 5 and 6 include panel observations only. Quarter 2 of 2020 and Panels 2, 6 and 10 are not used in Mexico. See Section 2.1 for more details. Data from Chile and the Dominican Republic do not allow identifying persons who attrited from the panel.

B   Methodology

As mentioned is Section 3, we also run richer versions of equation (1) to estimate impacts in each pandemic quarter and to estimate heterogeneous effects over observables. Below we report the formal definitions of the regressions we run under these richer specifications.

Denoting with Q_q an indicator function equal 1 if the observation belongs to the *qth* pandemic quarter with $q \in \{1, 2, 3\}$ and where the first pandemic quarter represents 2020Q2, the second one is 2020Q3, and the third one is 2020Q4:

$$y_{it} = \beta_0 + \beta_1 F_i + \sum_{q=1}^{3} \alpha_q Q_q + \sum_{q=1}^{3} \delta_q Q_q \times F_i + \mathbf{x}_{it}' \boldsymbol{\beta}_2 + \mathbf{z}_i' \boldsymbol{\beta}_3 + \mathbf{s}_i' \boldsymbol{\beta}_4 + \epsilon_{it} \qquad (B.1)$$

where the main coefficients of interest are the δ_q, with $q \in \{1, 2, 3\}$: they estimate the relative difference in the impact of the pandemic for women in each pandemic quarter observed in the data.

Denoting with C_{it} the observed source of heterogeneity, we estimate specifications of the following form:

$$y_{it} = \beta_0 + \beta_1 P_t + \beta_2 F_i + \beta_3 P_t \times F_i + \beta_7 C_{it} + \beta_8 C_{it} \times P_t + \beta_9 C_{it} \times F_i + \beta_{10} C_{it} \times P_t \times F_i + \mathbf{x}_{it}' \boldsymbol{\beta}_{11} + \mathbf{z}_i' \boldsymbol{\beta}_{12} + \mathbf{s}_i' \boldsymbol{\beta}_{13} + \epsilon_{it}$$

$$(B.2)$$

where the main coefficient of interest is β_{10}, which estimates the relative difference in the impact of the pandemic for women characterized by heterogeneity C_{it} with respect to men characterized by heterogeneity C_{it}.

C Results

Tables C.1 and C.2 report the pre and during-pandemic labor market transitions for women and men, respectively. Tables (C.3)–(C.8) report point estimates, standard errors and additional statistics on the coefficient reported in Figures 4–14. The full set of results and statistics, including point estimates of the controls included in the regressions, are available in this Web Appendix.

C Results

Table C.1 Pre and During-Pandemic Labor market Transition Matrices for Women

Brazil

		Pre-Pandemic period Final:						During-Pandemic period Final:				
		Formal	Informal	Self-emp	Unemp	OLF		Formal	Informal	Self-emp	Unemp	OLF
Initial:	Formal	0.82	0.06	0.02	0.04	0.06	Formal	0.80	0.03	0.01	0.05	0.10
	Informal	0.24	0.41	0.08	0.10	0.17	Informal	0.14	0.37	0.05	0.14	0.30
	Self-emp	0.08	0.07	0.61	0.06	0.19	Self-emp	0.04	0.03	0.56	0.07	0.29
	Unemp	0.17	0.14	0.09	0.25	0.35	Unemp	0.12	0.06	0.05	0.32	0.44
	OLF	0.05	0.07	0.09	0.11	0.69	OLF	0.03	0.03	0.05	0.08	0.81

Chile

		Pre-Pandemic period Final:						During-Pandemic period Final:				
		Formal	Informal	Self-emp	Unemp	OLF		Formal	Informal	Self-emp	Unemp	OLF
Initial:	Formal	0.86	0.03	0.02	0.04	0.05	Formal	0.80	0.02	0.01	0.04	0.13
	Informal	0.25	0.35	0.14	0.08	0.18	Informal	0.14	0.10	0.12	0.15	0.49
	Self-emp	0.07	0.10	0.54	0.04	0.25	Self-emp	0.03	0.04	0.31	0.07	0.54
	Unemp	0.25	0.12	0.11	0.18	0.34	Unemp	0.14	0.06	0.05	0.17	0.58
	OLF	0.07	0.06	0.11	0.08	0.68	OLF	0.04	0.03	0.09	0.08	0.76

Continued

Table C.1 Continued

Dominican Republic

Pre-Pandemic period	Final:	Formal	Informal	Self-emp	Unemp	OLF
Initial:	Formal	0.91	0.03	0.02	0.02	0.03
	Informal	0.13	0.66	0.02	0.06	0.13
	Self-emp	0.03	0.03	0.79	0.02	0.13
	Unemp	0.13	0.16	0.08	0.16	0.47
	OLF	0.04	0.08	0.11	0.07	0.70

During-Pandemic period	Final:	Formal	Informal	Self-emp	Unemp	OLF
Initial:	Formal	0.86	0.02	0.01	0.03	0.08
	Informal	0.11	0.53	0.04	0.04	0.27
	Self-emp	0.03	0.05	0.64	0.01	0.26
	Unemp	0.11	0.06	0.06	0.11	0.66
	OLF	0.02	0.05	0.08	0.04	0.82

Mexico

Pre-Pandemic period	Final:	Formal	Informal	Self-emp	Unemp	OLF
Initial:	Formal	0.77	0.09	0.02	0.02	0.10
	Informal	0.19	0.44	0.08	0.03	0.25
	Self-emp	0.05	0.13	0.43	0.02	0.37
	Unemp	0.23	0.18	0.08	0.10	0.41
	OLF	0.06	0.11	0.12	0.04	0.67

During-Pandemic period	Final:	Formal	Informal	Self-emp	Unemp	OLF
Initial:	Formal	0.77	0.06	0.02	0.03	0.12
	Informal	0.15	0.39	0.08	0.05	0.33
	Self-emp	0.04	0.10	0.42	0.03	0.42
	Unemp	0.20	0.15	0.06	0.07	0.52
	OLF	0.06	0.07	0.09	0.03	0.74

Table C.2 Pre and During-Pandemic Labor market Transition Matrices for Men

Brazil

Initial:		Pre-Pandemic period Final:					During-Pandemic period Final:				
		Formal	Informal	Self-emp	Unemp	OLF	Formal	Informal	Self-emp	Unemp	OLF
	Formal	0.83	0.04	0.05	0.04	0.04	0.83	0.03	0.04	0.05	0.06
	Informal	0.24	0.33	0.24	0.11	0.09	0.17	0.38	0.16	0.13	0.17
	Self-emp	0.10	0.10	0.66	0.07	0.07	0.07	0.05	0.65	0.09	0.15
	Unemp	0.21	0.15	0.23	0.23	0.18	0.15	0.10	0.13	0.34	0.28
	OLF	0.08	0.07	0.13	0.14	0.59	0.05	0.05	0.08	0.12	0.70

Chile

Initial:		Pre-Pandemic period Final:					During-Pandemic period Final:				
		Formal	Informal	Self-emp	Unemp	OLF	Formal	Informal	Self-emp	Unemp	OLF
	Formal	0.85	0.03	0.03	0.05	0.03	0.80	0.02	0.02	0.07	0.09
	Informal	0.31	0.30	0.19	0.09	0.11	0.25	0.13	0.14	0.16	0.31
	Self-emp	0.14	0.14	0.58	0.06	0.09	0.08	0.05	0.35	0.16	0.36
	Unemp	0.36	0.13	0.16	0.17	0.18	0.27	0.04	0.09	0.19	0.40
	OLF	0.16	0.10	0.12	0.12	0.51	0.15	0.04	0.09	0.19	0.54

Continued

Table C.2 Continued

Dominican Republic

		Pre-Pandemic period Final:					During-Pandemic period Final:				
		Formal	Informal	Self-emp	Unemp	OLF	Formal	Informal	Self-emp	Unemp	OLF
Initial:	Formal	0.91	0.02	0.03	0.03	0.02	0.82	0.05	0.04	0.03	0.07
	Informal	0.21	0.63	0.11	0.03	0.03	0.14	0.60	0.12	0.06	0.08
	Self-emp	0.03	0.04	0.87	0.02	0.04	0.03	0.02	0.83	0.02	0.10
	Unemp	0.18	0.15	0.36	0.15	0.16	0.14	0.14	0.14	0.03	0.55
	OLF	0.05	0.06	0.29	0.05	0.55	0.04	0.07	0.20	0.06	0.63

Mexico

		Pre-Pandemic period Final:					During-Pandemic period Final:				
		Formal	Informal	Self-emp	Unemp	OLF	Formal	Informal	Self-emp	Unemp	OLF
Initial:	Formal	0.80	0.10	0.03	0.03	0.03	0.80	0.09	0.03	0.04	0.05
	Informal	0.28	0.44	0.16	0.05	0.07	0.21	0.45	0.15	0.07	0.12
	Self-emp	0.12	0.26	0.49	0.04	0.09	0.10	0.21	0.47	0.06	0.17
	Unemp	0.32	0.25	0.14	0.11	0.17	0.26	0.15	0.13	0.16	0.29
	OLF	0.13	0.17	0.14	0.10	0.46	0.10	0.14	0.11	0.08	0.56

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Table C.3 Stocks and Flows regressions: coefficient of interests

	Brazil		Chile		Dom. Rep.		Mexico	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Panel A. LFP								
Female	−0.188	−0.202	−0.208	−0.209	−0.236	−0.253	−0.316	−0.314
	(0.001)***	(0.001)***	(0.003)***	(0.003)***	(0.006)***	(0.006)***	(0.002)***	(0.002)***
Post	−0.039	−0.049	−0.062	−0.053	−0.036	−0.032	−0.041	−0.043
	(0.002)***	(0.002)***	(0.005)***	(0.006)***	(0.005)***	(0.007)***	(0.003)***	(0.003)***
Female*Post	−0.012	−0.013	−0.038	−0.036	−0.031	−0.032	0.003	0.004
	(0.003)***	(0.003)***	(0.008)***	(0.008)***	(0.009)***	(0.009)***	(0.005)	(0.005)
Observations	1,184,271	1,184,271	221,542	221,542	63,488	63,488	674,409	674,409
R−squared	0.053	0.118	0.070	0.101	0.096	0.118	0.136	0.163
Panel B. Employment								
Female	−0.193	−0.212	−0.202	−0.206	−0.255	−0.273	−0.306	−0.306
	(0.002)***	(0.002)***	(0.003)***	(0.003)***	(0.006)***	(0.007)***	(0.002)***	(0.002)***
Post	−0.050	−0.067	−0.088	−0.077	−0.040	−0.046	−0.060	−0.060
	(0.002)***	(0.002)***	(0.006)***	(0.007)***	(0.005)***	(0.007)***	(0.003)***	(0.004)***
Female*Post	−0.011	−0.012	−0.021	−0.019	−0.022	−0.022	0.015	0.015
	(0.004)***	(0.003)***	(0.009)**	(0.009)**	(0.010)**	(0.010)**	(0.005)***	(0.005)***
Observations	1,184,271	1,184,271	221,542	221,542	63,488	63,488	674,409	674,409
R−squared	0.047	0.107	0.057	0.086	0.097	0.117	0.119	0.143
Panel C. Job loss								
Female	0.033	0.051	0.039	0.038	0.049	0.054	0.141	0.136
	(0.002)***	(0.002)***	(0.005)***	(0.004)***	(0.008)***	(0.008)***	(0.003)***	(0.003)***

Continued

Table C.3 Continued

	Brazil		Chile		Dom. Rep.		Mexico	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Post	0.030	0.048	0.232	0.091	0.073	0.079	0.032	0.020
	(0.003)***	(0.005)***	(0.012)***	(0.025)***	(0.007)***	(0.016)***	(0.004)***	(0.006)***
Female*Post	0.030	0.029	0.036	0.005	0.038	0.035	-0.013	-0.011
	(0.004)***	(0.004)***	(0.017)**	(0.012)	(0.013)***	(0.012)***	(0.007)*	(0.007)
Observations	178,649	178,649	24,770	24,770	10,550	10,550	82,087	82,087
R-squared	0.007	0.079	0.053	0.457	0.032	0.070	0.034	0.103
Panel D. Job gain								
Female	-0.178	-0.191	-0.220	-0.165	-0.261	-0.268	-0.278	-0.277
	(0.005)***	(0.004)***	(0.012)***	(0.011)***	(0.033)***	(0.033)***	(0.009)***	(0.009)***
Post	-0.214	-0.180	-0.022	-0.187	-0.114	-0.032	-0.187	-0.189
	(0.007)***	(0.010)***	(0.028)	(0.035)***	(0.042)***	(0.060)	(0.018)***	(0.021)***
Female*Post	0.060	0.061	-0.013	0.050	0.025	0.021	0.084	0.086
	(0.008)***	(0.008)***	(0.032)	(0.025)**	(0.044)	(0.043)	(0.019)***	(0.019)***
Observations	73,562	73,562	9,956	9,956	3,017	3,017	29,008	29,008
R-squared	0.056	0.100	0.039	0.336	0.066	0.105	0.046	0.064

Source: For Brazil: PNADC, for Chile: ENE, for Dominican Republic: ENCFT, and for Mexico: ENOE and ENOE-N.

Notes: Column (1) shows results without including controls and column (2) controls for age, age squared, level of education, indicator of not having kids 0-17 and year, quarter and geographic units fixed effects. Job loss models also control for sector and type of employment. Robust standard errors in parentheses; clustered at the individual level for LFP and Employment outcomes. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table C.4 Stocks and Flows regressions: coefficient of interests by pandemic quarters

	Brazil		Chile		Dom. Rep.		Mexico	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Panel A. LFP								
Female*Q1P	-0.007	-0.008	-0.033	-0.031	-0.028	-0.029		
	(0.003)**	(0.003)***	(0.009)***	(0.009)***	(0.010)***	(0.010)***		
Female*Q2P	-0.019	-0.020	-0.045	-0.043	-0.041	-0.041	0.001	0.001
	(0.004)***	(0.004)***	(0.009)***	(0.009)***	(0.010)***	(0.010)***	(0.006)	(0.005)
Female*Q3P	-0.011	-0.013	-0.036	-0.036	-0.023	-0.023	0.007	0.008
	(0.005)**	(0.004)***	(0.011)***	(0.010)***	(0.012)*	(0.012)*	(0.007)	(0.007)
Observations	1,184,271	1,184,271	221,542	221,542	63,488	63,488	674,409	674,409
R-squared	0.054	0.118	0.070	0.101	0.097	0.118	0.136	0.163
Panel B. Employment								
Female*Q1P	-0.002	-0.003	-0.019	-0.017	-0.007	-0.008		
	(0.004)	(0.003)	(0.010)*	(0.010)*	(0.010)	(0.010)		
Female*Q2P	-0.018	-0.019	-0.019	-0.017	-0.032	-0.032	0.011	0.011
	(0.004)***	(0.004)***	(0.010)*	(0.010)*	(0.011)***	(0.011)***	(0.006)*	(0.006)*
Female*Q3P	-0.017	-0.019	-0.027	-0.026	-0.032	-0.032	0.021	0.021
	(0.005)***	(0.005)***	(0.012)**	(0.011)**	(0.013)**	(0.013)**	(0.007)***	(0.007)***
Observations	1,184,271	1,184,271	221,542	221,542	63,488	63,488	674,409	674,409
R-squared	0.047	0.107	0.057	0.086	0.098	0.117	0.119	0.143
Panel C. Job loss								
Female*Q1P	0.022	0.022	0.038	0.036	0.034	0.032		
	(0.003)***	(0.003)***	(0.010)***	(0.009)***	(0.009)***	(0.009)***		

Continued

Table C.4 Continued

	Brazil		Chile		Dom. Rep.		Mexico	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Female*Q2P	0.019	0.018	−0.005	−0.008	0.015	0.013	0.064	0.065
	(0.003)***	(0.003)***	(0.007)	(0.007)	(0.007)**	(0.007)*	(0.007)***	(0.007)***
Female*Q3P	−0.009	−0.009	−0.024	−0.027	−0.015	−0.017	−0.026	−0.025
	(0.002)***	(0.002)***	(0.006)***	(0.006)***	(0.006)**	(0.006)***	(0.007)***	(0.007)***
Observations	411,231	411,231	80,113	80,113	24,913	24,913	148,678	148,678
R−squared	0.008	0.036	0.020	0.057	0.027	0.042	0.023	0.050
Panel D. Job gain								
Female*Q1P	0.013	0.013	−0.012	−0.012	−0.077	−0.078		
	(0.005)**	(0.005)**	(0.020)	(0.020)	(0.031)**	(0.031)**		
Female*Q2P	0.026	0.026	0.059	0.059	0.072	0.071	−0.083	−0.084
	(0.006)***	(0.006)***	(0.017)***	(0.017)***	(0.026)***	(0.025)***	(0.021)***	(0.021)***
Female*Q3P	0.043	0.042	0.032	0.032	0.076	0.075	0.078	0.078
	(0.006)***	(0.006)***	(0.019)*	(0.019)*	(0.027)***	(0.026)***	(0.021)***	(0.021)***
Observations	168,773	168,773	29,463	29,463	7,197	7,197	52,818	52,818
R−squared	0.019	0.049	0.020	0.063	0.034	0.049	0.015	0.052

Source: For Brazil: PNADC, for Chile: ENE, for Dominican Republic: ENCFT, and for Mexico: ENOE and ENOE−N.

Notes: All models control for age, age squared, level of education, indicator of not having kids 0–17 and year, quarter and geographic units fixed effects. Job loss models also control for sector and type of employment. Q1P indicates the first quarter of the pandemic (2020Q2), Q2P and Q3P indicate the second and third quarters of the pandemic (2020Q3 and 2020Q4 respectively). Robust standard errors in parentheses; clustered at the individual level for LFP and Employment outcomes. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table C.5 Stocks and Flows regressions: coefficient of interests by children age and presence.

	Brazil			Chile			Dom. Rep.			Mexico		
	No kids	0–5 only	6–17	No kids	0–5 only	6–17	No kids	0–5 only	6–17	No kids	0–5 only	6–17
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Panel A. LFP												
Female	−0.145	−0.268	−0.240	−0.125	−0.264	−0.260	−0.209	−0.315	−0.264	−0.221	−0.365	−0.359
	(0.002)***	(0.003)***	(0.002)***	(0.005)***	(0.008)***	(0.004)***	(0.012)***	(0.017)***	(0.007)***	(0.003)***	(0.005)***	(0.002)***
Post	−0.044	−0.045	−0.046	−0.079	−0.059	−0.058	−0.036	−0.027	−0.038	−0.054	−0.030	−0.030
	(0.003)***	(0.005)***	(0.003)***	(0.009)***	(0.013)***	(0.006)***	(0.009)***	(0.012)**	(0.006)***	(0.005)***	(0.007)***	(0.003)***
Female*Post	−0.007	−0.012	−0.022	−0.017	−0.016	−0.058	0.002	−0.075	−0.038	−0.000	−0.005	−0.004
	(0.005)	(0.009)	(0.004)***	(0.013)	(0.023)	(0.010)***	(0.018)	(0.027)***	(0.011)***	(0.009)	(0.015)	(0.006)
Observations		1,184,271			221,542			63,488			674,409	
R−squared		0.113			0.104			0.119			0.166	
Panel B. Employment												
Female	−0.143	−0.291	−0.256	−0.114	−0.268	−0.261	−0.218	−0.338	−0.289	−0.205	−0.360	−0.355
	(0.002)***	(0.004)***	(0.002)***	(0.005)***	(0.009)***	(0.004)***	(0.013)***	(0.018)***	(0.008)***	(0.003)***	(0.005)***	(0.002)***
Post	−0.056	−0.059	−0.059	−0.102	−0.091	−0.087	−0.038	−0.028	−0.045	−0.073	−0.053	−0.048
	(0.004)***	(0.006)***	(0.003)***	(0.010)***	(0.016)***	(0.008)***	(0.010)***	(0.015)*	(0.007)***	(0.006)***	(0.009)***	(0.004)***
Female*Post	−0.009	−0.003	−0.021	−0.010	0.008	−0.035	0.003	−0.060	−0.026	0.011	0.011	0.006
	(0.005)*	(0.010)	(0.005)***	(0.015)	(0.025)	(0.012)***	(0.019)	(0.029)**	(0.012)**	(0.010)	(0.016)	(0.007)
Observations		1,184,271			221,542			63,488			674,409	
R−squared		0.101			0.089			0.118			0.145	
Panel C. Job loss												
Female	0.031	0.070	0.061	0.025	0.074	0.074	0.043	0.089	0.049	0.089	0.158	0.158
	(0.003)***	(0.005)***	(0.003)***	(0.008)***	(0.015)***	(0.007)***	(0.016)***	(0.025)***	(0.010)***	(0.005)***	(0.009)***	(0.004)***

Continued

Table C.5 Continued

	Brazil			Chile			Dom. Rep.			Mexico		
	No kids	0–5 only	6–17	No kids	0–5 only	6–17	No kids	0–5 only	6–17	No kids	0–5 only	6–17
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Post	0.028	0.040	0.035	0.249	0.279	0.224	0.082	0.087	0.068	0.034	0.031	0.026
	(0.004)***	(0.007)***	(0.004)***	(0.017)***	(0.034)***	(0.016)***	(0.013)***	(0.020)***	(0.009)***	(0.007)***	(0.012)***	(0.005)***
Female*Post	0.027	0.013	0.037	−0.007	0.006	0.054	0.021	0.078	0.038	−0.001	0.010	−0.016
	(0.006)***	(0.011)	(0.006)***	(0.025)	(0.047)	(0.021)**	(0.024)	(0.041)*	(0.015)**	(0.012)	(0.021)	(0.009)*
Observations		178,649			24,770			10,550			82,087	
R−squared		0.065			0.156			0.060			0.094	
Panel D. Job gain												
Female	−0.126	−0.293	−0.247	−0.112	−0.320	−0.305	−0.230	−0.392	−0.297	−0.183	−0.393	−0.368
	(0.006)***	(0.016)***	(0.007)***	(0.019)***	(0.043)***	(0.019)***	(0.047)***	(0.099)***	(0.056)***	(0.013)***	(0.028)***	(0.014)***
Post	−0.193	−0.223	−0.241	0.011	0.066	−0.086	−0.123	−0.088	−0.112	−0.196	−0.123	−0.184
	(0.009)***	(0.027)***	(0.012)***	(0.037)	(0.089)	(0.047)*	(0.055)**	(0.132)	(0.069)	(0.023)***	(0.062)**	(0.030)***
Female*Post	0.053	0.069	0.073	−0.048	−0.121	0.051	0.069	−0.033	0.019	0.079	0.016	0.088
	(0.010)***	(0.029)**	(0.013)***	(0.046)	(0.100)	(0.051)	(0.063)	(0.139)	(0.072)	(0.027)***	(0.065)	(0.032)***
Observations		73,562			9,956			3,017			29,008	
R−squared		0.076			0.059			0.083			0.058	

Source: For Brazil: PNADC, for Chile: ENE, for Dominican Republic: ENCFT, and for Mexico: ENOE and ENOE-N.

Notes: All models control for age, age squared, level of education, indicator of not having kids 0-17 and year, quarter and geographic units fixed effects. Job loss models also control for sector and type of employment. No kids indicates no children 0-17 in the household, 0-5 indicates there is at least one kid 0-5 in the household but none 6-17, 6-17 indicates having at least one in this age range. Columns (1), (2) and (3) present results when no kids, 0-5 only, and 6-17 is the omitted category. Robust standard errors in parentheses; clustered at the individual level for LFP and Employment outcomes. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table C.6 Stocks and Flows regressions: coefficient of interests by pandemic quarters and children age and presence

	Brazil			Chile			Dom. Rep.			Mexico		
	No kids	0-5 only	6-17	No kids	0-5 only	6-17	No kids	0-5 only	6-17	No kids	0-5 only	6-17
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Panel A. LFP												
Female*Q1P	−0.001	−0.013	−0.017	−0.018	0.001	−0.051	−0.001	−0.077	−0.030			−0.010
	(0.005)	(0.009)	(0.005)***	(0.015)	(0.028)	(0.012)***	(0.018)	(0.029)***	(0.012)**			(0.007)
Female*Q2P	−0.017	−0.012	−0.029	−0.019	−0.028	−0.063	0.003	−0.069	−0.056	0.003	−0.011	0.005
	(0.006)***	(0.011)	(0.005)***	(0.016)	(0.027)	(0.012)***	(0.020)	(0.031)**	(0.012)***	(0.010)	(0.017)	(0.008)
Female*Q3P	−0.007	−0.012	−0.024	−0.013	−0.026	−0.061	0.006	−0.079	−0.027	−0.005	0.003	
	(0.007)	(0.013)	(0.006)***	(0.018)	(0.031)	(0.013)***	(0.024)	(0.035)**	(0.015)*	(0.012)	(0.020)	
Observations		1,184,271			221,542			63,488			674,409	
R-squared		0.113			0.104			0.120			0.166	
Panel B. Employment												
Female*Q1P	−0.001	−0.001	−0.010	−0.001	0.060	−0.047	0.006	−0.061	−0.002			0.000
	(0.005)	(0.010)	(0.005)**	(0.016)	(0.031)*	(0.013)***	(0.019)	(0.029)**	(0.012)			(0.007)
Female*Q2P	−0.016	−0.007	−0.029	−0.009	−0.014	−0.025	0.007	−0.054	−0.046	0.013	0.001	0.014
	(0.006)**	(0.012)	(0.006)***	(0.017)	(0.030)	(0.014)*	(0.021)	(0.033)*	(0.014)***	(0.010)	(0.018)	(0.009)
Female*Q3P	−0.017	−0.001	−0.031	−0.025	−0.042	−0.031	−0.008	−0.067	−0.036	0.009	0.028	
	(0.008)**	(0.015)	(0.007)***	(0.019)	(0.034)	(0.015)**	(0.025)	(0.038)*	(0.016)**	(0.012)	(0.022)	
Observations		1,184,271			221,542			63,488			674,409	
R-squared		0.101			0.089			0.118			0.146	

Continued

Table C.6 Continued

	Brazil			Chile			Dom. Rep.			Mexico		
	No kids	0-5 only	6-17	No kids	0-5 only	6-17	No kids	0-5 only	6-17	No kids	0-5 only	6-17
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Panel C. Job loss												
Female*Q1P	0.013	0.021	0.030	0.001	0.022	0.065	0.025	0.082	0.029			
	(0.004)***	(0.008)**	(0.004)***	(0.015)	(0.029)	(0.013)***	(0.017)	(0.030)***	(0.011)***			
Female*Q2P	0.022	−0.000	0.021	−0.006	0.004	−0.011	−0.002	0.026	0.021	0.042	0.086	0.078
	(0.004)***	(0.008)	(0.004)***	(0.011)	(0.019)	(0.009)	(0.014)	(0.026)	(0.009)**	(0.012)***	(0.023)***	(0.009)***
Female*Q3P	−0.002	−0.012	−0.014	−0.011	−0.033	−0.037	−0.008	−0.040	−0.020	−0.005	−0.046	−0.033
	(0.004)	(0.007)*	(0.003)***	(0.010)	(0.015)**	(0.008)***	(0.011)	(0.019)*	(0.008)**	(0.013)	(0.020)**	(0.009)***
Observations		411,231			80,113			24,913			148,678	
R-squared		0.031			0.054			0.039			0.044	
Panel D. Job gain												
Female*Q1P	0.022	−0.015	0.010	0.001	−0.015	−0.022	−0.084	−0.278	−0.034			
	(0.007)***	(0.022)	(0.010)	(0.026)	(0.079)	(0.036)	(0.043)**	(0.115)**	(0.050)			
Female*Q2P	0.023	0.028	0.034	0.025	0.023	0.120	0.104	0.218	0.030	−0.055	−0.228	−0.103
	(0.007)***	(0.022)	(0.010)***	(0.024)	(0.078)	(0.029)***	(0.035)***	(0.061)***	(0.046)	(0.028)**	(0.074)***	(0.035)***
Female*Q3P	0.022	0.084	0.061	−0.013	−0.058	0.095	0.115	0.013	0.076	0.041	0.181	0.107
	(0.008)***	(0.024)***	(0.011)***	(0.023)	(0.100)	(0.031)***	(0.038)***	(0.122)	(0.044)*	(0.030)	(0.069)***	(0.035)***
Observations		168,773			29,463			7,197			52,818	
R-squared		0.026			0.026			0.043			0.019	

Source: For Brazil: PNADC, for Chile: ENE, for Dominican Republic: ENCFT, and for Mexico: ENOE and ENOE-N.

Notes: All models control for age, age squared, level of education, indicator of not having kids 0-17 and year, quarter and geographic units fixed effects. Job loss models also control for sector and type of employment. Q1P indicates the first quarter of the pandemic (2020Q2), Q2P and Q3P indicate the second and third quarters of the pandemic (2020Q3 and 2020Q4 respectively). No kids indicates no children 0-17 in the household, 0-5 indicates there is at least one kid 0-5 in the household but none 6-17, 6-17 indicates having at least one in this age range. Columns (1), (2) and (3) present results when no kids, 0-5 only, and 6-17 is the omitted category. Robust standard errors in parentheses; clustered at the individual level for LFP and Employment outcomes. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table C.7 Stocks and Flows regressions: coefficient of interests by level of education

	Brazil			Chile			Dom. Rep.			Mexico		
	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Panel A. LFP												
Female	−0.285	−0.200	−0.068	−0.280	−0.278	−0.113	−0.303	−0.268	−0.121	−0.380	−0.372	−0.163
	(0.003)***	(0.002)***	(0.002)***	(0.011)***	(0.004)***	(0.004)***	(0.011)***	(0.009)***	(0.011)***	(0.004)***	(0.002)***	(0.003)***
Post	−0.057	−0.043	−0.027	−0.077	−0.049	−0.044	−0.031	−0.035	−0.029	−0.050	−0.038	−0.042
	(0.004)***	(0.003)***	(0.004)***	(0.019)***	(0.008)***	(0.008)***	(0.009)***	(0.008)***	(0.013)**	(0.009)***	(0.004)***	(0.005)***
Female*Post	−0.017	−0.030	−0.017	−0.054	−0.051	−0.029	−0.021	−0.055	−0.009	0.014	−0.002	−0.002
	(0.006)***	(0.004)***	(0.005)***	(0.027)**	(0.012)***	(0.011)***	(0.016)	(0.014)***	(0.017)	(0.014)	(0.007)	(0.009)
Observations		1,184,271			221,542			63,488			674,409	
R−squared		0.127			0.111			0.125			0.176	
Panel B. Employment												
Female	−0.280	−0.219	−0.081	−0.276	−0.272	−0.113	−0.321	−0.294	−0.131	−0.370	−0.364	−0.156
	(0.003)***	(0.002)***	(0.003)***	(0.011)***	(0.005)***	(0.005)***	(0.011)***	(0.010)***	(0.013)***	(0.005)***	(0.002)***	(0.003)***
Post	−0.078	−0.063	−0.041	−0.127	−0.071	−0.066	−0.036	−0.060	−0.036	−0.074	−0.055	−0.058
	(0.004)***	(0.003)***	(0.004)***	(0.021)***	(0.009)***	(0.009)***	(0.009)***	(0.010)***	(0.015)**	(0.010)***	(0.005)***	(0.006)***
Female*Post	−0.016	−0.031	−0.011	−0.010	−0.041	−0.010	−0.022	−0.027	−0.015	0.032	0.008	0.010
	(0.007)**	(0.005)***	(0.006)*	(0.028)	(0.013)***	(0.013)	(0.016)	(0.015)*	(0.020)	(0.015)**	(0.007)	(0.010)
Observations		1,184,271			221,542			63,488			674,409	
R−squared		0.113			0.094			0.124			0.154	

Continued

Table C.7 Continued

	Brazil			Chile			Dom. Rep.			Mexico		
	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Panel C. Job loss												
Female	0.065	0.055	0.024	0.074	0.047	0.021	0.067	0.049	0.040	0.186	0.169	0.060
	(0.004)***	(0.003)***	(0.003)***	(0.016)***	(0.006)***	(0.006)***	(0.015)***	(0.012)***	(0.014)***	(0.009)***	(0.004)***	(0.004)***
Post	0.053	0.048	0.039	0.226	0.071	0.082	0.063	0.093	0.079	0.029	0.022	0.012
	(0.006)***	(0.005)***	(0.006)***	(0.038)***	(0.026)***	(0.026)***	(0.018)***	(0.019)***	(0.023)***	(0.012)**	(0.007)***	(0.009)
Female*Post	0.052	0.041	0.012	−0.088	0.056	−0.013	0.039	0.060	−0.007	−0.013	−0.020	0.009
	(0.009)***	(0.006)***	(0.006)**	(0.041)**	(0.019)***	(0.016)	(0.023)*	(0.020)***	(0.023)	(0.020)	(0.009)**	(0.011)
Observations		178,649			24,770			10,550			82,087	
R-squared		0.080			0.459			0.072			0.107	
Panel D. Job gain												
Female	−0.198	−0.210	−0.102	−0.081	−0.236	−0.117	−0.252	−0.293	−0.258	−0.191	−0.335	−0.250
	(0.006)***	(0.007)***	(0.013)***	(0.026)***	(0.016)***	(0.018)***	(0.050)***	(0.053)***	(0.077)***	(0.019)***	(0.013)***	(0.017)***
Post	−0.158	−0.210	−0.173	−0.089	−0.207	−0.217	−0.085	0.063	−0.079	−0.186	−0.167	−0.233
	(0.012)***	(0.014)***	(0.021)***	(0.058)	(0.044)***	(0.042)***	(0.073)	(0.082)	(0.102)	(0.038)***	(0.028)***	(0.034)***
Female*Post	0.051	0.086	0.035	−0.042	0.101	0.005	0.070	−0.092	0.132	0.076	0.061	0.141
	(0.011)***	(0.012)***	(0.022)	(0.058)	(0.039)***	(0.038)	(0.064)	(0.072)	(0.099)	(0.040)*	(0.027)**	(0.036)***
Observations		73,562			9,956			3,017			29,008	
R-squared		0.102			0.340			0.112			0.066	

Source: For Brazil: PNADC, for Chile: ENE, for Dominican Republic: ENCFT, and for Mexico: ENOE and ENOE-N.
Notes: All models control for age, age squared, level of education, indicator of not having kids 0-17 and year, quarter and geographic units fixed effects. Job loss models also control for sector and type of employment. Low education defined as 0-8 years of education, medium level as 9-13, and high level as 14 years of education and more. Columns (1), (2) and (3) present results when low, medium and high level of education is the omitted category. Robust standard errors in parentheses; clustered at the individual level for LFP and Employment outcomes. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table C.8 Stocks and Flows regressions: coefficient of interests by type of employment

	Brazil			Chile			Dom. Rep.			Mexico		
	Formal WE	Informal WE	SE	Formal WE	Informal WE	SE	Formal WE	Informal WE	SE	Formal WE	Informal WE	SE
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Panel A. Employment												
Female	-0.006	0.070	-0.064	-0.056	0.031	0.026	-0.006	0.177	-0.171	-0.073	0.044	0.030
	(0.002)***	(0.001)***	(0.002)***	(0.004)***	(0.002)***	(0.003)***	(0.010)	(0.007)***	(0.009)***	(0.002)***	(0.002)***	(0.002)***
Post	0.016	-0.007	-0.009	0.031	-0.011	-0.020	-0.019	-0.002	0.021	-0.010	0.005	0.005
	(0.003)***	(0.002)***	(0.003)***	(0.006)***	(0.004)***	(0.006)***	(0.008)**	(0.007)	(0.008)***	(0.005)**	(0.004)	(0.004)
Female*Post	0.011	-0.012	0.001	-0.005	-0.012	0.017	0.028	-0.028	-0.000	0.032	-0.031	-0.001
	(0.004)**	(0.003)***	(0.004)	(0.009)	(0.005)**	(0.008)**	(0.013)**	(0.010)***	(0.013)	(0.007)***	(0.006)***	(0.006)
Observations	836,760	836,760	836,760	162,027	162,027	162,027	48,529	48,529	48,529	496,498	496,498	496,498
R-squared	0.100	0.073	0.042	0.048	0.023	0.031	0.154	0.078	0.126	0.126	0.087	0.031
Panel B. Job loss												
Female	0.028	0.065	0.105	0.019	0.062	0.112	0.015	0.128	0.102	0.071	0.201	0.297
	(0.002)***	(0.007)***	(0.005)***	(0.004)***	(0.016)***	(0.013)***	(0.009)*	(0.022)***	(0.017)***	(0.003)***	(0.007)***	(0.009)***
Post	0.033	0.061	0.077	0.058	0.265	0.216	0.079	0.126	0.067	0.004	0.057	0.038
	(0.005)***	(0.011)***	(0.007)***	(0.025)**	(0.044)***	(0.035)***	(0.018)***	(0.030)***	(0.018)***	(0.006)	(0.012)***	(0.014)***
Female*Post	0.023	0.087	0.018	0.009	-0.048	-0.038	-0.001	0.058	0.057	0.001	-0.017	-0.054
	(0.004)***	(0.014)***	(0.009)*	(0.013)	(0.046)	(0.032)	(0.015)	(0.037)	(0.026)**	(0.007)	(0.016)	(0.020)***
Observations	178,649	178,649	178,649	24,770	24,770	24,770	10,550	10,550	10,550	82,087	82,087	82,087
R-squared	0.082	0.082	0.082	0.462	0.462	0.462	0.081	0.081	0.081	0.115	0.115	0.115

Continued

Table C.8 Continued

	Brazil			Chile			Dom. Rep.			Mexico		
	Formal WE	Informal WE	SE	Formal WE	Informal WE	SE	Formal WE	Informal WE	SE	Formal WE	Informal WE	SE
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Panel C. Job gain												
Female	−0.036	0.111	−0.075	−0.103	0.021	0.082	−0.070	0.249	−0.179	−0.078	−0.027	0.106
	(0.007)***	(0.007)***	(0.008)***	(0.022)***	(0.020)	(0.022)***	(0.043)	(0.048)***	(0.056)***	(0.011)***	(0.012)**	(0.012)***
Post	0.024	−0.006	−0.018	0.053	−0.109	0.056	−0.004	−0.003	0.007	−0.008	0.004	0.003
	(0.019)	(0.019)	(0.021)	(0.057)	(0.045)**	(0.056)	(0.070)	(0.095)	(0.103)	(0.030)	(0.032)	(0.030)
Female*Post	0.005	−0.035	0.030	−0.086	0.034	0.052	0.023	−0.198	0.175	0.018	−0.012	−0.006
	(0.018)	(0.019)*	(0.020)	(0.066)	(0.055)	(0.067)	(0.056)	(0.069)***	(0.078)**	(0.029)	(0.030)	(0.028)
Observations	19,844	19,844	19,844	2,546	2,546	2,546	667	667	667	10,546	10,546	10,546
R-squared	0.093	0.054	0.037	0.053	0.045	0.069	0.109	0.077	0.083	0.089	0.043	0.054

Source: For Brazil: PNADC, for Chile: ENE, for Dominican Republic: ENCFT, and for Mexico: ENOE and ENOE-N.

Notes: All models control for age, age squared, level of education, indicator of not having kids 0-17 and year, quarter and geographic units fixed effects. Job loss models also control for sector and type of employment. Columns (1), (2) and (3) present results when Formal wage employment, Informal wage employment, and self-employment is the omitted category. Robust standard errors in parentheses; clustered at the individual level for LFP and Employment outcomes.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.