

# The Colombian Labor Market through the COVID-19 shock

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In this brief document I show the descriptive consequences that the COVID-19 pandemic has had on several key indicators of the Colombian labor market. This overview also focuses on different subgroups of the population (e.g., gender, education, birthplace, industry, age, location and type of job). Importantly, I compare medium-term trends, that goes back until 2011, to analyze the historical extent of this crisis. All the information analyzed comes from the Labor Force Survey of Colombia (GEIH, by its acronym in Spanish).<sup>1</sup>

## **Summary of findings:**

1. In 2020 there were 2.4 million workers less than in 2019
2. Average wages drop by 9.3% in 2020
3. Average formal wages did not decrease in 2020
4. Self-employed workers amplify the drop in wages while salaried workers explain the big drop in employment
5. Construction and Commerce record the highest negative shocks on wages and employment
6. Females participate less in the labor market
7. Workers with low education had a loss in average wages severely higher compared to workers with high education
8. Younger persons had a higher increase in the unemployment rate
9. All departments had a drop in employment while some had positive increases in wages
10. Unemployment rose by 5.5 p.p for Colombians and by 3.1 p.p for Venezuelans

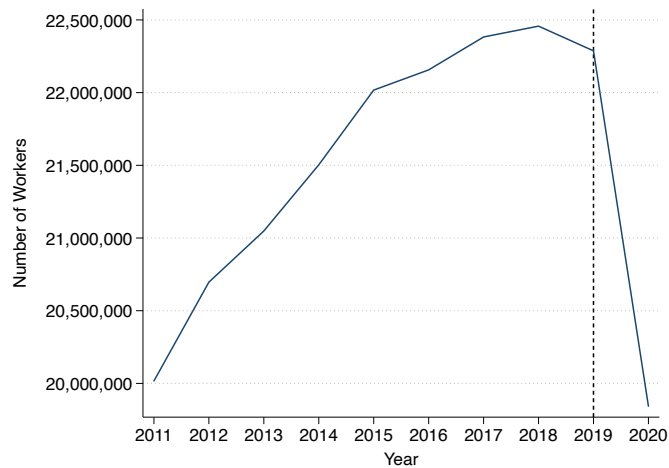
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<sup>1</sup>Aggregating the data from GEIH can be quite cumbersome sometimes, let me know if you need help and I can share my files for specific requests. All errors in this document are my own. Comments are welcome.

## In 2020 there were 2.4 million workers less than in 2019

The deterioration that the COVID-19 pandemic has had on the labor market is unprecedented. First and foremost, I study employment responses during this crisis. In Figure 1, I plot the total number of workers in Colombia since 2011, the steady growth in the number of occupied persons in the last decade vanishes completely in 2020. There were 2.4 million workers less than in 2019, and **levels of employment in 2020 are smaller than in 2011**.

Figure 1: Total Workers

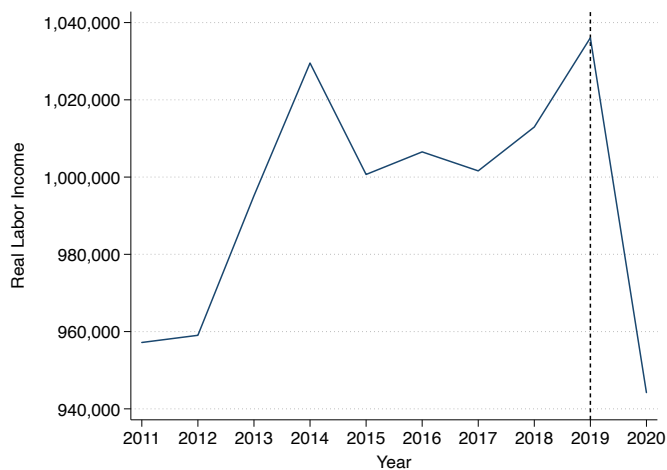


Note: National sampling weights are used. Monthly wages are in real terms using monthly CPI from DANE.  
Source: GEIH 2011 to 2020.

## Average wages drop by 9.3% in 2020

Then, I study wage responses. Comparing 2020 with 2019, the average wage of all occupied workers in Colombia fell by 9.3%. In real terms, **average wages in 2020 are lower than in 2011** (see Figure 2).

Figure 2: Average Wages

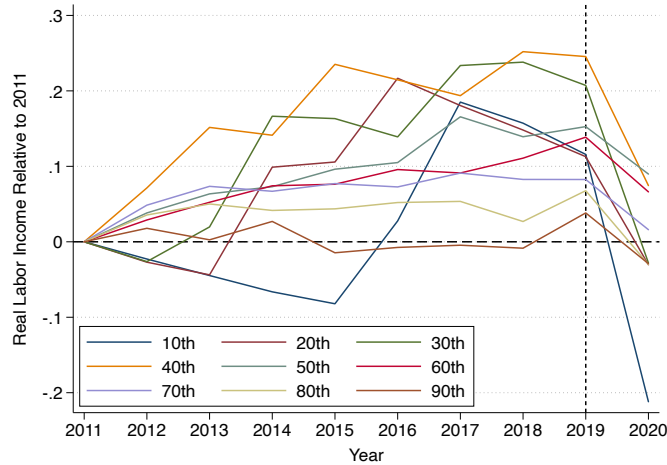


Note: National sampling weights are used. Monthly wages are in real terms using monthly CPI from DANE. Source: GEIH 2011 to 2020.

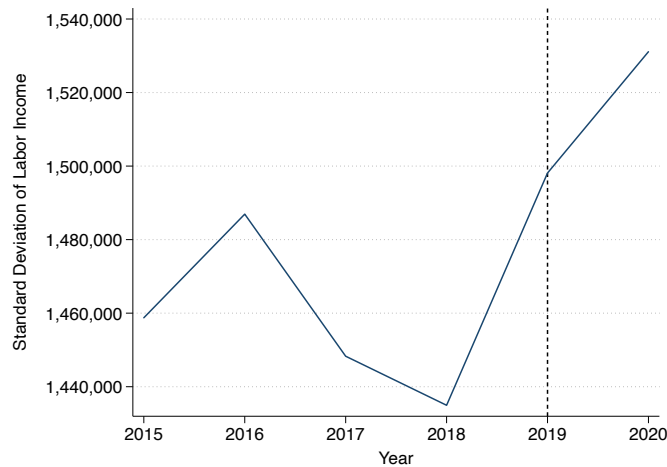
Second, the mean analysis aggregates all the distribution to a point, for that reason, I compute wages for given percentiles in the wage distribution, use 2011 as the base year and compare those trajectories. In Figure 3a, I show that over time there exists an heterogeneous growth of wages, with higher growths close to median percentiles (40th, 50th and 60th), jumping from negative to positive growths in the lowest percentiles (10th, 20th and 30th) and stagnated growths in the highest percentile (90th). Importantly, the largest drop in 2020 comes from wages in the lowest percentile, with around -20% less than in 2011. This drop is accompanied by an increase of the standard deviation of wages (proxy of inequality) in 2020 (see Figure 3b).

Figure 3: Time Series of Wages

(a) Percentiles of Wages



(b) Standard Deviation of Wages



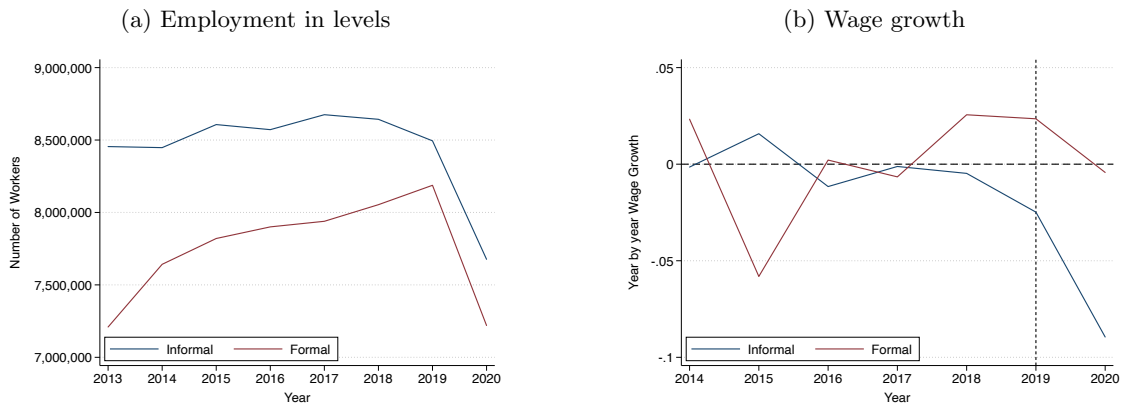
Note: National sampling weights are used. Monthly wages are in real terms using monthly CPI from DANE. Source: GEIH 2011 to 2020.

### Average formal wages did not decrease in 2020

The Colombian Labor Market is determined by the interdependence of two broad sectors of employment, namely, the informal and formal sector. If using the national definition of informality based on firm size and occupation, workers can be divided into formal and

informal workers. In Figure 9a, I show that employment fell in the two sectors, yet more on the formal one. While **average wages only drop in the informal sector**, with a loss around 8.9% (see Figure 9b).

Figure 4: **Wages and Employment by sector**

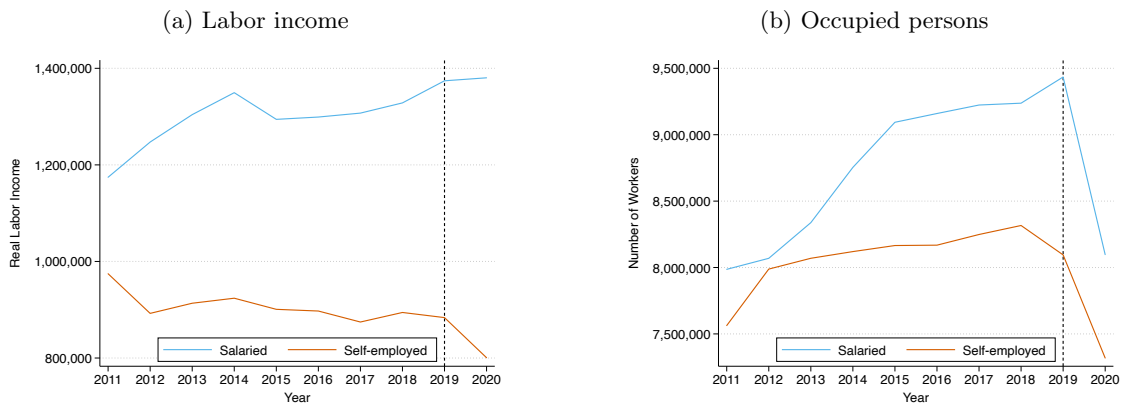


Note: National sampling weights are used. In March and April of all years are omitted to be comparable with 2020, when in those months the questionnaire was reduced. Sample is restricted to workers between 16 and 64 years in urban areas. Monthly wages are in real terms using monthly CPI from DANE. Source: GEIH 2011 to 2020.

### **Self-employed workers amplify the drop in wages while salaried workers explain the big drop in employment**

Self-employment is a common type of job in Colombia that depends on the offering of own services and goods, this job is opposite to employees or salaried workers that depend on a firm. In Figure 5a, I plot the historic real labor income since 2011, interestingly salaried workers increase their wages in 2020 while for self-employed workers decrease, thus it seems that the **national drop in wages is driven by the loss in self-employed labor income**. In terms of total employment, salaried workers had a drop much higher than self-employed ones, however this could be just a labor movement between the two states due to the crisis (see Figure 5b).

Figure 5: Wages and Employment by type of job

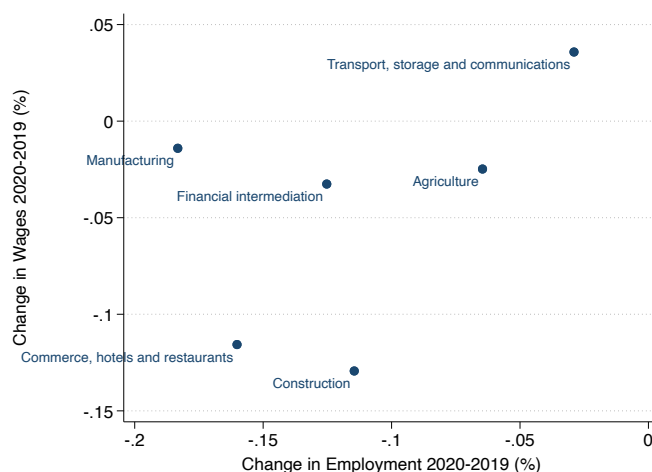


Note: National sampling weights are used. Sample is restricted to urban areas. Monthly wages are in real terms using monthly CPI from DANE. Source: GEIH 2011 to 2020.

### Construction and Commerce record the highest negative shocks on wages and employment

Given that some activities or industries of the economy suffered with more intensity the continuous lockdowns in 2020, I do an analysis for six branches of economic activity. In Figure 6, I plot the change in wages 2020-2019 in the Y-axis with the change in employment 2020-2019 in the X-axis. There seems that **industries more affected in terms of job losses are also the ones most affected by wage drops**. To highlight, Construction and Commerce record the highest negative shocks, with a drop in wages of around 12.9% and 11.6% respectively, and a loss in jobs of around 11.4% and 16% respectively.

Figure 6: **Change in Wages and Employment 2020 vs. 2019**

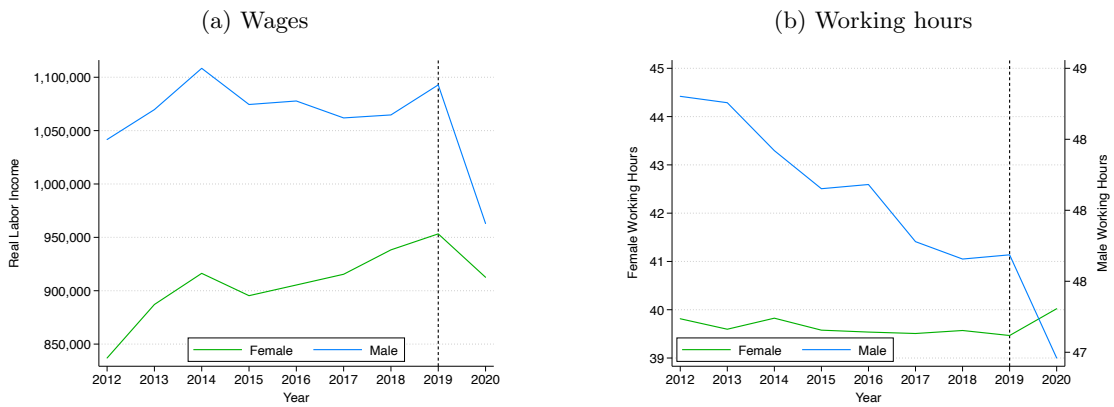


Note: National sampling weights are used. Monthly wages are in real terms using monthly CPI from DANE. Other branches of economic activity were omitted due to low sampling or by issues of comparison with the change of codes of economic activity between 2019 and 2020. Source: GEIH 2019-2020.

### **Females participate less in the labor market**

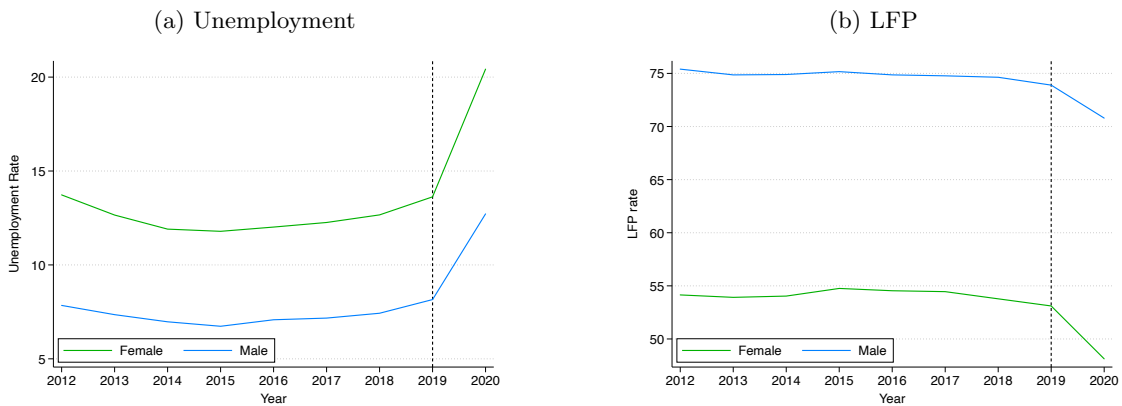
The toll of the pandemic on women is arguably more adverse. In this case, I analyze first that wages fell more in male compared to female workers (reducing the unconditional wage gap) but at the extent of women working more hours (Figure 7b) and participating less in the labor market (Figure 8b), on aggregate. In terms of the unemployment rate, for females increased by 6.8 percentage points (p.p), while for males by 4.6 p.p.

Figure 7: Wages and Working Hours by Gender



Note: National sampling weights are used. Monthly wages are in real terms using monthly CPI from DANE. Source: GEIH 2011 to 2020.

Figure 8: Rates of Unemployment and Participation by Gender



Note: National sampling weights are used. Monthly wages are in real terms using monthly CPI from DANE. Source: GEIH 2011 to 2020.

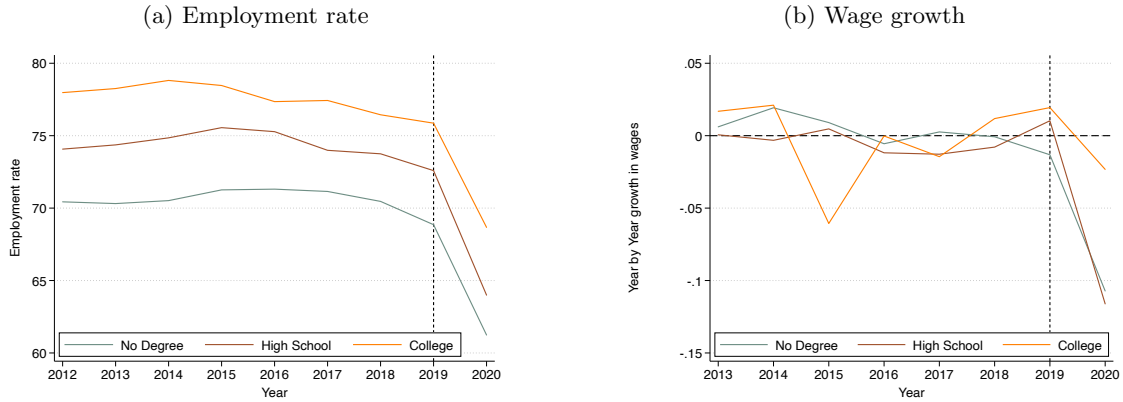
**Workers with low education had a loss in average wages severely higher compared to workers with high education**

The possibility to adjust to remote working can have differential responses depending on the level of education, as manual or automatic tasks are more correlated to education levels. In terms of the employment rate, **all the education levels have a similar drop**



**in employment** comparing 2020 with 2019, which is between 7-8 p.p. However, in terms of wages, workers with high school or no degree had a loss in average wages five times higher compared to workers with college, again comparing 2020 with 2019. Concretely, the change in average wage is 11.6% for workers with high school, 10.7% for workers with no degree and 2.3% for workers with college.

Figure 9: **Wages and Employment by level of education**

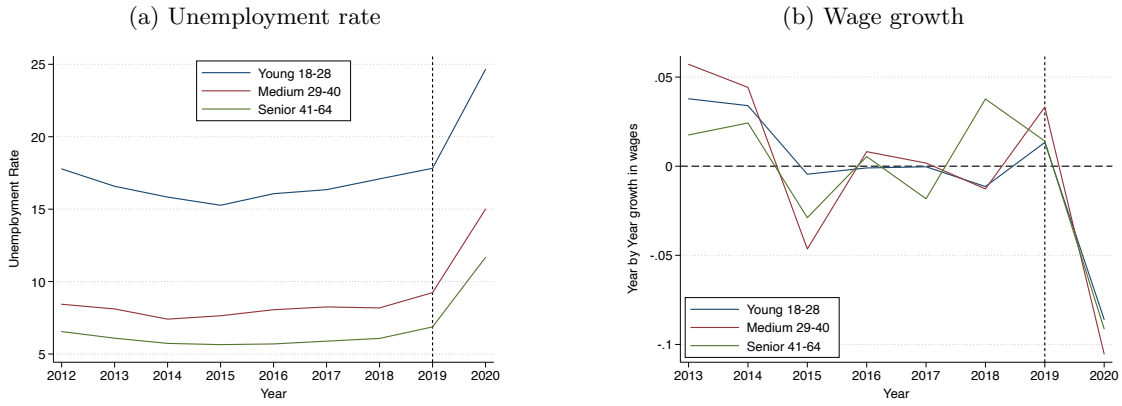


Note: National sampling weights are used. In March and April of all years are omitted to be comparable with 2020, when in those months the questionnaire was reduced. Monthly wages are in real terms using monthly CPI from DANE. Source: GEIH 2011 to 2020.

### Younger persons had a higher increase in the unemployment rate

When analyzing by age, aggregated in three big categories: (i) young from 18 to 28 years old, (ii) medium from 29 to 40 years old and (iii) senior from 41 to 64 years old. I find that the unemployment rate rose higher for the younger group (+6.8 p.p), followed by the medium group (+5.8 p.p) and lastly the senior group (+4.8 p.p), see Figure 10a. In terms of wage growth, the three age groups suffer a similar average wage loss comparing 2020 with 2019 (see Figure 10b).

Figure 10: Unemployment and wage growth by age group

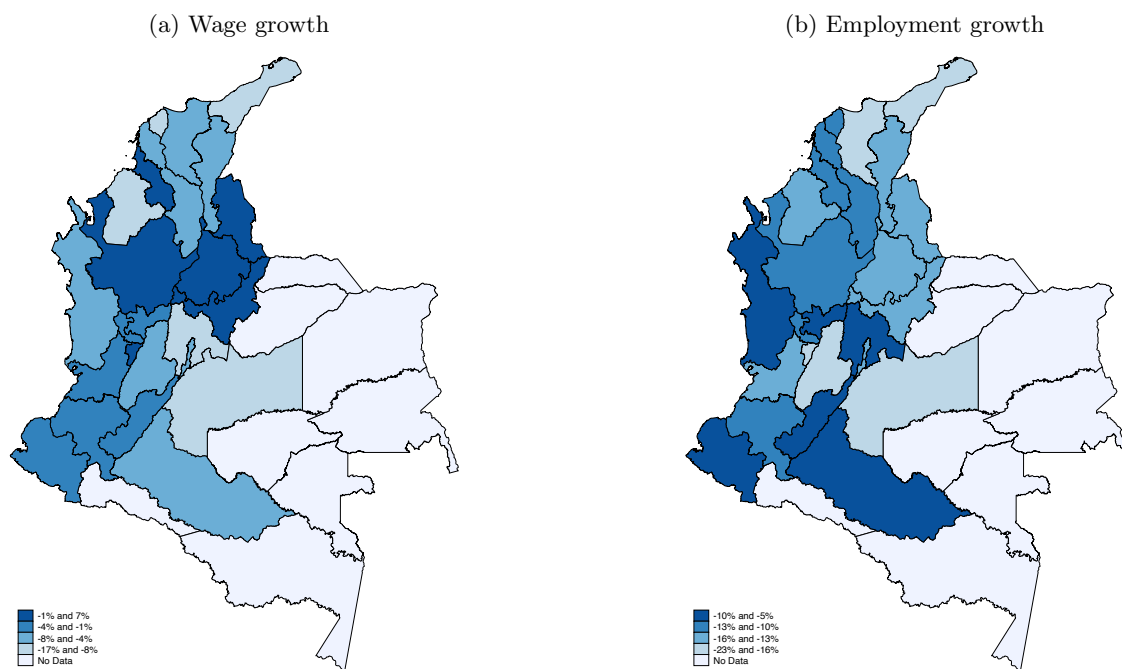


Note: National sampling weights are used. Sample is restricted to workers between 18 and 64 years. Monthly wages are in real terms using monthly CPI from DANE. Source: GEIH 2012 to 2020.

### All departments had a drop in employment while some had positive increases in wages

The severity of the lockdown measures during 2020 was different at the department level in Colombia, this can yield heterogeneity in the results of employment and wages according to location. In Maps 11a and 11b, I show that **all departments had a drop in total occupied persons while some had a positive increase in average wages**, note that darker blue means a better result, a more pale blue means a worst result and a blank one means no data. Concretely, departments where average wages increased the most, possibly due to the mechanical lost in employment, were Quindío, Norte de Santander and Antioquia. In contrary, departments where average wages drop the most were Caribbean departments (Córdoba, Atlántico and La Guajira). In terms of employment, all departments had losses. All of these results are without taking into account migration patterns between departments due to the ongoing crisis.

Figure 11: Growth in Wages and Employment 2020 vs. 2019



Note: National sampling weights are used. Sample is restricted to urban areas. Monthly wages are in real terms using monthly CPI from DANE. Source: GEIH 2011 to 2020.

### Unemployment rose by 5.5 p.p for Colombians and by 3.1 p.p for Venezuelans

Venezuelan immigration in Colombia has been recognized as one of the largest migration events in the century. For that reason, I show the consequences of COVID-19 on Colombians and Venezuelans aggregate labor rates. Importantly, **Colombians seems to be more affected than Venezuelans**, with bigger losses on average wages and bigger increases on the rate of unemployment (see Table 1). With the caveat that Venezuelan wages were relatively low pre-covid.

Table 1: **Labor Outcomes by Birthplace**

	Wages	Occupied	LFP*	Employment*	Unemployment*	Informality*
<b>Colombians</b>						
2019	1,043,163	21,378,091	62.9	56.4	10.3	58.3
2020	951,039	18,885,903	58.9	49.5	15.8	52.2
<b>Venezuelans</b>						
2019	742,506	857,707	73.8	62.7	14.9	70.9
2020	703,438	910,681	68.1	55.8	18.0	67.3

\*stands for variables in rates and LFP for Labor Force Participation. Informality is defined according to firm size and occupation, calculated as total informal workers over total occupied workers. Wages are in real terms using the monthly CPI from DANE.