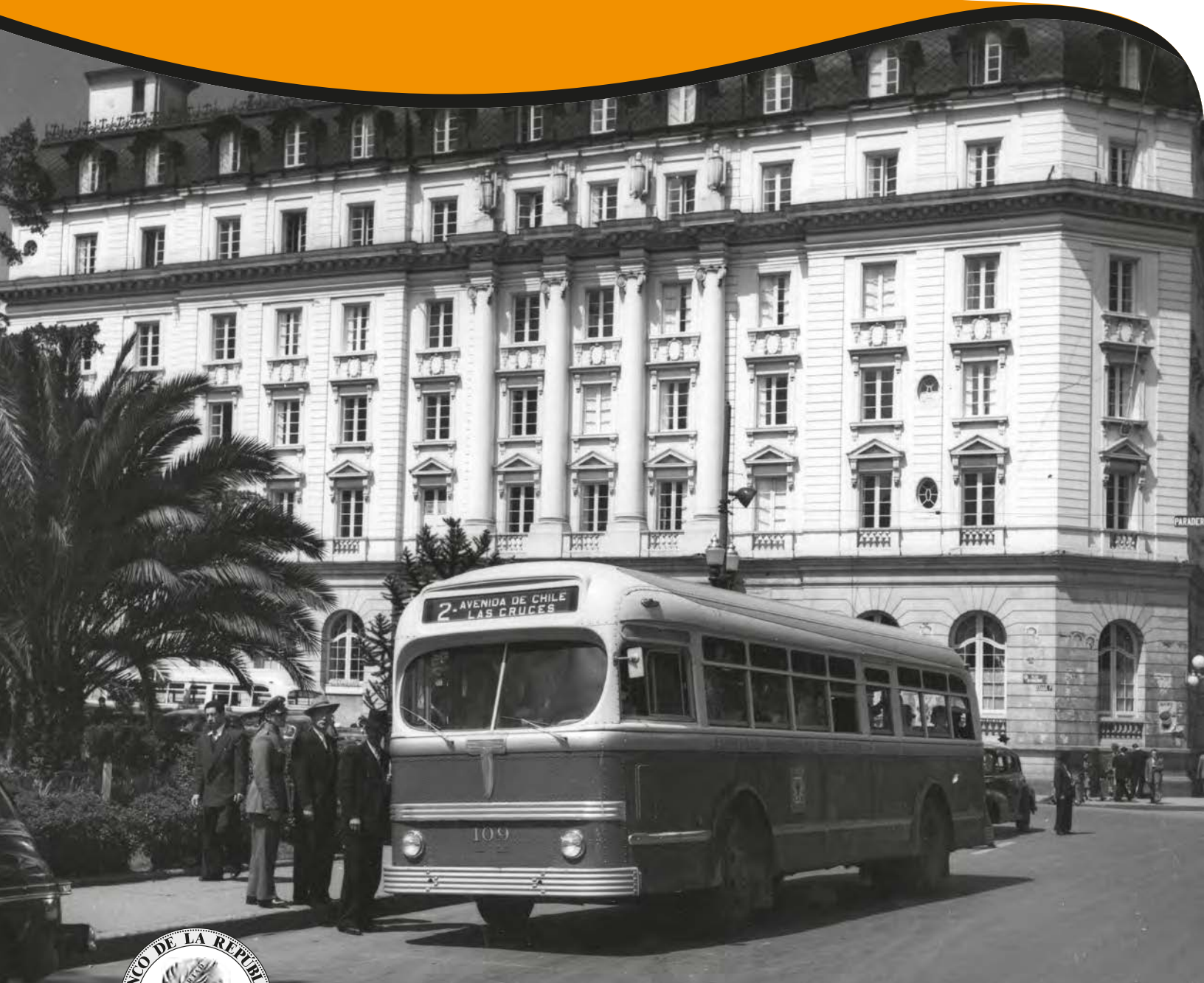


(She)cession: The Colombian  
female staircase fall

By: Karen García-Rojas  
Paula Herrera-Idárraga  
Leonardo Fabio Morales  
Natalia Ramírez-Bustamante  
Ana María Tribín-Uribe

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## Recesión Femenina: La caída en escalera de las mujeres en el mercado laboral colombiano.

Karen García-Rojas<sup>a~</sup>, Paula Herrera-Idárraga<sup>b</sup>, Leonardo Fabio Morales<sup>c</sup> Natalia Ramírez-Bustamante<sup>d</sup>, Ana María Tribín-Uribe<sup>e\*</sup>

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### Resumen

Este artículo busca analizar el mercado laboral colombiano durante la crisis de COVID-19 y el efecto de esta crisis sobre las brechas de género. Colombia ofrece un escenario interesante para el análisis porque, como la mayoría de los países del Sur Global, tiene un mercado laboral que combina trabajo formal e informal, lo que complica las secuelas de la pandemia. Nuestra exploración ofrece un análisis que destaca los efectos de la crisis en términos de una caída de escalera descendente que afecta principalmente a las mujeres. En el trabajo documentamos un fenómeno de "caída de escalera femenina". Muchas mujeres pierden estatus en el mercado laboral; hay una marcada transición de trabajadoras formales a empleos informales, las mujeres ocupadas en empleos formales e informales caen al desempleo y las desempleadas pasan a la inactividad; en consecuencia, cada vez más mujeres se ven relegadas al trabajo doméstico. Finalmente, estudiamos cómo ha aumentado la carga de las mujeres en cuidados no remunerados debido a la crisis, lo que ha afectado su participación en el empleo remunerado.

*Key words:* Brecha de género, informalidad, empleo, uso del tiempo, Colombia, COVID-19.

*JEL Codes:* D10, E24, J16, J22.

a Departamento Administrativo Nacional de Estadísticas, Colombia, Email: [kagarcia@dane.gov.co](mailto:kagarcia@dane.gov.co)

b Department of Economics, Pontificia Universidad Javeriana, Colombia, Email: [pherrera@javeriana.edu.co](mailto:pherrera@javeriana.edu.co)

c Banco de la República de Colombia, Colombia, Email: [lmoralzu@banrep.gov.co](mailto:lmoralzu@banrep.gov.co)

d Faculty of Law, Universidad de los Andes, Colombia, Email: [ramirez@uniandes.edu.co](mailto:ramirez@uniandes.edu.co)

e United Nations Development Program in Latin America and the Caribbean, Email: [ana.tribin@undp.org](mailto:ana.tribin@undp.org)

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## (She)cession: The Colombian female staircase fall.

Karen García-Rojas<sup>a~</sup>, Paula Herrera-Idárraga<sup>b</sup>, Leonardo Fabio Morales<sup>c</sup> Natalia Ramírez-Bustamante<sup>d</sup>, Ana María Tribín-Uribe<sup>e\*</sup>

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### Abstract

This article seeks to analyze the Colombian labor market during the COVID-19 crisis to explore its effect on labor market gender gaps. The country offers an interesting setting for analysis because, as most countries in the Global South, it has an employment market that combines formal and informal labor, which complicates the nature of the pandemic's aftermath. Our exploration offers an analysis that highlights the crisis's effects as in a downward staircase fall that mainly affects women compared to men. We document a phenomenon that we will call a "female staircase fall." Women lose status in the labor market; the formal female workers' transition to informal jobs, occupied women fall to unemployment, and the unemployed go to inactivity; therefore, more and more women are relegated to domestic work. We also study how women's burden of unpaid care has increased due to the crisis, affecting their participation in paid employment.

*Key words:* Gender gap, informality, employment, time use, Colombia, COVID-19.

*JEL Codes:* D10, E24, J16, J22.

a Departamento Administrativo Nacional de Estadísticas, Colombia, Email: [kagarciar@dane.gov.co](mailto:kagarciar@dane.gov.co)

b Department of Economics, Pontificia Universidad Javeriana, Colombia, Email: [pherrera@javeriana.edu.co](mailto:pherrera@javeriana.edu.co)

c Banco de la República de Colombia, Colombia, Email: [lmoralzu@banrep.gov.co](mailto:lmoralzu@banrep.gov.co)

d Faculty of Law, Universidad de los Andes, Colombia, Email: [ramirez@uniandes.edu.co](mailto:ramirez@uniandes.edu.co)

e United Nations Development Program in Latin America and the Caribbean, Email: [ana.tribin@undp.org](mailto:ana.tribin@undp.org)

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## 1. Introduction

Feminist scholars had been, for decades, highlighting the deep connections between care work and paid employment but would have never anticipated that a world pandemic such as COVID-19 could be a catalyst for the urgency of this discussion. Confinement measures for the containment of the disease have had numerous and multilevel effects and an uneven impact along gendered lines. While world economies are facing widespread economic fallout, the pandemic's impact on female employment seems to be a characteristic of the crisis, leading some to call this a "she-cession"<sup>1</sup> On the one hand, this is a result of families staying home trying to articulate paid employment with care work, much of which is made by women, which highlights a disbalance of domestic responsibilities and has an impact on female productivity and stability in employment. On the other hand, more than men, women participate in economic sectors that have been hard hit, such as retail sales, hospitality, and services whose recovery in the short term is unlikely.

In the previous economic downturns, male workers' employment has been more affected than the employment of female workers. Authors such as Doepke and Tertilt (2016) argue that women's employment tends to be less cyclical than men's. Sectors such as manufacturing and residential construction usually have a larger share of male workers. Moreover, these sectors tend to be more cyclical and thus more affected by economic downturns. However, the effects of the pandemic recession in unemployment contrast sharply with the typical characteristics of earlier economic downturns. Women's employment is more strongly affected than men's employment, consistent with the childcare and sector/occupation channels' prominent role. The existing literature argues that one of the main channels whereby this pandemic has affected women's employment is those factors associated with the lockdowns, mainly those related to schools and nurseries' extended closures. Alon et al. (2020a) show how this has hindered women's abilities to work full time or at all during the crisis more than it has to men. On the other hand, it has also been argued that this COVID-19 recession has sharply affected the contact-intensive sectors such as personal care services, restaurants, hospitality, among others, due to the social distancing measures. These high-contact sectors have larger shares of female workers, hence affecting more women than men.

Since lockdown started, there has been a dramatic increase in childcare provided at home due to the closure of schools and daycare centers (Huebener et al., 2020). During Pre-COVID19, women spent considerably more time on childcare and household chores than their male partners. Time surveys suggest that during the lockdown, both men and women spent more time on childcare, especially among parents with young children (Quian and Fuller, 2020; Sevilla and Smith 2020); this might imply that the allocation of additional childcare hours shifted towards reducing the gap between men and women. However, the increase in men's childcare time was small compared to women's during the lockdown. As a result, childcare distribution remains unequal since women still bear the brunt of the

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<sup>1.</sup>" The New York Times According to the US Bureau of Labor Statistics, women accounted for 55 percent of the 20.5 million jobs lost until April 2020.

increased time needed (see, e.g. Sevilla and Smith 2020; Farre et al. 2020; Collins et al. 2020; Boca et al. 2020).

Regarding household chores, time-use surveys suggest that the current crisis is widening the gender gap in domestic labor given that men have not increased the time spent in it as much as women (see, e.g., Farre et al. 2020; Boca et al. 2020). Overall, women are still shouldering childcare and house chores compared to men. As women are spending more time in housework, their work-life balance is becoming more challenging to achieve. Evidence suggests that mothers' work hours fell more than fathers' even in scenarios where both could perform work at home. Furthermore, fathers do not seem to have reduced their employment as much as mothers (Collins et al., 2020).

On the other hand, it has also been argued that this COVID-19 recession has sharply affected the contact-intensive sectors such as personal care services, restaurants, hospitality, among others, due to the social distancing measures. These high-contact sectors have larger shares of female workers, hence affecting more women than men. Another potential cause triggering an increase in women's unemployment is related to social distancing measures; since the policy had an enormous impact on high female employment sectors (Alon et al., 2020a). Lastly, findings suggest that workers on flexible hours contracts or paid by the hour have been hit the hardest (Adams-Prassl et al., 2020). As it is well known, women are more likely to have flexible hours contracts to find a balance between housework and outside-work. The COVID-19 pandemic effects have brought to light how recessions can hit women harder, triggering gender equality issues in the short and long term. In addition, current research projects suggest that although the shutdowns decreased employment and worked hours in general, there are differential effects by gender and educational level, since women and less-educated workers are significantly more likely to have lost their jobs due to the economic downturn (e.g., Alon et al. 2020a; Alon et al. 2020b; Farre et al. 2020; Adams-Prass et al. 2020; Kalenkoski, C. & Pabilonia, S. 2020).

Our contribution aims to fill a gap in current COVID-19 research as there are few studies about the consequences of the pandemic on women's labor market outcomes in developing countries. Women in developing economies struggle more than women in the global north due to more fragile economies, less employment stability, reduced enforcement of anti-discrimination labor regulations, and lack of reliable social safety nets. All these, among other factors, make women more prone to unemployment and poverty. In Colombia, for example, women on average are more educated than men; however, this advantage has not been translated into better results in the labor market since women have lower participation, lower employment, and higher unemployment rates. These gaps have remained almost the same for 20 years. Historically, the employment rate has been lower for women than for men. According to the National Statistics Department of Colombia (DANE) 2019 data, women's employment rate was 45.9%, compared to 67.9% for men, while unemployment is higher for women than for men, 8.2% for men vs. 13.6% for women.

Like most Global South countries, Colombia has an employment market that combines formal and informal labor. Therefore, using this country as a case study may call attention to some of the challenges facing developing countries. Our contribution allows us to offer a counter-hegemonic vision of the impacts of this global crisis and think of possible mitigation measures to reduce the negative impact that the health crisis can have on gender gaps that are huge from the outset. We look at COVID-19 impacts from several perspectives. On the one hand, we studied Colombia's labor market outcomes comparing men with women before and after the crisis to corroborate if this crisis has been harder on women's labor outcomes. We expand our analysis to consider the possible impacts on formal and informal labor to highlight the gendered impacts of the crisis and call attention to its possible outcomes on most vulnerable workers: informal women. We also take into account the effects on unemployment and inactivity. We also explore how domestic work has been altered in the aftermath of the crisis and its implications. Our findings show that Colombian women have started their transit in a staircase that mainly moves downward from formal employment to informality, unemployment, and inactivity with an increase of domestic work in all echelons of the staircase. These findings suggest a female staircase fall for women from paid employment to unemployment and inactivity and possibly a deepening of the concentration of women in unpaid domestic work.

The paper proceeds as follows. Section 2 presents the empirical approach and data; section 4 presents our staircase fall analysis and section 5 presents some final remarks.

## **2. Data**

All the analysis presented in this paper is based on the *Gran Encuesta Integrada de Hogares* (GEIH), the household survey used in Colombia to computation the official unemployment rate and other labor market results. The survey is representative for the whole country, for its main 23 Metropolitan Areas (MA), and the rest of rural areas and small municipalities. The GEIH is collected monthly and contains comprehensive information that allows studying labor supply, informality, and wages in a gender-differentiated framework. In addition, the survey supplies information about occupation and sector of employment at a two-digit and four-digit; finally, for the general population, it contains characteristics such as sex, age, marital status, and educational attainment.

Due to the pandemic situation in which official provisions on isolation were generated since the last week of March 2020, DANE made methodological adjustments to the survey. For instance, the survey was carried out telephonically, and the questionnaire was reduced from 200 to 39 questions. Because during April and March, excluded information on the educational level these months are not used in our analysis. This document uses January and February 2020 as the pre-covid19 period and May 2020 for the post-covid19 period. May is the only month post-covid19, which includes the variable for educational level, used as a control in the two periods.<sup>2</sup> We restricted the sample for men and women between 25 and 45 years of age. This bracket of age allows us to focus on highly productive ages, and

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<sup>2</sup> There is much disparity in education; therefore, it is relevant to control for it in all analyses about the labor market, especially for distinguishing between formal and informal sectors. See Herrera-Idarraga et al. (2015)

when the gender gaps are more pronounced, especially in the presence of children<sup>3</sup>. It is in this age group in which women and men dedicate most of their daily hours to paid labor market activities, and unpaid domestic work<sup>4</sup>. Results for the whole sample are similar and they are presented in Appendix A.

Table 1 shows the leading labor indicators for i) total women and men and ii) women and men heads of households. Panel A shows the indicators for January and February 2020, the analysis period before COVID-19, and Panel B shows the descriptive statistics for the post-COVID-19 period, corresponding to May 2020. First, when comparing the pre period's descriptive statistics against the post period, a worsening of labor indicators is observed in all cases in the post-period, except in total weekly hours for women in the total sample. Furthermore, for the two subsamples, an increase in the size of the gaps is observed.

Specifically, we find a decrease in the participation rate which is more drastic for women than for men, both for the total<sup>5</sup> and for the heads of household<sup>6</sup>. An increase in the unemployment rate is observed for the two samples, being likewise more pronounced in women's cases. On the other hand, there is a slight increase in the share of formal jobs as a percentage of total jobs, except for women heads of households, but it is not significant. As for hourly wages, we combine information from gross monthly wage earnings and working hours to obtain gross hourly wages. The wage gap is calculated for the total sample, including private and public employees, self-employed, and salaried workers. The descriptive statistics show a decrease in labor income levels per hour in all cases, the difference being greater for women, in terms of absolute values. In addition, there is a decrease in the number of hours worked per week, except for women in the total sample. These indicators show systematic and meaningful level changes that indicate an employment crisis for both women and men, with an expansion of the absolute value of gender gaps in all the considered labor market results, except in the number of hours worked per week. It also shows that the differences between men and women are statistically significant in the majority of the considered variables, except for hourly labor income for the heads of households (both in the pre and post-pandemic period) and the share of formal jobs for the heads of households in the post-pandemic period. In sum, it is vital to carry out an identification strategy that allows estimating the size of the gender impact of the crisis on the labor market and the size of the impact on the gender gaps.

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<sup>3</sup> The Time Use Survey in 2017 shows that this age group shows the highest average number of hours spent on both paid and unpaid work, for both men and women compared to the other age groups and the greater gender gaps. We conduct the same analysis of the sample for the working-age population (12-57 years), and most of the results are robust. Results available upon request.

<sup>4</sup> DANE, ENUT, 2017

<sup>5</sup> With a decrease of 9.2 percentage points in the case of women, compared to 5.7 percentage points in men

<sup>6</sup> With a decrease of 10.9 percentage points in the case of women, compared to 3.9 percentage points in men

Table 1. Descriptive statistics. Population between 25 and 45 years.

Pre (Post=0, Jan and Feb)								
Variable	Total				Head of Households			
	Women (1)	Men (2)	Gap (M-W) (3)	Gap (M-W, sample diff.) (4)	Women (1)	Men (2)	Gap (M-W) (3)	Gap (M-W, sample diff.) (4)
Participation Rate (%)	73.5	95.5	22.0	18.5***	85.5	98.0	12.5	12.2***
Unemployment Rate (%)	16.7	8.6	-8.0	-5.7***	12.7	5.2	-7.5	-8.7***
Formal Job (%)	50.0	48.0	-1.9	-2.0**	47.8	47.6	-0.3	2.6**
Hourly labor income (mean Colombian Pesos) <sup>+</sup>	6,543.7	5,725.7	-818.0	-566.4***	7,012.6	6,931.0	-81.6	120.8
Working hours per week (mean)	41.4	48.2	6.9	6.4***	43.6	50.6	6.9	7.5***
Post (Post=1, May)								
Variable	Total				Head of Households			
	Women (1)	Men (2)	Gap (M-W) (3)	Gap (M-W, sample diff.) (4)	Women (1)	Men (2)	Gap (M-W) (3)	Gap (M-W, sample diff.) (4)
Participation Rate (%)	64.3	89.8	25.5	19.0***	74.6	94.1	19.5	17.3***
Unemployment Rate (%)	26.7	17.2	-9.5	-2.2**	25.1	12.5	-12.6	-10.7***
Formal Job (%)	51.1	48.7	-2.4	-5.4***	47.3	49.0	1.7	0.2
Hourly labor income (mean Colombian Pesos) (2)	5,039.6	4,317.2	-722.4	-877.6***	4,856.6	5,562.3	705.7	-74.8
Working hours per week (mean)	41.8	47.6	5.7	5.3***	42.6	49.0	6.4	7.3***

Notes: a) <sup>+</sup> The gap corresponds to the percentage difference in men and women's hourly income. If the sign is negative, it means that women earn more income per hour than men, on average, and if the sign is positive, the income of women is lower by the indicated percentage. It is expressed as follows:  $((\text{men's income} - \text{women's income}) / \text{men's income}) * 100$ .

b) Columns 1 and 2 present data calculated using the expanded population data, specifically using importance weights. This is because it is relevant to present the leading labor market indicators for the expanded population to present unbiased and representative data for the study population, considering that the identification strategy in the following sections includes expanded data. Column 3 corresponds to the simple difference between these two means to show the gap for the population. Column 4 presents the difference of the means at the sample level, without using expansion factors, to perform the test of the difference of means to present the difference's statistical significance.

c) \* means that the difference is statistically significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

### 3. Methodology

Our analysis aims to analyze the impacts of the COVID-19 crisis on the main labor market results, but we emphasize the differentiated effects by gender. We argue that we can measure the crisis's effect on the spreading of gender gaps in the labor market. As most of the literature on the effects of the COVID-19 crisis, we assume that this crisis developed in record time; therefore, it could not be anticipated by workers or employers in the market (see Rojas et al., 2020; Gupta et al. (2020); Aum et al. (2020); Morales et al., 2020). Since gender is exogenous, regression analysis allows estimating the crisis effect for women and men separately. Equation (1) represents the main estimation equation.



$$y_{i,t} = \alpha + \delta post + \sigma woman_{it} + \gamma post * woman + X_{it}'\beta + u_{it} \quad (1)$$

The variable woman is a dummy variable equal to one for women and zero for men. The variable post is equal to one after February 2020; the vector  $X_{it}$  includes some control variables (age, children, and education). Finally,  $y_{i,t}$ , represents the labor market outcome. This paper analyzes unemployment, labor market participation, worked hours, informality, and wages. The coefficient  $\delta$  measures the effect of the crisis in labor market outcomes regardless of the gender of the worker. The coefficient  $\gamma$  is our parameter of interest, and it describes the incremental effect of the crisis on women compared to men. We also control for city dummies in all the regressions, and for wages, we add additional controls for occupations and sectors of employment.

## 4. Results

### 4.1 The Female Staircase Fall. Step 1.

*The Effect of COVID-19 on wages and hours worked.*

The first step down the staircase by women could have occurred via wages and working hours. Men and women tend to work in different industries and occupations. Therefore, it is foreseeable that the demand shocks generated by the crisis can have differential effects on wages and hours by gender. In addition, many women tend to be employed in traditionally female occupations that are generally less lucrative than traditionally male professions. On the other hand, female workers participated in retail activities and in different services such as hospitality, restaurants, and domestic work in a much higher proportion than men. These activities have significantly suffered the impact of lockdowns and mobility restriction measures since they are not suitable to be performed via telework (RML, 2020a; RML 2020b, Morales et al., 2020). Additionally, they are highly informal work activities, and as a result, these workers lack labor law protection.

We estimate wage models with and without a set of controls such as age, education, children's presence in the home, city, occupation, and industry dummy variables. As seen in Table 2, men and women's wages were strongly negatively affected by the pandemic crisis. The Post variable's coefficient is negative and statistically significant for the entire sample and when it is restricted only to heads of households. However, the Post \* Women variable's coefficient is negative and statistically significant, which indicates that women had a greater reduction in their wages compared to men. This effect is larger for households headed by women, who faced an additional cut of 51% in their wages relative to men; this effect is more than twice the reduction registered for women on the entire sample, where the decrease was 24%.

However, it is worth noting that the Colombian labor market has a distinct feature: many workers are employed in informal jobs. To understand COVID-19's impact on informal labor, we use the standard ILO definition of informality.<sup>7</sup> Before the pandemic Colombian labor market had one of the highest

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<sup>7</sup> Informal workers are workers occupied in establishments of 5 or fewer workers, who are not professionals. In addition, this definition includes as informal, unpaid family workers, and domestic workers.

informality rates in the LAC region. In February 2020, the informality rate for the whole labor market was 59%. In the urban labor market, it was 48%. The formal sector may have a positive selection of women: for the sample of people between 25 and 45 years old considered in this paper, 72% of formal female workers have university studies compared to 52% of formal men who have university-level education. In contrast, these percentages in informal jobs are 17% for men and 28% for women. Informal workers have lower education (72% of women and 82,9% of men have only secondary education or less). There is also a stylized fact for low and middle-income countries, where women who are often in informal waged employment face a double penalty: they receive, on average, lower wages than their male counterparts as well as lower wages than workers in the formal economy (ILO 2019a)

Once the workers are differentiated between formal and informal, the drop in wage is observable exclusively for informal female workers. As shown in Table 2, women who are informal workers and heads of households faced a reduction in their wages of 93% compared to men, and in the total sample, the drop for female informal workers was 54.7%. It can also be observed that the salaries of formal women increased by 7%. However, statistically significant at 5%, this could result from a positive selection for formal women who managed to keep their jobs. As a result, it could be concluded that formal female workers have a better labor market position, which may mean that they are less vulnerable to dismissals and have a more privileged position than the rest of the market. However, as the section for the probability of unemployment will show, all working women face the risk of losing their jobs.

The loss of income for women and especially women heads of household in this crisis could mean that their needs and their children are not met. On the one hand, most female heads of households with children could be further disadvantaged. It is likely that during the crisis, women's income through transfers from fathers may decrease as a result of harsher economic conditions. Together with a female reduction in wages, all these factors may lead to a feminization of poverty (Folbre, 1994).

We also explore the effects of the crisis on the number of hours worked. As shown in Table 3, there is no differential effect in the number of hours worked by women and men heads of households. However, in the total sample, and for women who worked in the formal sector, we find that the number of hours worked by women who managed to keep their jobs did not decrease as much as for men.

In this first empirical exploration, we find that the gender wage gap increased because of the crisis; this points to the likelihood that workers who managed to continue their jobs probably did so through reductions in their wages, particularly for informal female workers. In addition, female workers face greater difficulties in keeping a job due to several factors. First, as mentioned, many female jobs were in sectors hit particularly hard by the crisis. Second, some of these workers will fall into unemployment and increase the competition for existing jobs. As a result of the labor market's erosion, and in the face of greater competition for fewer jobs, wages have been compressed. This previous effect seems to be stronger for female workers. In this first step of the downward staircase fall, women experience worse labor market conditions with low wages. Results for the whole sample of workers older than 25 years old are very similar to those discussed previously (see Appendix A); wages fell significantly more for women than men. Such results are explained by the informal segment of the labor market.

Table 2. Gender gap in wages

	Householders		Total	
	Log hourly wage	Log hourly wage	Log hourly wage	Log hourly wage
<b>A. Total</b>				
Post	-1.2203*** (0.4287)	-1.2320*** (0.4274)	-1.1876*** (0.3510)	-1.1922*** (0.3484)
Woman	-0.1874** (0.0896)	-0.1991** (0.0898)	-0.4593** (0.1920)	-0.4744** (0.1876)
Post x Woman	-0.5257*** (0.1348)	-0.5103*** (0.1349)	-0.2447*** (0.0849)	-0.2406*** (0.0850)
Children		-0.0423* (0.0221)		0.0342 (0.0553)
Education		0.0416** (0.0191)		0.0414** (0.0183)
Age		-0.0030 (0.0543)		-0.0439 (0.0378)
Age2		0.0001 (0.0007)		0.0007 (0.0005)
Observations	16,430	16,430	36,560	36,560
Area	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes
Sector	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes
<b>B. Formal</b>				
Post	-0.8473*** (0.2595)	-0.8544*** (0.2573)	-0.8206*** (0.1885)	-0.8242*** (0.1878)
Woman	-0.1272** (0.0603)	-0.1382** (0.0507)	-0.1782*** (0.0502)	-0.1976*** (0.0505)
Post x Woman	-0.0010 (0.0565)	0.0129 (0.0611)	0.0665 (0.0410)	0.0721* (0.0401)
Children		0.0170 (0.0428)		0.0357 (0.0411)
Education		0.0635** (0.0263)		0.0636** (0.0238)
Age		0.0660* (0.0349)		0.0237 (0.0529)
Age2		-0.0009* (0.0004)		-0.0003 (0.0007)
Observations	8,123	8,123	18,426	18,426
Area	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes
Sector	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes
<b>C. Informal</b>				
Post	-1.5480** (0.6010)	-1.5456** (0.6026)	-1.5153** (0.5545)	-1.5175** (0.5553)

Woman	-0.2677 (0.2003)	-0.2733 (0.1948)	-0.7317*** (0.2556)	-0.7407*** (0.2498)
Post x Woman	-0.9278** (0.3904)	-0.9303** (0.3909)	-0.5461** (0.2213)	-0.5473** (0.2222)
Children		-0.0610 (0.0380)		0.0429 (0.0617)
Education		0.0016 (0.0108)		0.0115 (0.0080)
Age		-0.0981* (0.0510)		-0.1086** (0.0491)
Age2		0.0015** (0.0006)		0.0017** (0.0007)
Observations	8,307	8,307	18,134	18,134
Area	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes
Sector	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. The variable Post is equal to 1 starting in March 2020, the variable Woman represents the female sex and the variable Post x Woman represents the interaction between them. The variable Children is equal to 1 when there are children under 6 years old in the household. The results are presented for the total sample and the householders. Standard errors are presented in parenthesis and clustered at the city level.

Source: Calculations by the authors.

Table 3. Gender gap in hours worked

	Householders		Total	
	Log worked hours	Log worked hours	Log worked hours	Log worked hours
<b>A. Total</b>				
Post	-0.0290** (0.0135)	-0.0285** (0.0133)	-0.0202** (0.0083)	-0.0202** (0.0082)
Woman	-0.1864*** (0.0377)	-0.1856*** (0.0369)	-0.2209*** (0.0520)	-0.2213*** (0.0527)
Post x Woman	0.0006 (0.0234)	-0.0002 (0.0233)	0.0273* (0.0153)	0.0272* (0.0152)
Children		0.0057 (0.0113)		0.0035 (0.0115)
Education		-0.0016 (0.0014)		-0.0006 (0.0009)
Age		0.0080 (0.0084)		0.0151*** (0.0042)
Age2		-0.0001 (0.0001)		-0.0002*** (0.0001)
Observations	16,856	16,856	37,609	37,609
Area	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes
Sector	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

<b>B. Formal</b>				
Post	-0.0382*** (0.0072)	-0.0369*** (0.0078)	-0.0226*** (0.0042)	-0.0225*** (0.0044)
Woman	-0.0317*** (0.0036)	-0.0295*** (0.0039)	-0.0480*** (0.0121)	-0.0473*** (0.0117)
Post x Woman	0.0230* (0.0127)	0.0208 (0.0127)	0.0220*** (0.0060)	0.0217*** (0.0058)
Children		0.0124** (0.0051)		0.0078 (0.0057)
Education		-0.0058*** (0.0012)		-0.0041*** (0.0007)
Age		0.0111* (0.0060)		0.0101 (0.0061)
Age2		-0.0002* (0.0001)		-0.0001 (0.0001)
Observations	8,381	8,381	19,075	19,075
Area	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes
Sector	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes
<b>C. Informal</b>				
Post	-0.0235 (0.0233)	-0.0226 (0.0230)	-0.0148 (0.0143)	-0.0142 (0.0141)
Woman	-0.3408*** (0.0255)	-0.3400*** (0.0245)	-0.3960*** (0.0341)	-0.3971*** (0.0352)
Post x Woman	-0.0002 (0.0308)	-0.0023 (0.0320)	0.0340 (0.0331)	0.0333 (0.0329)
Children		0.0078 (0.0201)		-0.0005 (0.0179)
Education		-0.0020 (0.0015)		-0.0016 (0.0010)
Age		0.0012 (0.0160)		0.0189 (0.0129)
Age2		-0.0000 (0.0002)		-0.0002 (0.0002)
Observations	8,475	8,475	18,534	18,534
Area	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes
Sector	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. The variable Post is equal to 1 starting in March 2020, the variable Woman represents the female sex and the variable Post x Woman represents the interaction between them. The variable Children is equal to 1 when there are children under 6 years old in the household. The results are presented for the total sample and the householders. Standard errors are presented in parenthesis and clustered at the city level.

Source: Calculations by the authors.

## **The Female Staircase Fall. Step 2.**

### *The Effect of COVID-19 on the probability of having a formal job*

An analysis of COVID-19 on the Colombian labor market should also consider the coexistence of formal and informal employment, a feature shared by most Global South countries. According to earlier research on the effect of economic crises on labor informality, it is almost certain that informality will increase as an effect of COVID-19 (Whitson 2007; Meagher 1995; Lubell and Zarour 1990). Due to the resulting economic recession, this effect will continue for a much more extended period even after the health crisis is overcome, as has been the case after other pandemics whose effects persist even forty years later (Jordà, Singh and Taylor 2020). This result is particularly worrying because high levels of informality are correlated with high levels of income inequality and precarity of job conditions (Alejo and Parada 2017).

Formal sector workers have relatively higher employment and some employment law benefits while informal workers lack labor law protections. Their employment conditions are precarious and prone to be quickly affected by the current crisis. We analyze the estimation of equation (1) for the sample of occupied workers when the dependent variable is a dummy variable equal to 1 if the worker has a formal job.

As in previous results, Table 4 presents the estimation results for the total sample of occupied workers in the right-hand side panel and household heads in the left-hand side panel. The variable *Post\*Women's* coefficient is negative in both samples, but it is only statistically significant for the whole sample of occupied workers. In our preferred specification, the one with controls, we find that the pandemic crisis increases the informality gender gap is nearly one percentage point. This finding indicates that a "female staircase fall" is taking place, as women have lost status in the labor market with an increase in informality rate, which is greater for women than men. Therefore, in the aftermath of the crisis, women who still have jobs may be suffering a deterioration in their working conditions; we find that their probability of being in the formal sector is reduced, marginalizing them to informality to a greater extent than that to men. Results for the whole sample of workers older than 25 years old are very similar to the ones discussed previously; there is a higher reduction in the probability of having a formal job for women in comparison to men (see Appendix A).

These findings can be explained by the urgency of maintaining some level of income in the face of the deterioration of the whole labor market, and especially the female labor market. These transitions from the formal to the informal labor market have been documented in the literature, especially in recessions. For instance, Bosch and Maloney (2008) show that formal employment is highly procyclical; besides, they show evidence that informal employment grows in economic recessions. Maloney (2004) and Perry et al. (2007) find that a relevant fraction of workers voluntarily chooses to participate in informal labor markets. In women's case, they might be willing to accept lower wages in more flexible, informal jobs, where they can bear the burden of household chores, which, as discussed before, leans heavily towards them. This evidence is in line with earlier findings by Campaña et al. (2020). They show that for a set of Latin American countries, including Colombia, self-employed mothers (which is also a proxy for informality) spend more time on unpaid work and childcare compared to employed mothers.

In the context of the crisis, it is very likely that informal women will spend more hours on care and domestic work. In addition, their possibilities of keeping their informal employment will be reduced due to several factors. First, the number of informal jobs will be reduced due to the crises since many of them are in vulnerable sectors. Some of these workers will fall into unemployment. Second, some of the women who lost their jobs in the formal sector and may also be highly skilled will increase the pool of workers in informality, raising the competition in an already shrinking informal sector. Unfortunately, the loss of formal jobs would be challenging to recover from it. In terms of the loss of quality jobs, it will be complicated for women to climb up the ladder after the crisis. It may be difficult for women who lose formal sector jobs to gain their earlier status. Research has shown that women in their high fertility years face statistical discrimination when trying to access formal employment (Tribín, Vargas, Ramírez 2019), together with direct discrimination due to pregnancy and care responsibilities (Ramírez-Bustamante 2019).

Table 4. Gender gap in formal job

	Householders		Total	
	Pr(Formal)	Pr(Formal)	Pr(Formal)	Pr(Formal)
Post	0.0011 (0.0236)	-0.0040 (0.0208)	-0.0005 (0.0108)	-0.0014 (0.0095)
Woman	-0.0234 (0.0154)	-0.0268 (0.0157)	-0.0287 (0.0201)	-0.0314 (0.0199)
Post x Woman	-0.0336 (0.0237)	-0.0252 (0.0201)	-0.0100* (0.0049)	-0.0088** (0.0041)
Children		-0.0028 (0.0060)		0.0016 (0.0024)
Education		0.0181*** (0.0018)		0.0129*** (0.0025)
Age		0.0142** (0.0062)		-0.0010 (0.0055)
Age2		-0.0002** (0.0001)		-0.0000 (0.0001)
Observations	16,856	16,856	37,609	37,609
Area	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes
Sector	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. The variable Post is equal to 1 starting in March 2020, the variable Woman represents the female sex and the variable Post x Woman represents the interaction between them. The variable Children is equal to 1 when there are children under 6 years old in the household. The results are presented for the total sample and for the householders. Standard errors are presented in parenthesis and clustered at the city level.

Source: Calculations by the authors.

## 4.2 The Female Staircase Fall. Step 3.

### *The Effect of COVID-19 on the probability of unemployment*

The gap in the unemployment rate between men and women in Colombia well precedes the COVID-19 crisis. When considering the last decade (2009 to 2019), the average gap in the monthly unemployment rates between men and women was 5.6 percentage points. Nevertheless, the COVID-19 crisis has contributed to widening the difference as shown in Table 1. Results show that women's unemployment rate, for the total population between 25 and 45 years old, went from 16.7% to 26.7%. In the case of men, it went from 8.6% to 17.2%. This implies a growth in the gender gap from 8 percentage points in the pre-COVID-19 period to 9.5 p.p. in the post period.

This subsection explores the effect of the crisis on unemployment, using unemployment as the dependent variable that takes the value of 1 if the person is in the labor force and does not have a job. The results show that the coefficient of the variable Post \* Women is positive and significant in all the specifications. Women have had an increase in the probability of unemployment as an effect of the crisis, both in the total subsample (right panel) and in the case of household heads (left panel), showing a larger effect size for the latter.

Taking the specifications with all the controls, the results in Table 5 show that the pandemic crisis caused an increase of 1.4 percentage points in the unemployment gender gap for the total sample and 5.2 p.p. for the subsample of heads of household. These results indicate that for women who did not leave the labor force, employment opportunities are lower than men. Female heads of households, which if employed probably brought the most important income source to the household, have had a more considerable impact on the probability of unemployment, which would affect the household's stability. In appendix A, we present estimation results for the whole sample of workers older than 25. Results for this sample are similar to the ones discussed previously; there is a significant increase in the unemployment gender gap in household heads; nevertheless, the whole sample's gap increase is positive, but not significant. Therefore, women in prime working-age and household heads have been the most affected in this crisis.

As a result of the erosion of the employment market for all women, and in the face of higher competition for fewer jobs, working women may fall back to unemployment. Research in South Africa has suggested that the difference in the number of hours that men and women invest in care work is related to higher women's unemployment rates and that men had more time to undertake paid and subsistence work and to search for work when unemployed (Floro and Komatsu 2011). Among Latin American countries, Colombia has one of the highest unemployment rates for women and the largest gender unemployment gap. In the existing literature about the Global North, the unemployed group who were so before the crisis is usually overlooked. In Colombia's case, women's unemployment pre-crisis reaches double digits, making it a sizeable vulnerable group (1.3 million women) who were left without any safety net.



Table 5. Gender gap in unemployment

	Householders		Total	
	Unemployment	Unemployment	Unemployment	Unemployment
Post	0.0730*** (0.0133)	0.0731*** (0.0135)	0.0865*** (0.0153)	0.0868*** (0.0157)
Woman	0.0737*** (0.0118)	0.0744*** (0.0111)	0.0800*** (0.0143)	0.0809*** (0.0126)
Post x Woman	0.0524*** (0.0107)	0.0519*** (0.0109)	0.0139** (0.0054)	0.0140** (0.0053)
Children		0.0044 (0.0039)		-0.0070 (0.0041)
Education		-0.0002 (0.0011)		0.0001 (0.0017)
Age		-0.0131 (0.0119)		-0.0208** (0.0092)
Age2		0.0002 (0.0002)		0.0002* (0.0001)
Observations	19,410	19,410	45,963	45,963
Area	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. The variable Post is equal to 1 starting in March 2020, the variable Woman represents the female sex and the variable Post x Woman represents the interaction between them. The variable Children is equal to 1 when there are children under 6 years old in the household. The results are presented for the total sample and for the householders. Standard errors are presented in parenthesis and clustered at the city level.

Source: Calculations by the authors.

### 4.3 The Female Staircase Fall. Step 4.

#### *The Effect of COVID-19 on the probability of labor market participation*

Long periods of unsuccessful job search may lead many women to inactivity. Of the 14.5 million economically inactive population in 2019, 65.2% were women (9.4 million). Most of the "inactive" women (59%) engaged in unpaid household work as their primary activity compared to only 8.1% of the men (Herrera-Idárraga et al. 2020b). As a consequence of the economic crisis, the employment market will be difficult for men and women. However, since the latter face higher discrimination in access to employment and may face higher dismissal rates, it likely is them who will undertake the care that some families bought from the market. Under mobilization restrictions, some families may decide to reduce their economic expenditures in domestic work and/or in care work and schooling so that the inactive women will be relegated to domestic activities.

Table 6 shows that women have a lower probability of participation in the labor market after the crisis. Specifically, being a woman during the crisis decreases the probability of 6.7 pp for a householder and 3.4pp for the total population. Such a result would be in line with the findings of Kundu and Premi's

research (1992), who found that women who did not participate in the workforce attributed a "pressing need for domestic work" as the primary cause for their nonparticipation. In the end, driving women to inactivity will strengthen the gender stereotypes and leave women relegated to unpaid domestic work, making them economically dependent and increasing the probability that they are victims of domestic violence (Iregui, Ramirez, and Tribin 2019). Specifically, there is evidence for Colombia that the lack of childcare services makes it more difficult for women to participate in the labor market. In contrast, subsidized childcare services cause a sizeable increase in female labor supply (Cardona-Sosa and Morales, 2015). As it is the case in other labor market outcomes, results for the whole sample of workers greater than 25 years old are very similar to the ones discussed previously (see Appendix A).

By May 2020, two months after lockdown measures started, the inactive population increased to 17.8 million, and women comprised 64% (11 million) of that population. A higher percentage (63.4%) of inactive women dedicated their time mainly to domestic work. As a consequence of the economic crisis, the employment market will be difficult for men and women. However, since the latter face higher discrimination in access to employment and may face higher dismissal rates, it is likely that they will undertake the care that some families bought from the market. Under mobilization restrictions and the loss of family income due to the pandemic's economic crisis, some families may decide to reduce their economic expenditures in domestic work and/or in care work and schooling so that the inactive women will be relegated to domestic activities.

This whole post-crisis scenario is very likely to lead us again to the vicious cycle we were just getting out. We know that women's social expectation is that women are the primary care providers and domestic caretakers are highly correlated to male and female identity construction. Manifestations of "unconscious routines" and broader social life impact women's and men's life choices (Bakker 2007). As older women are forced to concentrate in care work and domestic activities and be excluded from paid employment, new generations of women may lose some of the ground advanced in recent years towards participation in paid employment and female economic independence.

Table 6. Gender gap in labor participation

	Householders		Total	
	Labor participation	Labor participation	Labor participation	Labor participation
Post	-0.0390*** (0.0033)	-0.0402*** (0.0035)	-0.0564*** (0.0069)	-0.0577*** (0.0077)
Woman	-0.1284*** (0.0312)	-0.1332*** (0.0329)	-0.2215*** (0.0542)	-0.2298*** (0.0560)
Post x Woman	-0.0698* (0.0340)	-0.0671* (0.0333)	-0.0352*** (0.0108)	-0.0343*** (0.0109)
Children		-0.0171*** (0.0045)		-0.0264*** (0.0036)
Education		0.0053***		0.0128***

		(0.0004)		(0.0006)
Age		0.0122*		0.0231***
		(0.0062)		(0.0047)
Age2		-0.0002*		-0.0003***
		(0.0001)		(0.0001)
Observations	21,558	21,558	56,208	56,208
Area	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. The variable Post is equal to 1 starting in March 2020, the variable Woman represents the female sex and the variable Post x Woman represents the interaction between them. The variable Children is equal to 1 when there are children under 6 years old in the household. The results are presented for the total sample and for the householders. Standard errors are presented in parenthesis and clustered at the city level.

Source: Calculations by the authors.

The "female staircase fall" that we have described in the preceding sections shows that women will lose their labor market status. Formal workers may go to informal jobs, and informal workers may go to unemployment. Finally, the unemployed may go to inactivity, relegating more and more women to domestic work. Women who remain employed have experienced a deterioration in their employment conditions by increasing the wage gap. This result is guided mainly by informal workers making their working conditions increasingly precarious. Lower wages of women increase the chances that women remain the secondary earners of the households. In a crisis, secondary earners will be the ones who may have to scale back their hours or pull out of the labor force altogether to manage additional family and household tasks. In the end, regretfully, we think it will be challenging for women to climb up the ladder after the crisis.

**4.4 All along the staircase: The intensification of domestic labor**

This section shows that in the aftermath of the crisis, both men and women have increased their care work; nevertheless, its bulk falls on women. The increment in women's share of work in an already imbalanced situation. Indeed, according to the last National Time Use Survey (DANE, ENUT, 2016-2017), women in Colombia undertake 78,4% of the annual hours of domestic and unpaid care work. On average, on a daily basis, women spend 7:14 hours on unpaid work and 7:35 hours on paid work. In comparison, men spend 3:25 hours on unpaid work and 9:14 hours on paid work. This difference in the time allocated for care work is likely to be intensified due to the crisis and will have an impact on women's employment.

The fact that families have had to stay home and articulate care-work with homeschooling and paid employment has imposed a high burden that usually falls on women. Given that grandparents have been advised to isolate, this help is not currently available. The probability that the person reported domestic work as their primary activity during the last week was also estimated. Table 7 shows that after the crisis, the probability of allocating the most time to domestic work for a woman increases

more than for men. The probability of dedicating most of the time to domestic work increases by 13.5pp for women household heads, and by 5.7pp for all women once the crisis began. These results suggest that women from any state are more likely to go into inactivity, devoting themselves exclusively to doing housework. This finding represents a setback in the fight for gender equality in the labor market and a return of the female workers to unpaid caregivers' status, reinforcing the gender stereotypes where men end up belonging to paid work and women relegated to domestic work.

The increase in domestic work has imposed possible losses in productivity on women. Even if they manage to remain equally productive, they can also be perceived with lower productivity by employers. As a result, women are more vulnerable to a reduction in wages, dismissals even if they are not working in a sector hardly hit by the crisis, and join inactivity due to the lack of time to actively search for jobs.<sup>8</sup> Under these circumstances, companies might prefer to maintain the most productive workers on their payrolls. Given that men consistently have a lower domestic workload, they would have a greater probability of keeping their jobs.

In this way, it is most likely that the engine driving the fall along the staircase is unpaid domestic work and care. The pandemic has imposed a disproportionate burden on women. It has pushed them downwards in the labor market, driving them to accept worse employment conditions and be relegated to use their time in domestic work, retreating the path leading to a more equitable society in terms of gender.

Table 7. Gender gap in domestic work

	Householders		Total	
	Household chores	Household chores	Household chores	Household chores
Post	0.1258*** (0.0283)	0.1272*** (0.0280)	0.1179*** (0.0159)	0.1190*** (0.0154)
Woman	0.2981*** (0.0641)	0.3062*** (0.0653)	0.4053*** (0.0779)	0.4115*** (0.0792)
Post x Woman	0.1395*** (0.0283)	0.1352*** (0.0280)	0.0576*** (0.0122)	0.0568*** (0.0121)
Children		0.0458*** (0.0066)		0.0624*** (0.0083)
Education		-0.0076*** (0.0015)		-0.0131*** (0.0015)
Age		0.0008 (0.0113)		0.0037 (0.0069)
Age2		-0.0000 (0.0002)		-0.0000 (0.0001)
Observations	21,558	21,558	56,208	56,208
Area	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

<sup>8</sup> Article 62 of the Colombian Labor Code includes amongst fair reasons for dismissal, reducing productivity in a workers' performance compared with earlier productivity.

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. The variable Household chores is calculated for working-age population. The variable Post is equal to 1 starting in March 2020, the variable Woman represents the female sex and the variable Post x Woman represents the interaction between them. The variable Children is equal to 1 when there are children under 6 years old in the household. The results are presented for the total sample and for the householders. Standard errors are presented in parenthesis and clustered at the city level.

Source: Calculations by the authors.

## 5. Robustness checks

The literature has shown that the economic cycle affects men and women differently in labor market indicators. For instance, men's jobs growth appears to be more sensitive to the economic cycle than it is for women, and the economic cycle can affect gender gaps conditional on the context and the existing gender occupational segregation (Peiró et al. 2012; Marchand and Olfert, 2013; Razzu and Singleton 2016, 2018).

A simple way to test whether our results were driven by the crisis or the economic cycle is to do a placebo exercise. We run the same regression for all outcome variables where January and February 2019 are considered the pre-period and May 2019 the post-period. The results are reported in Table 8. This exercise aims to confirm that the results are robust to the specification. The widening in the gender gaps was driven by the crisis, not solely by the economic cycle. If the economic cycle were not to affect gender gaps, then all coefficients of interest post\*women, for each labor market outcome would have been zero or statistically insignificant for the year 2019. However, as the literature has indicated, results show that this is not the case for some outcomes. For example, the coefficient for unemployment is negative and statistically significant, implying a decrease in the gender gap in 2019. In this case, our estimates might underestimate the real effect of the crisis. Even when the post\*woman's coefficient is significant for 2019, the sign goes in the opposite direction to what is expected. Consequently, instead of increasing the gaps are being reduced, this placebo-type exercise helps us provide evidence of our results' reliability. The crisis indeed increased gender gaps, which is not only the result of the economic cycle.

However, two results of this robustness check exercise must be mentioned: the case of hourly wages and the probability of participation. In 2019, there was an increase in the gap against female-headed households, which is observed in the total sample and the informal worker's sample, indicating that our results reflect both the crisis and the economic cycle. We find that the effects on wages for 2020 are such that there was a considerable decrease of 51% and 93% respectively for women heads of household in the total sample and informal jobs, and these effects are significantly larger from their corresponding placebo estimate of 2019, (-13% and -17% respectively). Therefore, the results are reliably indicating that the crisis increased the wage gap. The same finding is present in the labor participation probability estimates. The crisis's effect is estimated to be high enough that the crisis increased the participation gap. Thus, this placebo test corroborates the validity of our results.

Table 8. Robustness Check: Placebo Regression

Post x Woman	Householders		Total	
	No Controls	Yes Controls	No Controls	Yes Controls
Log hourly wage				
Total	-0.1275*	-0.1287**	0.0298	0.0309
	-0.0665	(0.0605)	(0.0839)	(0.0719)
Formal	-0.0082	-0.0031	0.0083	0.0136
	(0.1603)	(0.1316)	(0.1399)	(0.1169)
Informal	-0.1632**	-0.1658**	0.0907*	0.0874*
	(0.0728)	(0.0742)	(0.0506)	(0.0506)
Log worked hours				
Total	0.0260	0.0254	0.0191*	0.0191*
	(0.0264)	(0.0269)	(0.0100)	(0.0102)
Formal	-0.0198*	-0.0183*	-0.0124**	-0.0119**
	(0.0098)	(0.0107)	(0.0055)	(0.0055)
Informal	0.0622	0.0620	0.0451***	0.0453***
	(0.0378)	(0.0381)	(0.0157)	(0.0156)
Pr(Formal)	-0.0225	-0.0238	-0.0151	-0.0149
	(0.0165)	(0.0182)	(0.0099)	(0.0097)
Unemployment	-0.0122	-0.0126*	-0.0197	-0.0198*
	(0.0078)	(0.0073)	(0.0116)	(0.0109)
Labor participation	-0.0170**	-0.0171**	0.0084***	0.0069*
	(0.0064)	(0.0068)	(0.0029)	(0.0037)
Household chores	-0.0166	-0.0159	-0.0174*	-0.0152
	(0.0239)	(0.0244)	(0.0098)	(0.0099)

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. This table gathers the results of the coefficients of the Post x Woman variable of the placebo regression for each of the dependent variables used in this study. The placebo regression was estimated for 2019.

Source: Calculations by the authors.

## 6. Final remarks

By May 2020, near three months after lockdown measures had been implemented, 4,9 million jobs in Colombia were lost. According to DANE (2020), male unemployment increased from 8.3% to 18.6%, while women's increased from 13,4% to 25.4% compared to the same month in 2019. At its turn, female employment participation decreased from 46% in May 2019 to 33% in May 2020, leaving many women unemployed or inactive. The data analyzed for this paper indicates a staircase fall that is in motion: women have lost ground and status in employment, they have seen a reduction in wages and an increase in their informality, unemployment, and inactivity rates.

Additionally, the current burden of domestic work makes it unlikely that women who have lost status in the labor market will change their situation in the short term. Even formal women who currently have a job face the pressure of the "synchronic double burden," which may lead to a loss of competitiveness compared with their male counterparts, pushing them to unemployment. Informal workers face a more challenging market because it shrinks in size and faces competition from high-skilled formals who take refuge in informality. This situation may have led some informal workers into unemployment. Some unemployed women have become discouraged and have ended up in inactivity. Across the board, women are using more of their time in unpaid care and domestic work, representing a setback for the fight for equality outside and inside the home. Many women can fall directly into inactivity from any labor state due to the pressure of housework, which implies the rapid slide down the stairs towards exclusive dedication to unpaid care and housework.

Gender inequality in employment is a structural characteristic of the Colombian labor market that will become more entrenched if measures to protect female employees are not quickly adopted. These measures should include a proposal for flexible work arrangements to benefit workers with care responsibilities, which should protect them from dismissals for relative productivity losses. Also, dismissal controls should be adopted to guard female workers against massive discriminatory contract terminations in the crisis context. In addition, more transparent hiring practices should be implemented to exclude gender discrimination in access to employment, which regrettably is not effectively sanctioned in the Colombian legal system. This crisis, whose impacts increase gender gaps in the labor market, should also be an argument for affirmative hiring measures that favor women. Likewise, measures must be taken to reactivate and boost economic sectors and occupational positions that are intensive in female employment, such as the service and commercial sectors and the sector of domestic workers. In this case, public spending measures used in previous crises, such as the construction boost, may relegate the reactivation of women's employment. Additionally, more efforts should be directed at increasing internet coverage in the country so that more families and women could migrate to telework when possible.

The Colombian national government has adopted some mitigation measures, including cash transfers for people living in poverty. However, these have not included a gender perspective, which may lead to the intensification of feminized poverty in the country, leaving women and children behind. Most importantly, the reopening of the economy should be a calculated effort that benefits us all. In this sense, possibly, an essential measure in terms of gender equity should be to coordinate the restart of the economy with the reopening of in-person education in schools and daycares. If crises are opportunities for change, maybe this could be an excellent time to rethink the provision of care for extended hours, which will allow women to articulate better-paid work with care providers. Policies like these could allow women to continue or restart their participation in paid employment as their responsibilities for care are reduced, which entails rethinking the economy and public policy by giving center stage to care.

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## Appendix A

### Appendix A.1. Gender gap in wages

	Householders		Total	
	Log hourly wage	Log hourly wage	Log hourly wage	Log hourly wage
<b>A. Total</b>				
Post	-1.3266** (0.4819)	-1.3321** (0.4810)	-1.3278*** (0.4093)	-1.3306*** (0.4087)
Woman	-0.2114*** (0.0626)	-0.2132*** (0.0601)	-0.5302*** (0.1801)	-0.5457*** (0.1756)
Post x Woman	-0.4542*** (0.1016)	-0.4536*** (0.0989)	-0.2511*** (0.0697)	-0.2541*** (0.0715)
Children		-0.0548*** (0.0170)		0.0058 (0.0519)
Education		0.0506*** (0.0172)		0.0456** (0.0173)
Age		0.0411** (0.0179)		0.0338*** (0.0113)
Age2		-0.0005** (0.0002)		-0.0004*** (0.0001)
Observations	31,224	31,224	60,030	60,030
Area	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes
Sector	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes
<b>B. Formal</b>				
Post	-0.8482*** (0.2997)	-0.8552*** (0.2939)	-0.8689*** (0.2462)	-0.8716*** (0.2425)
Woman	-0.1166** (0.0473)	-0.1318*** (0.0359)	-0.1675*** (0.0438)	-0.1840*** (0.0471)
Post x Woman	0.0273 (0.1300)	0.0317 (0.1294)	0.0761 (0.0487)	0.0774 (0.0493)
Children		0.0067 (0.0340)		0.0248 (0.0480)
Education		0.0756*** (0.0149)		0.0780*** (0.0143)
Age		-0.0000 (0.0135)		0.0014 (0.0137)
Age2		0.0001 (0.0002)		0.0001 (0.0002)
Observations	13,484	13,484	26,619	26,619
Area	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes
Sector	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes
<b>C. Informal</b>				
Post	-1.6642**	-1.6635**	-1.6668**	-1.6671**

	(0.6766)	(0.6776)	(0.6123)	(0.6124)
Woman	-0.2486**	-0.2446**	-0.7949***	-0.8043***
	(0.1031)	(0.0981)	(0.1977)	(0.1920)
Post x Woman	-0.7111***	-0.7232***	-0.4696***	-0.4750***
	(0.1786)	(0.1865)	(0.1384)	(0.1421)
Children		-0.0578*		0.0186
		(0.0314)		(0.0529)
Education		0.0127		0.0110
		(0.0133)		(0.0116)
Age		0.0614*		0.0530**
		(0.0347)		(0.0232)
Age2		-0.0007**		-0.0006**
		(0.0004)		(0.0003)
Observations	17,740	17,740	33,411	33,411
Area	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes
Sector	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. The variable Post is equal to 1 starting in March 2020, the variable Woman represents the female sex and the variable Post x Woman represents the interaction between them. The variable Children is equal to 1 when there are children under 6 years old in the household. The results are presented for the total sample and for the householders. Standard errors are presented in parenthesis and clustered at the city level.

Source: Calculations by the authors.

#### Appendix A.2. Gender gap in hours worked

	Householders		Total	
	Log worked hours	Log worked hours	Log worked hours	Log worked hours
<b>A. Total</b>				
Post	-0.0085	-0.0094	-0.0053	-0.0057
	(0.0097)	(0.0101)	(0.0079)	(0.0082)
Woman	-0.2060***	-0.2060***	-0.2429***	-0.2448***
	(0.0326)	(0.0313)	(0.0480)	(0.0479)
Post x Woman	0.0127	0.0117	0.0325*	0.0319*
	(0.0272)	(0.0270)	(0.0170)	(0.0170)
Children		-0.0107		-0.0027
		(0.0102)		(0.0085)
Education		0.0012		0.0007
		(0.0009)		(0.0007)
Age		0.0138***		0.0135***
		(0.0023)		(0.0015)
Age2		-0.0002***		-0.0002***
		(0.0000)		(0.0000)

Observations	32,202	32,202	61,948	61,948
Area	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes
Sector	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

### B. Formal

Post	-0.0222*** (0.0054)	-0.0225*** (0.0060)	-0.0127** (0.0046)	-0.0130** (0.0047)
Woman	-0.0451*** (0.0048)	-0.0460*** (0.0048)	-0.0507*** (0.0109)	-0.0525*** (0.0104)
Post x Woman	0.0276*** (0.0068)	0.0278*** (0.0065)	0.0217*** (0.0074)	0.0217*** (0.0073)
Children		0.0064 (0.0060)		0.0056 (0.0055)
Education		-0.0022** (0.0010)		-0.0018*** (0.0004)
Age		0.0105*** (0.0032)		0.0088*** (0.0013)
Age2		-0.0001*** (0.0000)		-0.0001*** (0.0000)
Observations	14,010	14,010	27,687	27,687
Area	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes
Sector	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

### C. Informal

Post	0.0010 (0.0131)	0.0004 (0.0139)	0.0032 (0.0104)	0.0035 (0.0108)
Woman	-0.3223*** (0.0241)	-0.3200*** (0.0238)	-0.3930*** (0.0284)	-0.3945*** (0.0286)
Post x Woman	0.0104 (0.0397)	0.0067 (0.0400)	0.0416 (0.0323)	0.0400 (0.0319)
Children		-0.0113 (0.0170)		-0.0041 (0.0122)
Education		0.0000 (0.0013)		-0.0007 (0.0009)
Age		0.0165*** (0.0037)		0.0191*** (0.0027)
Age2		-0.0002*** (0.0000)		-0.0002*** (0.0000)
Observations	18,192	18,192	34,261	34,261
Area	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes
Sector	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. The variable Post is equal to 1 starting in March 2020, the variable Woman represents the female sex and the variable Post x Woman represents the

interaction between them. The variable Children is equal to 1 when there are children under 6 years old in the household. The results are presented for the total sample and for the householders. Standard errors are presented in parenthesis and clustered at the city level.  
Source: Calculations by the authors.

### Appendix A.3. Gender gap in formal job

	Householders		Total	
	Pr(Formal)	Pr(Formal)	Pr(Formal)	Pr(Formal)
Post	-0.0020 (0.0159)	-0.0046 (0.0158)	-0.0001 (0.0070)	-0.0011 (0.0070)
Woman	-0.0461*** (0.0086)	-0.0470*** (0.0070)	-0.0391*** (0.0137)	-0.0431*** (0.0132)
Post x Woman	-0.0194 (0.0211)	-0.0161 (0.0199)	-0.0102** (0.0036)	-0.0107** (0.0040)
Children		-0.0043 (0.0035)		-0.0032 (0.0026)
Education		0.0139*** (0.0011)		0.0121*** (0.0014)
Age		0.0015 (0.0021)		-0.0017 (0.0012)
Age2		-0.0001* (0.0000)		-0.0000* (0.0000)
Observations	32,202	32,202	61,948	61,948
Area	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes
Sector	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. The variable Post is equal to 1 starting in March 2020, the variable Woman represents the female sex and the variable Post x Woman represents the interaction between them. The variable Children is equal to 1 when there are children under 6 years old in the household. The results are presented for the total sample and for the householders. Standard errors are presented in parenthesis and clustered at the city level.

Source: Calculations by the authors.

Appendix A.4. Gender gap in unemployment

	Householders		Total	
	Unemployment	Unemployment	Unemployment	Unemployment
Post	0.0780*** (0.0137)	0.0780*** (0.0142)	0.0902*** (0.0147)	0.0898*** (0.0151)
Woman	0.0571*** (0.0147)	0.0573*** (0.0137)	0.0630*** (0.0146)	0.0620*** (0.0126)
Post x Woman	0.0253*** (0.0087)	0.0254*** (0.0085)	0.0043 (0.0078)	0.0043 (0.0077)
Children		-0.0012 (0.0041)		-0.0067* (0.0035)
Education		-0.0004 (0.0013)		0.0000 (0.0018)
Age		-0.0006 (0.0010)		-0.0094*** (0.0016)
Age2		0.0000 (0.0000)		0.0001*** (0.0000)
Observations	36,654	36,654	73,533	73,533
Area	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. The variable Post is equal to 1 starting in March 2020, the variable Woman represents the female sex and the variable Post x Woman represents the interaction between them. The variable Children is equal to 1 when there are children under 6 years old in the household. The results are presented for the total sample and for the householders. Standard errors are presented in parenthesis and clustered at the city level.

Source: Calculations by the authors.

Appendix A.5. Gender gap in labor participation

	Householders		Total	
	Labor participation	Labor participation	Labor participation	Labor participation
Post	-0.0568*** (0.0028)	-0.0578*** (0.0034)	-0.0695*** (0.0030)	-0.0695*** (0.0032)
Woman	-0.1985*** (0.0209)	-0.1874*** (0.0225)	-0.2678*** (0.0398)	-0.2682*** (0.0434)
Post x Woman	-0.0318 (0.0205)	-0.0365* (0.0204)	-0.0235* (0.0130)	-0.0236* (0.0124)
Children		-0.0155*** (0.0024)		-0.0262*** (0.0028)
Education		0.0053*** (0.0004)		0.0115*** (0.0007)
Age		0.0290*** (0.0022)		0.0317*** (0.0017)
Age2		-0.0004*** (0.0000)		-0.0004*** (0.0000)
Observations	44,386	44,386	97,309	97,309
Area	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. The variable Post is equal to 1 starting in March 2020, the variable Woman represents the female sex and the variable Post x Woman represents the interaction between them. The variable Children is equal to 1 when there are children under 6 years old in the household. The results are presented for the total sample and for the householders. Standard errors are presented in parenthesis and clustered at the city level.

Source: Calculations by the authors.



Appendix A.6. Gender gap in domestic work

	Householders		Total	
	Household chores	Household chores	Household chores	Household chores
Post	0.1275*** (0.0280)	0.1285*** (0.0276)	0.1216*** (0.0207)	0.1221*** (0.0198)
Woman	0.3671*** (0.0573)	0.3648*** (0.0592)	0.4447*** (0.0683)	0.4462*** (0.0708)
Post x Woman	0.0876*** (0.0178)	0.0880*** (0.0174)	0.0444*** (0.0113)	0.0436*** (0.0115)
Children		0.0433*** (0.0062)		0.0553*** (0.0076)
Education		-0.0083*** (0.0013)		-0.0119*** (0.0008)
Age		-0.0099*** (0.0011)		-0.0076*** (0.0007)
Age2		0.0001*** (0.0000)		0.0001*** (0.0000)
Observations	44,386	44,386	97,309	97,309
Area	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. The variable Household chores is calculated for working-age population. The variable Post is equal to 1 starting in March 2020, the variable Woman represents the female sex and the variable Post x Woman represents the interaction between them. The variable Children is equal to 1 when there are children under 6 years old in the household. The results are presented for the total sample and for the householders. Standard errors are presented in parenthesis and clustered at the city level.

Source: Calculations by the authors.

