Recent trends in the youth labor market in Colombia: diagnosis and policy challenges*

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Abstract

This paper characterizes the youth labor market in Colombia from 2008 to 2017. We estimate labor market indicators for individuals aged between 14-28 years using microdata from Colombia's household surveys over the study period. Our estimates document the main patterns and trends in the labor market for youth in labor force participation, employment, unemployment, informality, and earnings. We compare these statistics to the same indicators for adults (individuals aged between 29-65 years), and explore differences within youth by characteristics such as gender, region, educational attainment, socioeconomic status, and experience. Results indicate that young Colombians have increased their participation rate in recent years, but are mostly employed in low-quality jobs: unsalaried and informal. We also document marked inequalities in labor market outcomes across youth characteristics. We provide a series of recommendations to guide future youth labor policy given these estimates and a critical analysis of recent youth policies in Colombia.

Keywords: youth, labor market, transition into the labor market, labor policy, Colombia.
JEL Classification: J08, J13, J21, J24, O17

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1 Introduction

The labor market is closely linked with economic inequality and the possibility of an economically sustainable society (Hacibedel and Pouokam, 2019). Quality job opportunities increase the level of welfare and reduce the dependency of individuals on social assistance policies (Card et al., 2018). Youth in particular, tend to experience unstable insertion into the labor market, which affects their long-term professional goals, as well as personal decisions of marriage and family formation (Aassve et al., 2007; Berzin, 2010; Luijkx and Wolbers, 2009; MacDonald, 2011; Steijn et al., 2006). Understanding the problems faced by youth helps visualize the challenges faced by them in today's labor market and articulate policies that help overcome those challenges in the future.

Economic theory suggests that youth have worse employment results than adults due to life-cycle dynamics (Heckman, 1976). After completing their education and starting their working life, young people have little or no experience nor knowledge on how the labor market operates. These gaps in knowledge are supposed to diminish over time and with experience. However, the transition into employment is more difficult in practice than this model assumes. Youth often face difficulties in finding and maintaining a job (Manacorda et al., 2017). Such precarious initial conditions in the labor market can have lasting impacts throughout young people's lives in terms of unemployment, informality, and income.[1] This context justifies investigating the current disadvantages faced by youth in order to better understand and facilitate their transitions into the labor market.

This paper analyzes the employment situation of Colombian youth using data from official household surveys (GEIH, for their acronym in Spanish) over the period 2008-2017. We use the definition of youth proposed by the Colombian government: people aged between 14 and 28. We document recent patterns and trends for a wide range of youth employment indicators and compare the results with those corresponding to the adult population (defined as people aged between 29 and 65). Additionally, we explore differences among youth with respect to gender, region, educational level, socioeconomic status, and level of experience. This evidence provides up-to-date information

[1]These consequences are commonly referred to as the "scarring" effects of youth experiences. See Arulampalam et al. (2001), Gregg and Tominey (2005), Nordstrom (2011), Cruces et al. (2012), and Schmillen and Umkehrer (2013).

on the situation of youth in the Colombian labor market and fosters an in-depth discussion of the current state and future role of labor policies for young people. Colombia has experienced a series of accelerated changes in the past few years, and these changes may affect how young people are faring in the labor market. Furthermore, the country has also made significant public policy efforts aimed at promoting the employability of young people, with an emphasis on the most vulnerable.

We first compare Colombian youth labor market indicators to the same statistics in other Latin American countries, using the most recent household survey from 2015-2016, and find that Colombia lies in a relatively favorable position on some youth labor market indicators but lags behind on other measures. Labor force participation and employment rates are above the regional average, and informality rates are below the average for other countries in the region. However, the youth unemployment rate is among the highest in Latin America. We also study gender gaps. Gender gaps in labor force participation, employment, and informality are similar to the gaps for other countries in the region, but the unemployment gender gap is the second highest in Latin America.

GEIH results indicate that Colombian youth face disadvantages in the labor market compared to adults. Adults have higher labor force participation, employment rates, better quality jobs, and higher earnings. However, our estimates show that youth are catching up to adults, as evidenced by rates of change in these labor market indicators. In many dimensions, including participation, unemployment, and informality, the situation of young people has improved in recent years. These findings suggest that although the relative standing of youth with respect to adults remains unfavorable, young people are now participating more in the Colombian labor market in recent years.

The most vulnerable youth are women, those who live in rural areas, less educated individuals, those from lower socioeconomic status, and youth without work experience. The level of inequality has fallen over time in some of these dimensions (e.g. women vs. men; and unskilled vs. skilled workers). The higher labor market attachment we find in the aggregate is partly due to higher labor force participation of vulnerable groups. This greater labor market attachment, however, is explained by an increase in low-quality jobs: unsalaried and informal. These jobs tend to have lower average wages and may have lasting consequences if youth are not able to transition towards

more productive employment, with better earning conditions and social security coverage (Cruces et al., 2012). These results suggest that the current problem regarding young people is not whether they participate or not in the labor market but the quality of the jobs that they are accepting.

Youth employment policies in Colombia have followed recent global practices (Kluve et al., 2019), which can be divided into three strands. First, there are policies whose main objective is to generate employment by providing training to workers. Second, there are measures which seek to stimulate labor demand through exemptions or tax benefits for employers or entrepreneurs. Finally, there are measures aimed at improving job search, mainly through labor market intermediation. In the past few years, there has been an increase in the number of employment policies focused on youth. These policies seem to be associated with the higher labor attachment we observe in our estimates. Nonetheless, due to the lack of evidence on the impact of these policies, we conclude that further efforts are required to create more and better jobs for Colombian youth.

We provide four recommendations to guide future youth labor policy in Colombia and similar countries. First, it is necessary to articulate existing measures so that they constitute an integral policy instead of disjointed efforts. Second, recent targeted policies such as 40,000 First Jobs and the Pro-Youth Act should be evaluated to acquire evidence on their effectiveness. Third, youth are a vulnerable population, independently of whether they live in socioeconomically disadvantaged households. However, the main criteria to qualify to receive labor market policies benefits is based on being part of a socioeconomically disadvantaged household. We consider that the targeting of youth labor market policies should be considered independently from a household's vulnerability status. Finally, it is crucial to prioritize the design, implementation, and evaluation of policies that, in addition to incentivizing formality, facilitate the transition from the informal to the formal sector.

This work contributes new knowledge on youth labor market results in Colombia. On the one hand, we update labor market statistics and summarize recent public policies for young people in order to characterize their current situation. To the best of our knowledge, the last such diagnosis for Colombia is by Farné (2009). On the other hand, we discuss the current scope and challenges of youth labor policy to foster a debate on how to facilitate a smoother transition of this population

into the labor market. Although this paper focuses on a specific age group, we hope to provide relevant evidence to discuss the challenges of the labor policy at the national-level. For instance, we seek to complement recent work that takes a broader approach, such as Casas et al. (2018). Given that other countries in Latin America share similarities with Colombia, our results could be useful for researchers and policymakers concerned with the youth labor market in other settings.

The remainder of this paper is organized as follows. Section 2 reviews the available evidence on the transition of youth into the labor market in Latin America and determines the relative position of Colombian youth in the region. Section 3 describes the household survey data we employ in our analysis of the situation of Colombian youth in section 4. Section 5 reviews the past and present of youth labor market policies in Colombia and reflects on their future. The last section concludes.

2 The labor market situation of youth in Latin America

There is an ample literature that studies youth labor market outcomes across the world (Fares et al., 2006). Both in developed and developing countries, this age group is found to be in systematically worse conditions compared to adults. Given the abundance of evidence on the subject at the global level, we focus on the situation of the youth in Latin America and Colombia in this section.[2]

Latin American youth have lowered their labor force participation rates over the last few decades. On the one hand, part of this reduction is due to a greater investment in education throughout the countries in the region, which motivates people to further invest in their human capital (Viollaz, 2014). On the other hand, the percentage of youth who are Not in Employment, Education or Training (NEET), has steadily increased over time (Tornarolli, 2017). The observed reduction in labor force participation thus reflects an increase in two kinds of behaviors among youth: a) some spent more time studying, and b) some chose to remain inactive. Both behaviors reduce the labor participation for this age group, but each one has different policy implications.

People who participate in the labor market can be either employed or unemployed. The ob-

[2]See Bell and Blanchflower (2010), Görlich et al. (2013), and Nilsson (2018) for recent evidence at the global-level.

served reduction in youth labor force participation has resulted in lower employment and more unemployment for young people (Viollaz, 2014). On average, youth unemployment consistently doubles the same rate for adults (Fawcett, 2002). Among the explanations for the high levels of youth unemployment is the unfavorable economic performance in several countries in Latin America (ILO, 2017) and the instability in the labor market situation of youth (Manacorda et al., 2017). Therefore, some individuals are unsuccessfully seeking work while others are constantly changing jobs during their first years in the labor market. As mentioned previously, both situations can have lifelong consequences on future labor market outcomes (See Arulampalam et al., 2001; Gregg and Tominey, 2005; Nordstrom, 2011; Schmillen and Umkehrer, 2013).

Youth are at a disadvantage not only in their lower labor market attachment, but also in the quality of the jobs within reach. In particular, labor informality has become one of the most important employment issues in the region (Gasparini and Tornarolli, 2009). On average, almost half of Latin Americans are estimated to be informal workers. Among youth, informality rates can be up to 20 percentage points higher (Viollaz, 2014). Due to the high unemployment levels, many young people are only able to find jobs in the informal sector. This situation raises concerns because few people are able transition from the informal to the formal sector (Shehu and Nilsson, 2014) and there is evidence suggesting that informality has long-lasting consequences (Cruces et al., 2012).

Although these paragraphs summarize the average situation in Latin America, it is important to note that there is significant heterogeneity across and within countries. Young people are less vulnerable in some countries (Viollaz, 2014). Better socioeconomic conditions are often associated with better employment results (SEDLAC, 2018), which is why Chile tends to fare relatively better than Bolivia, Peru, and the Central American countries. Many studies also find pronounced differences within countries with respect to characteristics such as gender, educational level, and region of residence (rural or urban). Women, less-educated workers, and youth living in rural areas are commonly shown to be in worse labor market conditions compared to their counterparts.

The literature provides different explanations for the vulnerability of Latin American youth in the labor market. Compared to adults, youth are exposed to greater uncertainties and risks in their

labor market attachment (Fawcett, 2002). One source of instability has been the mixed economic performance of several countries since the turn of the century, as young people are one of the populations most affected by recessions (ILO, 2017). Insecurity is another source of risk for youth. Latin America is one of the most violent regions in the world, and this has an effect on young people's labor market decisions (Zuluaga-Gordillo et al., 2018). Despite the fact that youth are accumulating more education nowadays, there is a documented disconnection between the skills acquired in formal education and the actual requirements of the labor market (Bassi et al., 2012). Another barrier is the lack of work experience. Young people face difficulties to accrue experience in formal jobs, which affects their chances of acquiring job stability (Manacorda et al., 2017).

Given these findings, it is natural to inquire: how does the situation of Colombian youth compare to young people in other Latin American countries? We answer this question in two ways. First, we review the existing literature. Second, we carry out a comparative analysis using information from the Socioeconomic Database for Latin America and the Caribbean (SEDLAC, 2018).[3]

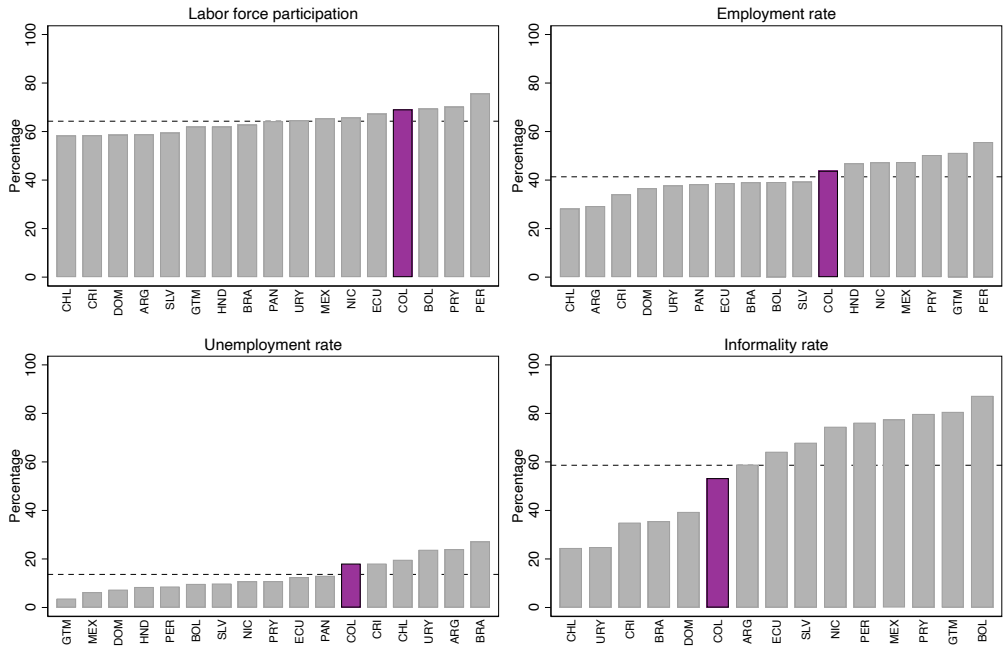
There are several sources that provide statistics on the youth labor market in Colombia, but few detailed analyses of those indicators. The National Administrative Department of Statistics (DANE, for its acronym in Spanish) publishes regular bulletins with employment indicators for the population aged between 14 and 28. The youth participation rate is about 60%, the employment rate is 48.9%, while the unemployment rate is 16.1% (Dane, 2019). Ospina-Cartagena et al. (2017) find participation patterns for Latin America similar to those just described: a higher proportion of youth engaged in full-time studies and a growing number of NEETs. The International Labor Organization (ILO) conducted a survey to document the transition of Colombian youth into the labor market (ILO, 2016). The results of the survey confirm the regional evidence: i) the skills acquired in formal education do not match the skills required in a job; ii) more education does not reduce unemployment nor the probability of being NEET, and iii) the quality of available jobs (predominantly informal) does not contribute to improve labor market conditions for youth.

[3]This source of information calculates comparable statistics from household surveys for young people (defined by SEDLAC as people aged between 15 and 24). We used the statistics published on the SEDLAC's website in May 2018, which can be consulted in: http://www.cedlas.econo.unlp.edu.ar/wp/estadisticas/sedlac/.

Both reports find pronounced differences across gender and regions among Colombian youth. This evidence suggests that Colombia's situation is similar to that documented across the region.

Although Colombia follows the same trajectory as other Latin American countries, we do not know its relative position in the region. Are Colombian youth faring better or worse than those in other countries? Using data from SEDLAC (2018), we compare labor force participation rates, employment rates, unemployment rates, and informality rates for Colombian youth to the same indicators for other countries in the region.

Figure 1. Labor market indicators for Latin American youth



Source: Authors' calculations on data from SEDLAC (2018).
Notes: Youth are defined as people aged between 15 and 24. The dotted lines represent the regional average. ARG=Argentina, BOL=Bolivia, BRA=Brazil, CHL=Chile, COL=Colombia, CRI=Costa Rica, DOM=Dominican Republic, ECU=Ecuador, SLV=El Salvador, GTM=Guatemala, HND=Honduras, MEX=Mexico, NIC=Nicaragua, PAN=Panama, PRY=Paraguay, URY=Uruguay.

Figure 1 plots these indicators and highlights Colombia's relative position in each of them. This figure uses data from SEDLAC calculated from surveys circa 2015-2016. On average, youth labor force participation is 58.5%. Colombia is above the regional average since 69.1% of Colombian youth participate in the labor market.[4] In relative terms, this rate ranks fourth among the 17

[4]These numbers differ from Dane (2019) for two reasons. First, the reference year for SEDLAC corresponds to data

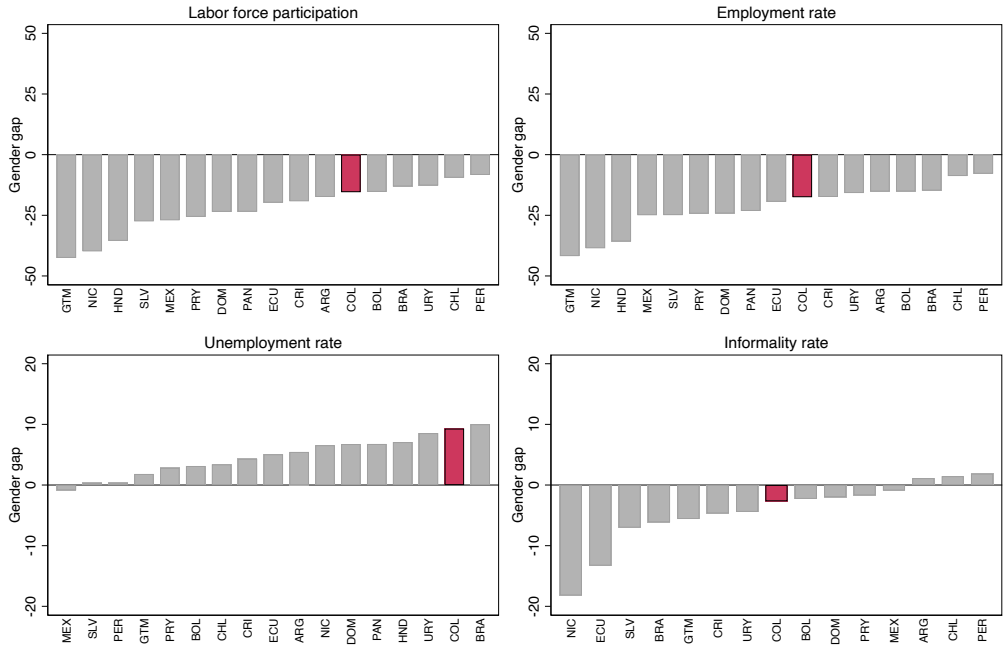
countries for which information is available. There are two sources for this labor force attachment: employment and unemployment. Colombia's employment rate is above the regional average (43.8% vs. 41.2%) and is ranked seventh. Colombia's youth unemployment rate is above the average in Latin America (18.1% vs. 13.8%). If we rank Latin American countries from the lowest to the highest unemployment rate, Colombia's position is 12 out of 17. With respect to the level of labor informality, measured as the percentage of people who do not contribute to pension funds (not including health), Colombia is below the regional average, it has a lower youth informality rate and is ranked sixth from lowest to highest. In summary, unemployment rates are higher for Colombian youth when compared to their peers in other countries in the region, but labor force participation and informality rates are more favorable than in other Latin American nations.

The data from SEDLAC (2018) also allow observing gender differences in these indicators. The evidence shows a high level of inequality between young men and young women. Therefore, this will be an important dimension in our analysis in Section 4. Figure 2 plots gender gaps among youth for the four selected indicators (% women - % men). A positive value indicates a higher rate in the indicator for women, while a negative value implies that the indicator is higher for men.

Young women are disadvantaged in all indicators. In Colombia, the labor force participation gap amounts to 16 percentage points (61% for men and 45% for women). Men have a higher employment rate than women (52% vs. 35%) and a lower unemployment rate (14% vs. 23%). In terms of labor informality, young men have a slightly higher rate (62% vs. 57%). How are these results compared to other countries? Similar to previous results, Colombia is in a partially favorable position regarding gender gaps in Latin America. Ranked from the lowest to the highest gender gap, it occupies positions 6, 8, 16, and 8 in participation, employment, unemployment, and informality, respectively (among 17 countries with available data). Although Colombia's situation is better compared to other countries regarding labor participation, employment, and informality, a relatively unfavorable situation in gender gaps in the unemployment rate stands out.

for the third trimester of 2016. Second, youth is defined differently. SEDLAC defines youth as people aged between 15 and 24, whereas DANE defines it as people aged between 14-28.

Figure 2. Gender gaps in labor market indicators for Latin American youth



Source: Authors' calculations on data from SEDLAC (2018).
Notes: Youth are defined as people aged between 15 and 24. ARG=Argentina, BOL=Bolivia, BRA=Brazil, CHL=Chile, COL=Colombia, CRI=Costa Rica, DOM=Dominican Republic, ECU=Ecuador, SLV=El Salvador, GTM=Guatemala, HND=Honduras, MEX=Mexico, NIC=Nicaragua, PAN=Panama, PRY=Paraguay, URY=Uruguay.

This section shows that Latin American youth are disadvantaged in the labor market. Although some recent results are encouraging, there remains room to improve the school-to-work transition across this age group. Previous literature provides some ideas to achieve this goal: reduce employment instability, policies that reduce unemployment and informality, better match the skills taught in schools and those required by employers, and pay attention to persistent inequalities. In comparison to other countries in the region, Colombia performs better than the average but not on all labor market indicators. In the results section, we explore the labor market situation of Colombian youth between 2008 and 2017 to study recent patterns and trends in their labor indicators, analyze their current situation, and discuss the role of public policies to improve the observed situation. Before turning to those empirical results, we describe our main source of data for those estimates.

3 Data

The main source of data we use in this paper are Colombian household surveys, the *Gran Encuesta Integrada de Hogares* (GEIH, for their acronym in Spanish), elaborated by the National Administrative Department of Statistics (DANE, for its acronym in Spanish). This survey captures the evolution of the labor market by gathering information on different indicators. It is carried out monthly with a sample of approximately 20,650 households, and is representative for the 24 largest cities (with their respective metropolitan areas) and rural areas. Its repeated cross-sectional structure allows exploring the patterns and trends of the Colombian labor market over time.

Our study period covers the last decade, from 2008 to 2017. Given that the survey is collected monthly, we use information from the third trimester of each year. This means each year is represented by July, August, and September. One reason to use the third trimester is that aggregating at this level makes the survey representative of both urban and rural areas (García et al., 2014). Another reason is to reduce potential biases due to the economic cycle. For example, the first and the last trimester of the year tend to show a favorable and an unfavorable economic outlook, respectively. Using these trimesters could result in statistics that are too optimistic or pessimistic, whereas this does not happen with the third trimester.[5]

We analyze several labor market indicators: time use, labor force participation, employment rates, unemployment rates, fraction of salaried workers, informality rates, and real monthly earnings. These indicators are constructed using the self-reported answers from the surveys.[6] Time use is divided in four categories: working, seeking work, studying, and other activities (household duties and inactivity). The labor force participation rate measures the economically active population, the employment rate assesses the level of employment, and the unemployment rate estimates the proportion of individuals among the economically active population who are actively seeking work. A person is deemed to be in salaried employment if s/he is employed in a private or state-owned enterprise as a worker, domestic worker, day laborer, or *peón*. Informal employment

[5]Figure A.1 in the Appendix shows this cyclical behavior in labor market indicators using data from LABLAC (2018).
[6]For a detailed discussion on the advantages and disadvantages of using self-reported data about income and the labor market, see Deaton (1997), Hurst et al. (2014), and Ekici and Besim (2016); and the references therein.

is defined as a job in which the person is not contributing to pension and health care. To measure earnings, we use the monthly salary for the person's main occupation and leave out income from any secondary activities. To study real changes in monthly earnings, we deflate nominal salaries to 2008 prices.[7] All statistics are calculated using survey-provided population weights.

To provide a comprehensive diagnosis of the labor market situation of young people in Colombia, we carry out two exercises. First, we compare labor market indicators between youth and adults to determine relative changes among both groups. We define youth as individuals in the sample aged between 14 and 28 (following the legal definition of youth in Colombia), and we consider adults those aged between 29 and 65. Second, we study inequalities within youth to determine whether some of them are more vulnerable than others in the labor market. We study differences by gender (men and women), area (urban and rural), educational level (skilled and unskilled), socioeconomic status (medium/high and low), and level of experience (with and without experience). These dimensions allow approximating whether some youth are in a better or worse labor market situation than others according to the outcomes and characteristics observed in the survey, which constitutes key knowledge for policymakers to better target interventions.

4 The youth labor market in Colombia from 2008-2017

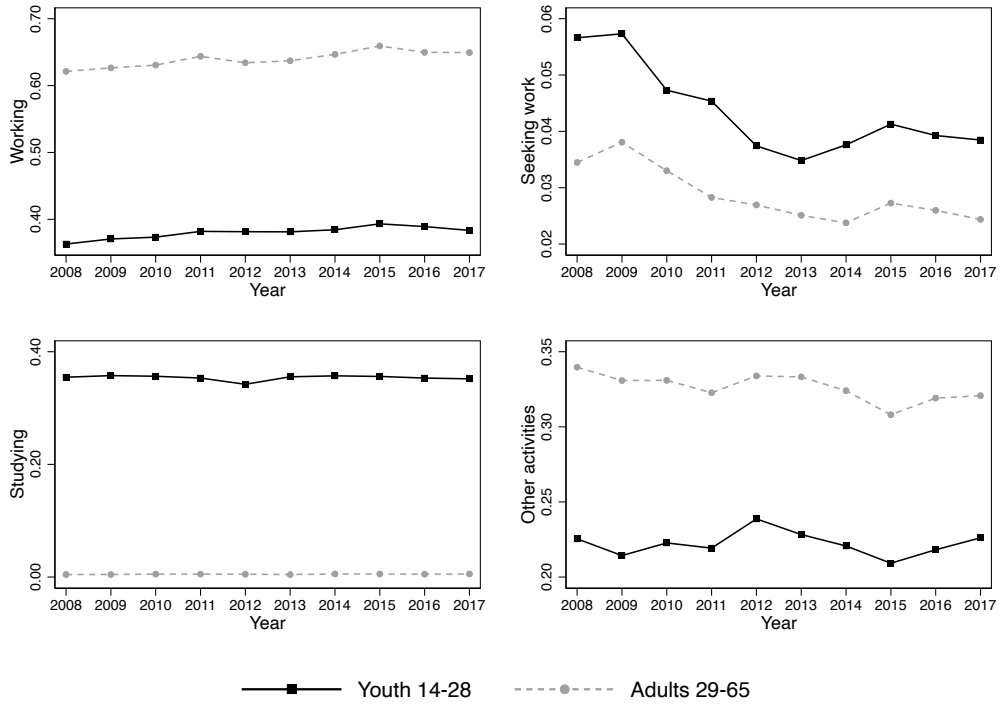
This section describes the main patterns and trends in labor market indicators for Colombian youth from 2008-2017. We begin by presenting a comparative analysis between youth and adults, which allows us to investigate how the relative situation of youth in the labor market has changed over the last decade. Subsequently, we study inequalities among youth to determine whether some young people are more vulnerable than others in the Colombian labor market.

[7] We used the consumer price index from December 2008, which is published by the Colombian Central Bank. The values of this index can be found at http://www.banrep.gov.co/es/indice-precios-consumidor-ipc.

4.1 Comparative analysis between youth and adults[8]

Before analyzing labor market indicators, we study how Colombian's allocate their time. Figure 3 presents time use trends for youth and adults. The percentage of people dedicated solely to working has increased for both groups. The proportion of people working is always higher for adults than youth (64% vs. 38%). The amount of people looking for work has dropped over time for both youth and adults. However, the percentage of people in this situation is higher for youth than for adults (4.4% vs. 2.9%).

Figure 3. Time use trends for youth and adults



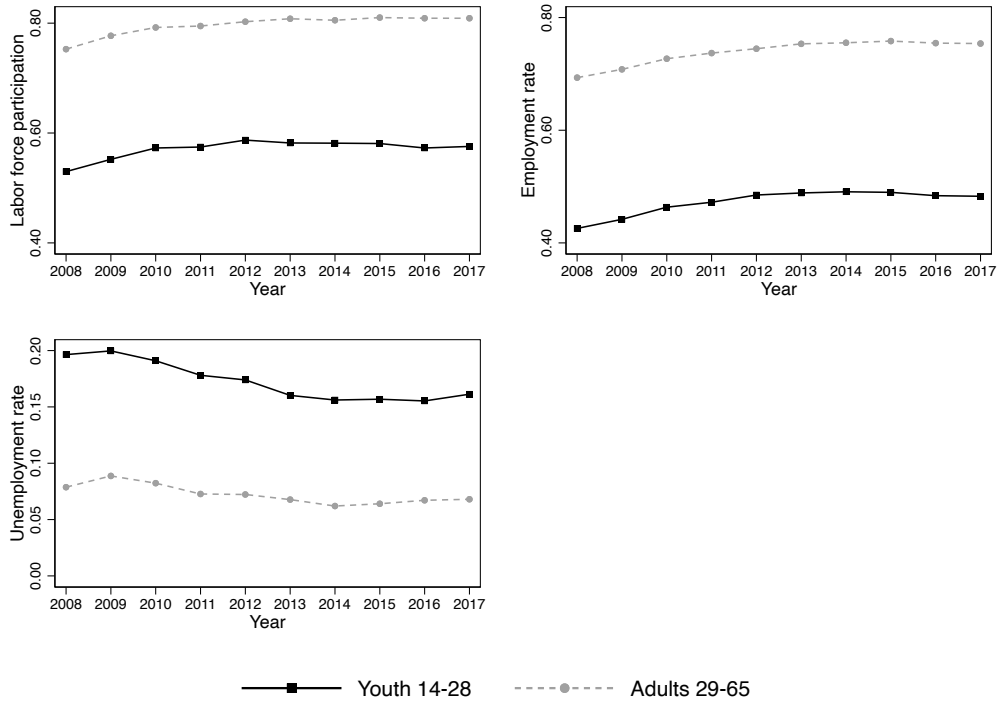
Source: Authors' elaboration from GEIH third trimester microdata for 2008-2017.

According to our calculations, over one third of youth are exclusively studying, while only 1% of adults are in that situation. The estimates show that the labor force participation of young people lies below the levels observed for adults due partially to more time spent studying and higher inactivity. The four indicators show minor changes over the period studied. There is an increase

[8]The statistics in this sub-section are presented in full in Table A.1 in the Appendix.

in the proportion of youth who work (2 percentage points) and a decrease in the proportion of youth seeking employment. The share of youth dedicated to studying and other activities presents changes below 1 percentage point over the period. These results differ slightly from previous regional and local findings (De Hoyos and Popova, 2016; Tornarolli, 2017; Mora-Rodríguez et al., 2017). Given that we are unable to measure the share of NEETs directly from the survey data, we cannot conclusively rule out an increase or decrease in their number.

Figure 4. Trends in labor market indicators for youth and adults



Source: Authors' elaboration from GEIH third trimester microdata for 2008-2017.

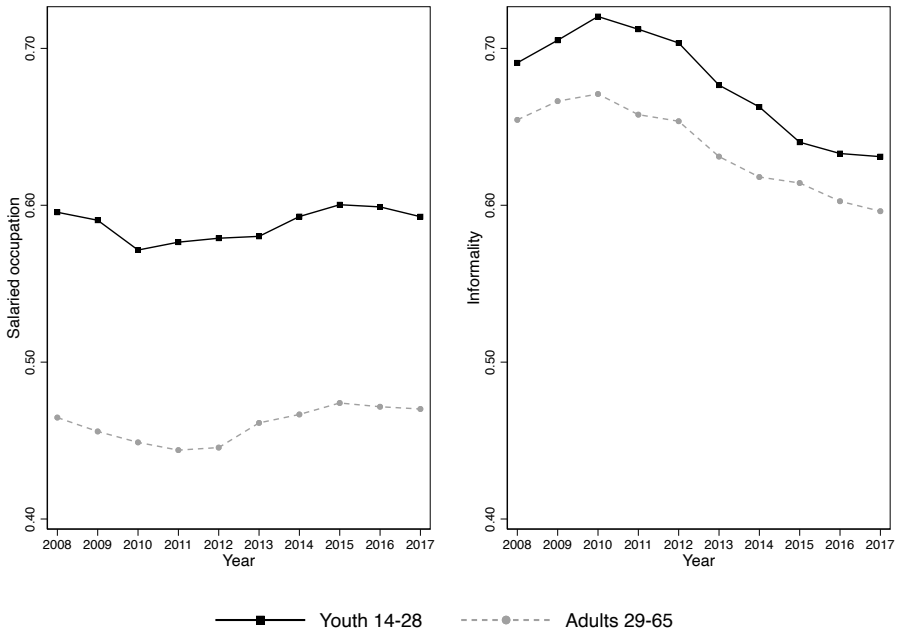
Figure 4 plots trends in labor force participation, employment, and unemployment. The participation rate throughout the period is higher for adults and has increased for both population groups by around 5 percentage points. To determine whether this increase is due to higher employment or unemployment, we observe trends in employment and unemployment rates. The estimated levels confirm that adults have a higher employment rate and a lower unemployment rate than youth. However, the relative situation for youth has improved in recent years with respect to adults. The

growth in employment rates was similar for both groups: 5.7 percentage points for youth and 6 percentage points for adults. In the case of adults, this improvement amounts to approximately 8%, and for youth, to about 10%. The corresponding reduction in the unemployment rate was 3.5 percentage points for youth and 1 percentage point for adults. Although this downward trend in youth unemployment is encouraging, we note that the level of unemployment remains high: 16.1%. This number is consistent with the estimates presented in Section 2, that place Colombia among the Latin American countries with the highest youth unemployment rate.

We now explore the quality of the jobs that young people are obtaining. To do this, we use different approaches (Farné et al., 2002). First, we estimate the share of youth who have a salaried job, as a proxy for job stability. Second, we quantify the informality rate, another commonly used measure for studying the quality of employment. Finally, we investigate what economic sectors are employing young workers and also estimate how many jobs in science, technology, engineering, and mathematics (STEM) are held by youth and adults, which are often well-paid occupations with better employment conditions.

Figure 5 shows the evolution in the fraction of salaried and informal jobs for youth and adults. More young people tend to have salaried jobs compared to adults, 59% vs. 46% on average. This difference remains constant throughout the period, in which we also observe an increase in the proportion of salaried jobs. Although having a salaried job approximates job stability, it does not guarantee this concept, mainly due to the heterogeneity across these jobs. For example, the definition of salaried jobs used by DANE is to be employed in a private or state-owned enterprise as a worker, domestic worker, day laborer, or *peón*. This condition, however, does not guarantee a formal contract, more stability, or better work conditions, dimensions which have been historically associated with salaried work (CIPD, 2018). Unfortunately, this measure cannot capture these nuances in practice. However, it does provide a partial picture of the quality of employment.

Figure 5. Trends in type of occupation and informality for youth and adults



Source: Authors' elaboration from GEIH third trimester microdata for 2008-2017.

To continue characterizing the quality of youth employment, we analyze trends in labor informality. Colombia is characterized by having high levels of informality (García, 2010; ILO, 2014; SEDLAC, 2018). The second panel of Figure 5 presents trends for this indicator for youth and adults over the study period. We reiterate that the definition of formality we use is based on whether the person contributes to pension and health care in their current job.[9]

Young people have systematically higher informality rates than adults throughout the period. Labor informality increased between 2008 and 2010, partly due to the international economic crisis.[10] However, this trend has reversed since then. We see a continuous decline in the proportion of people who are not contributing to pension and health. In 2017, 63% of youth and 60% of adults were informal workers. The decline was higher for youth (6 percentage points) than for adults (5.8 percentage points). Despite the slight reduction in labor informality, its high levels suggest that much remains to be done regarding employment quality, both for youth and adults.

[9]See Bernal (2009) and Fernández and Villar (2016) for other empirical definitions of labor informality in Colombia.
[10]For further information on the impact of the Great Recession in Colombia, see Mesa et al. (2008) and Ocampo (2009).

A complementary approach to characterize the quality of employment is to study the sectors in which youth and adults work.[11] The agricultural sector is frequently associated with lower relative productivity than industry and services (Arias-Vazquez et al., 2012). The results in Figure A.2 in the Annex show that youth participate in all economic sectors, although in different proportions: 62% are in services; 21%, in industry; and 17%, in the agricultural sector. This distribution is similar for adults. We observe that the participation of youth in the service sector has increased 3.5 percentage points over the last decade, almost twice the increase for adults during the same period.

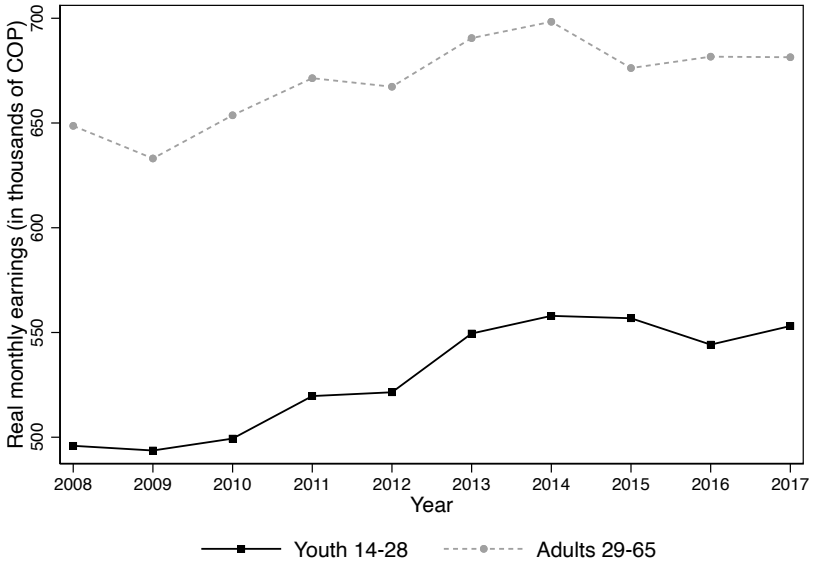
Figure A.3 in the Appendix shows how participation in STEM occupations has evolved over time.[12] This sector usually pays better wages and provides better employment conditions (Deming and Noray, 2018). There is a sustained increase in the share of individuals working in STEM for both groups. For adults, the share increases from 2.7% in 2008 to 4.2% in 2017, whereas for youth, it rises from 1.6% to 2.7% over the same period. These results indicate that, although the proportion of STEM professionals has increased, most jobs in Colombia are not in these occupations.

Finally, we present the evolution of monthly earnings. Figure 6 plots trends in real earnings for youth and adults from 2008-2017. On average, adults earn 43% more than youth. During the period, real earnings have increased for both groups. This growth was higher for youth, who went from earning 506,000 Colombian pesos in 2008 to receiving an average wage of 561,500 pesos in 2017, which amounts to an increase of 11% in real terms. Earnings for adults increased 5% (from 752,000 to 790,000 Colombian pesos). While this trend slightly reduced the income gap between youth and adults to 40.6%, young Colombian workers still earn substantially less than adults.

[11] The sectors were defined by the reported sector in the survey. Table A.2 in the Appendix details how the categories were assigned according to their CIIU code.

[12] We use the self-reported occupation in the GEIH survey to classify occupations into STEM and non-STEM. Appendix Table A.3 presents the careers we consider as science, technology, engineering, and mathematics (STEM).

Figure 6. Trends in real monthly earnings for youth and adults

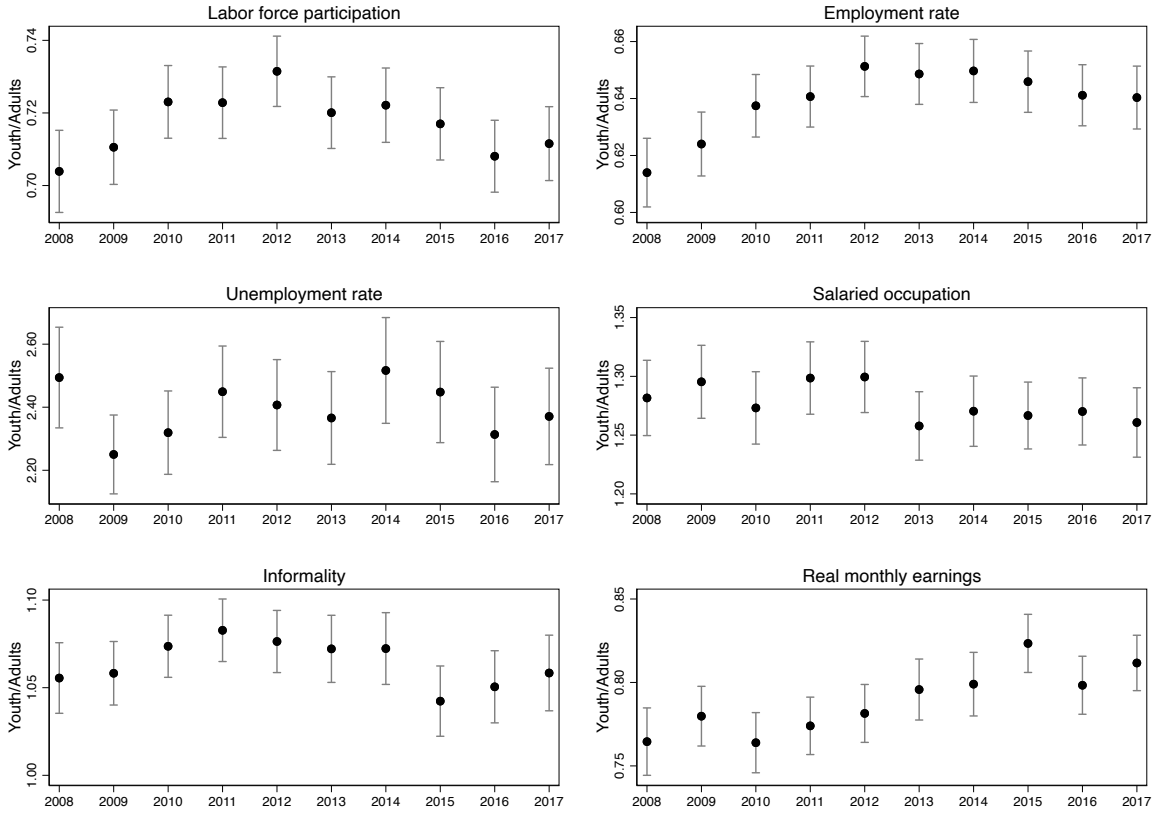


Source: Authors' elaboration from GEIH third trimester microdata for 2008-2017.
Notes: Earning values were deflated to December 2008 prices using the consumer price index published by the Colombian Central Bank.

There are three lessons we take from this comparative analysis of labor market indicators for youth and adults. First, youth remain at a disadvantage compared to adults. This is evident from the gaps observed in labor force participation, employment, unemployment, labor informality, sectoral composition, occupation, and earnings. Second, many of the upturns in these indicators favor youth. Even though adults have better levels across indicators, the observed changes during the last decade show that youth are catching up slowly. Figure 7 presents ratios between youth and adults to highlight these changes; the figure also shows 95% confidence intervals for these ratios.[13] In several dimensions, youth are improving their conditions but differences across years are rarely statistically different. These findings suggest that although the transition into the labor market remains challenging for Colombian youth, young people are now participating more in the labor market. Third, these positive changes do not imply that recent policies targeted at youth are the source of these gains in the labor market, which we will discuss in more detail in Section 5.

[13] Values lower than 1 indicate a lower value in the indicator for youth, whereas values higher than 1 indicate a higher value for youth. A value equal to 1 indicates parity in the indicator between youth and adults.

Figure 7. Ratios in labor market indicators between youth and adults



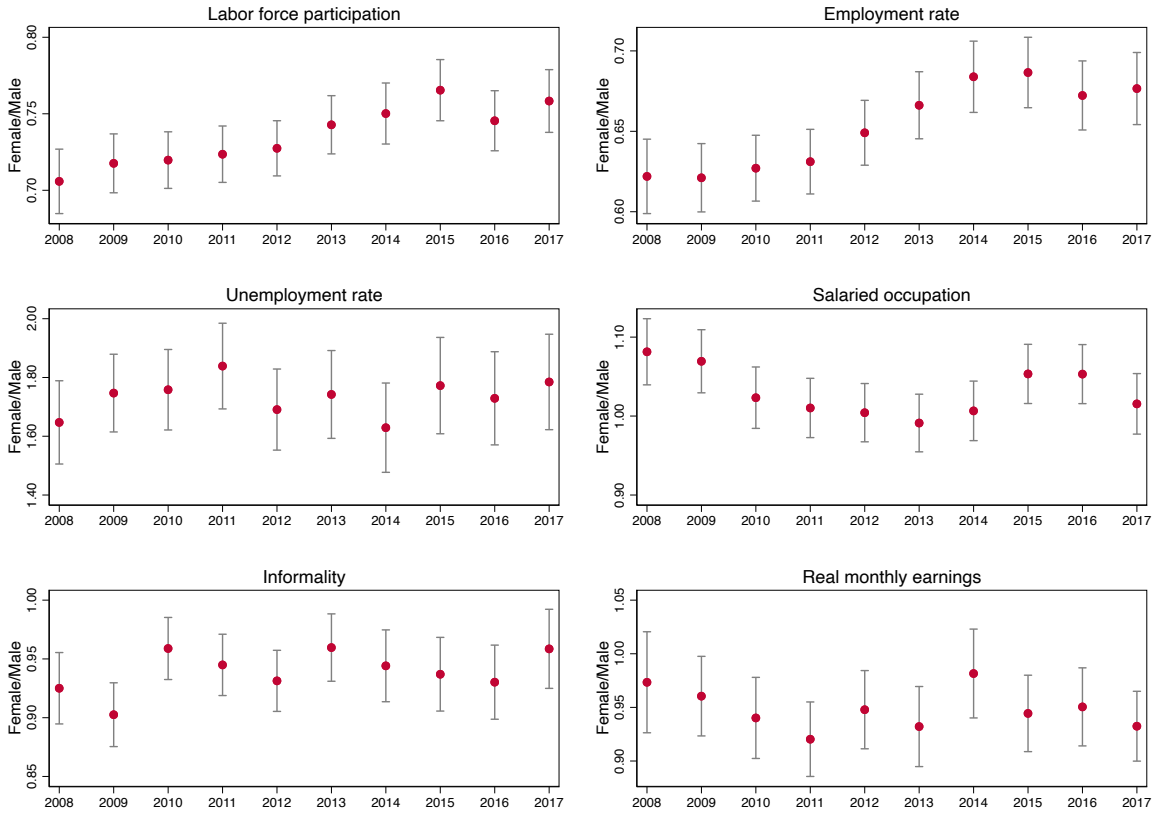
Source: Authors' elaboration from GEIH third trimester microdata for 2008-2017.
Notes: The graph shows the average ratio (circle) and its 95% confidence interval.

4.2 Labor market inequalities among youth

We now study differences in labor market indicators among youth to characterize "vulnerable" groups that have historically shown less favorable conditions in the labor market and to determine whether their situation has changed during the last decade. We present differences in labor market indicators across several characteristics: gender (men and women), region (urban and rural), educational level (skilled and unskilled), socioeconomic status (medium/high and low), and level of experience (with and without experience). Socioeconomic status is constructed not with household income, but using a dwelling's strata. This is a traditional measure of economic vulnerability used in Colombia to target public programs and policies. Households are eligible for social assistance

based on their dwelling characteristics and on the neighborhoods in which they reside. To simplify the discussion of labor inequalities, we present graphs that plot ratios between the indicator for the group considered "more vulnerable" divided by the value for the "less vulnerable" group.[14]

Figure 8. Ratios in youth labor market indicators by gender



Source: Authors' elaboration from GEIH third trimester microdata for 2008-2017.
Notes: The graph shows the average ratio (circle) and its 95% confidence interval. The statistics used to calculate these ratios are shown in Table A.4 in the Appendix.

We present labor inequalities by gender in Figure 8. Young women have a lower labor marker attachment than young men, evidenced by a lower labor force participation rate (48% vs. 66%) and a lower employment rate (37% vs. 57%). Young women have a higher unemployment rate than young men (23% vs. 13%). The differences with respect to employment quality are less pronounced, since approximately the same proportion of young men and women have a salaried job

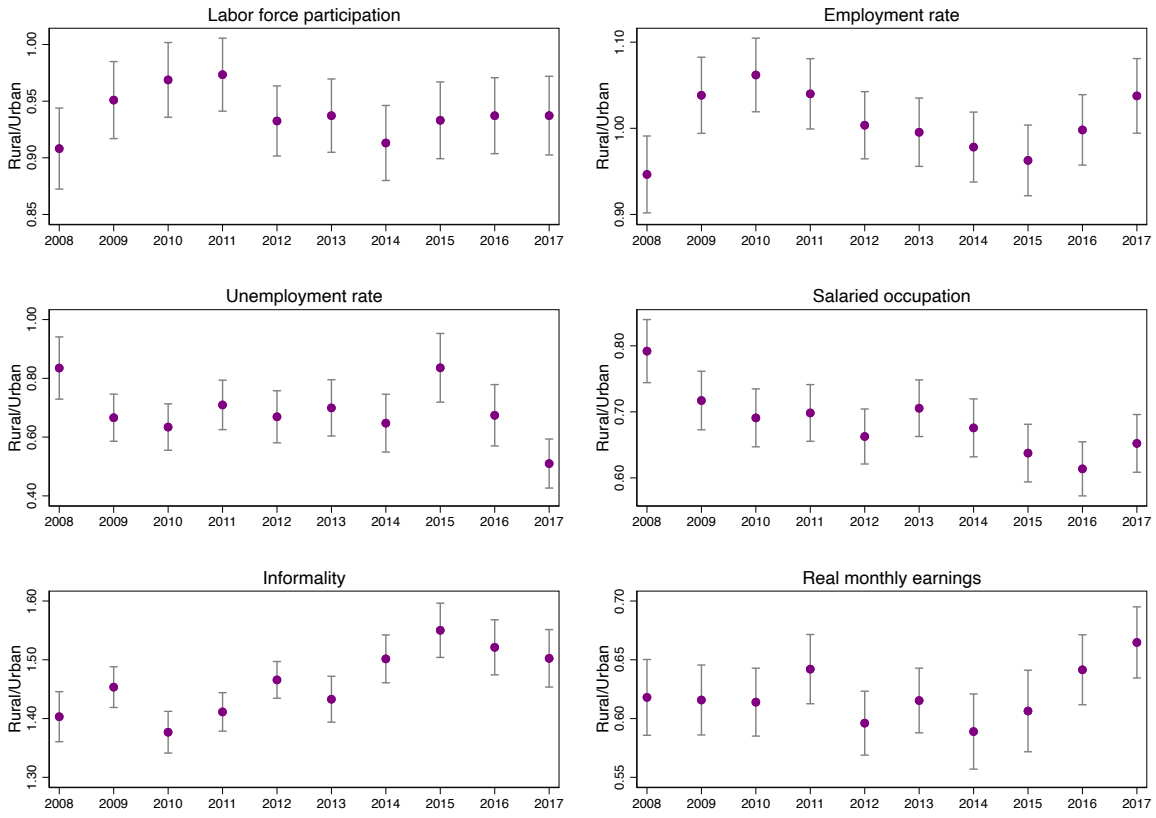
[14]The complete statistics for each group and year are presented in Tables A.4 to A.8 in the Appendix.

(60% vs. 58%) or a formal job (35% vs. 30%). On average, our estimates show that young women's earnings are 5.2% lower compared to the same income for young men.

Some of these inequalities have changed over the study period. Labor force participation and the employment rate have increased for women, thereby reducing the gender gap. This can be observed in the first row of Figure 8, which shows that the estimated ratio increases. This evidence suggests that young women are entering the labor market, mainly into employment and not unemployment. In what occupations are young women entering? The trends indicate that there are more salaried and formally employed women than men, but throughout the period this difference tends to disappear. In other words, although there is greater female labor participation, the jobs obtained by these women are usually unsalaried and informal. However, it is worth noting that both young men and young women tend to have precarious jobs. The youth gender gap in earnings has remained constant at around 5% over the last decade.

Figure 9 shows differences between urban and rural areas. We find small differences in labor force participation by region: 58% in urban areas vs. 54% in rural areas. The employment rate is around 47% in both contexts. The unemployment rate is significantly higher in urban areas than rural areas: 18.5% vs. 12.7%. These differences are more pronounced when we observe employment quality and earnings. Compared to urban areas, there is a lower proportion of salaried (39%) and formal (10%) workers in rural areas. Young people in rural areas earn 38% less than their counterparts in cities. Over the last decade, there have been cycles in labor market attachment patterns, with an improvement towards the end of the period. The indicators that approximate the quality of employment show an increasing level of precariousness by region. The proportion of salaried and formal workers has fallen throughout the period in rural areas, which suggests that young people are entering the labor market into unsalaried and informal jobs. Additionally, the income gap by region remains high, although the differences have slightly fallen over time.

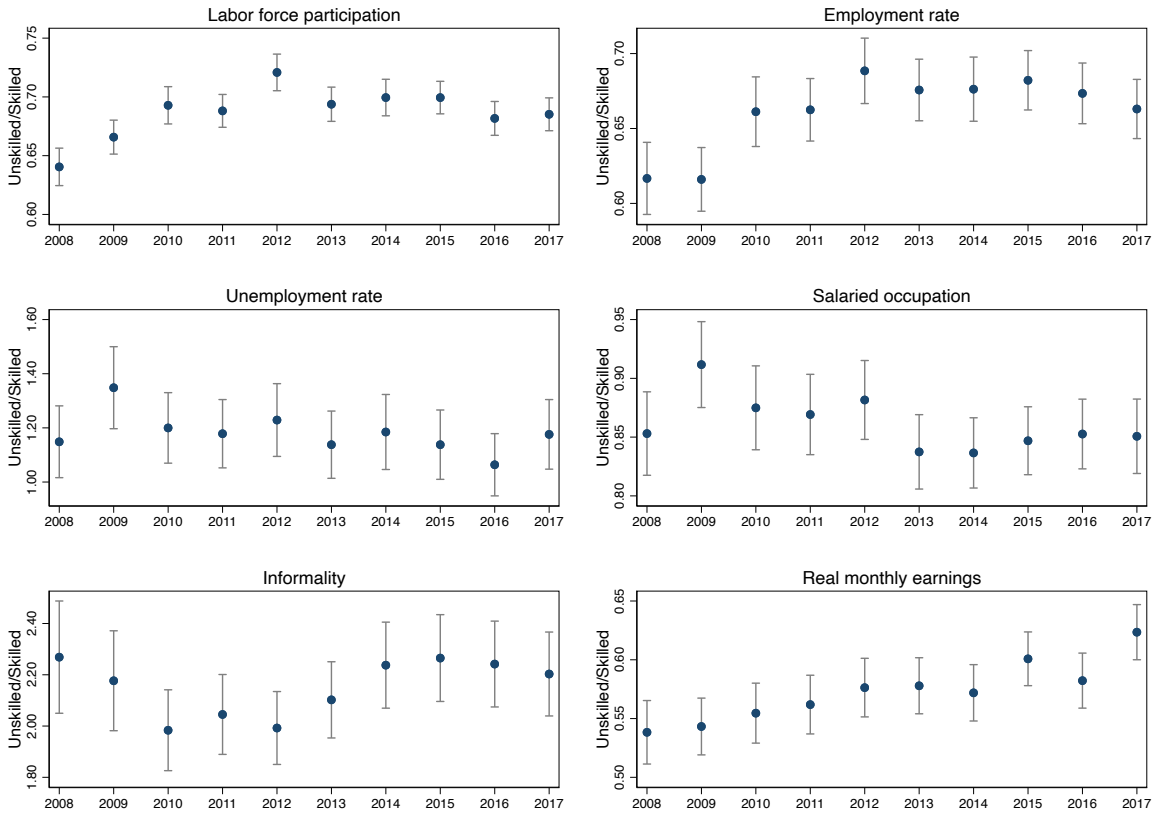
Figure 9. Ratios in youth labor market indicators by region



Source: Authors' elaboration from GEIH third trimester microdata for 2008-2017.
Notes: The graph shows the average ratio (circle) and its 95% confidence interval. The statistics used to calculate these ratios are shown in Table A.5 in the Appendix.

We now study differences in labor market indicators among youth by educational level. Although some young people in the sample have not completed their studies, we consider that documenting inequalities in this dimension is important in order to have a complete picture of the labor market. Figure 10 shows the ratios between "skilled" (individuals with at least some higher education) and "unskilled" youth (individuals with complete high school or less education).

Figure 10. Ratios in youth labor market indicators by education level

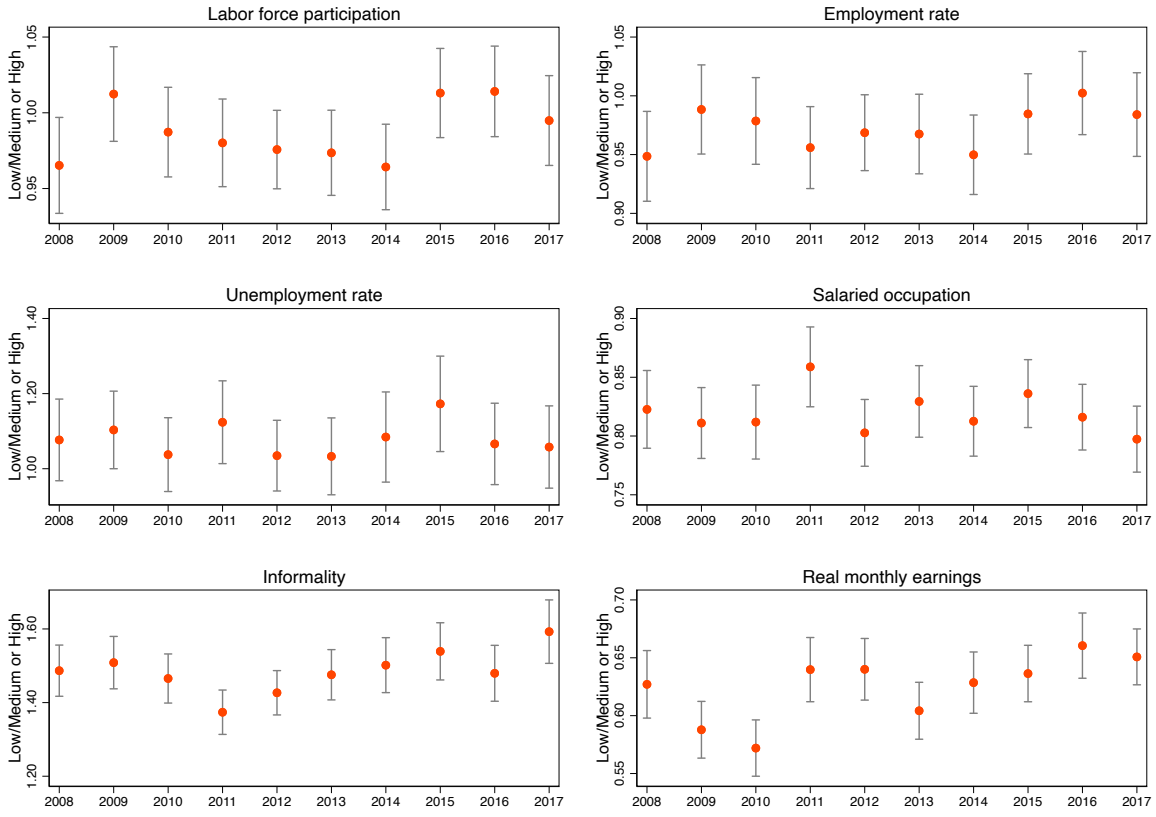


Source: Authors' elaboration from GEIH third trimester microdata for 2008-2017.
Notes: The graph shows the average ratio (circle) and its 95% confidence interval. The statistics used to calculate these ratios are shown in Table A.6 in the Appendix.

Skilled youth have greater labor market attachment. Both labor force participation and employment rates are higher for skilled youth (90% vs. 62% and 75% vs. 50%, respectively). Young people with less education have a higher unemployment rate: 19.8% vs. 16.3%. In terms of employment quality, a higher proportion of skilled young people have salaried and formal jobs (73% vs. 63% and 70% vs. 35%, respectively). Young people with at least some higher education earn on average 43% more than those who completed high school at most. However, less skilled young people have increased their labor market attachment, although Figure 10 shows that this rise in participation is due to more jobs in unsalaried and informal occupations. We also observe a significant decrease in the income gap by educational level, which fell from 46% to 37.6%.

The next dimension in which we explore labor market differences by socioeconomic status. We grouped young individuals into two categories: medium or high SES (from strata 3 to 6) and low SES (strata 1 and 2). We find slight differences in labor market attachment, with young people from low strata being disadvantaged in participation, employment, and unemployment. Despite the few inequalities in the extensive margin of the labor market, there are pronounced differences in employment quality between both groups. Youth from lower strata are less likely to have a salaried or formal job (57% and 28%, respectively). The differences in monthly earnings show an important gap since youth with higher SES earn 37.5% more than those from lower SES.

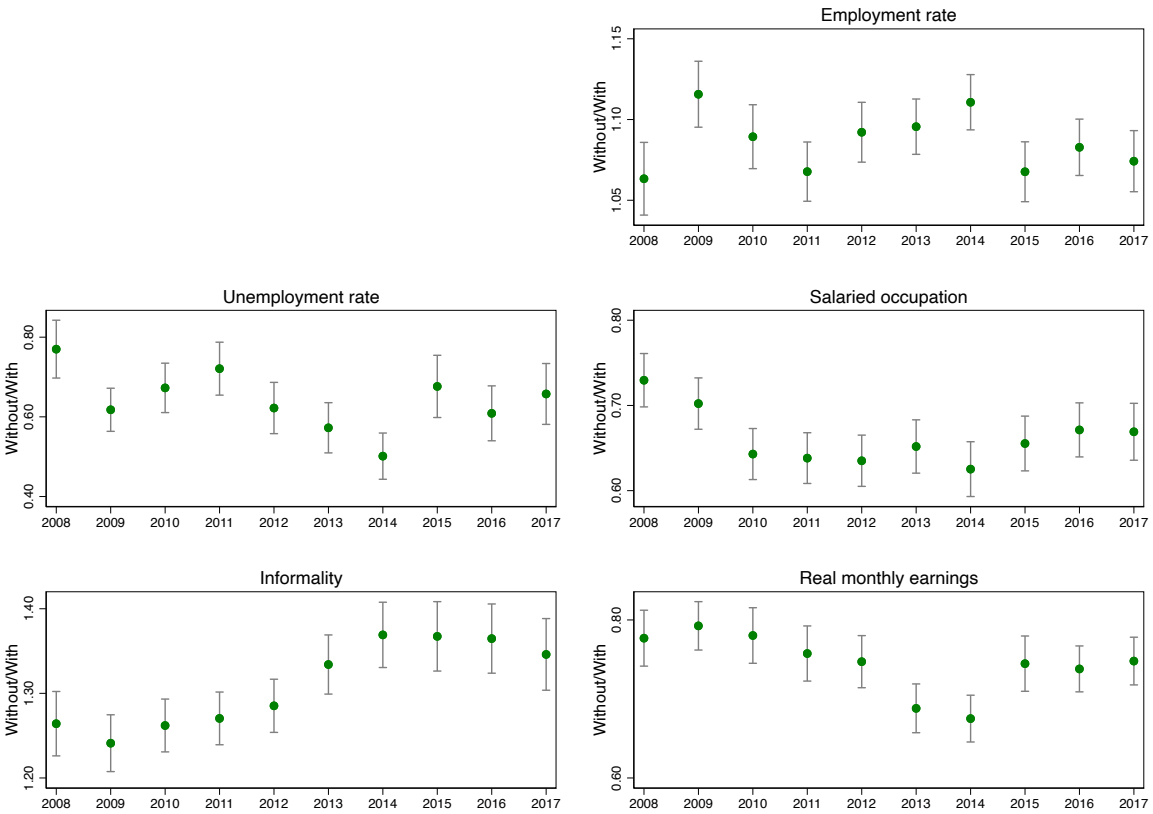
Figure 11. Ratios in youth labor market indicators by socioeconomic status



Source: Authors' elaboration from GEIH third trimester microdata for 2008-2017.
Notes: The graph shows the average ratio (circle) and its 95% confidence interval. The statistics used to calculate these ratios are shown in Table A.7 in the Appendix.

How have differences by socioeconomic status evolved over time? Youth with lower SES have improved their labor market attachment, but mainly in unsalaried and informal jobs. The earnings gap has remained stable: it changed from 37.3% in 2008 to 35% in 2017. Here the pattern previously observed in other characteristics emerges once again: there are improvements in labor force participation and employment rates due to a growth in low-quality jobs.

Figure 12. Ratios in youth labor market indicators by level of experience



Source: Authors' elaboration from GEIH third trimester microdata for 2008-2017.
Notes: The graph shows the average ratio (circle) and its 95% confidence interval. The statistics used to calculate these ratios are shown in Table A.8 in the Appendix. Given that the GEIH only asks employed and unemployed individuals if they have previous labor market experience, it is impossible to calculate labor force participation by level of experience. In order to obtain that estimate, we require that inactive individuals be asked about their level of experience in the labor market, which is not currently asked.

Experience is an important factor in the labor market (Manacorda et al., 2017). To establish whether this attribute generates labor inequalities among young people, we compared youth with experience to those who have just entered the labor market. Figure 12 shows the estimated ratios

between young people without experience and those with experience.[15]

Youth who have just entered the labor market are more likely to be employed than unemployed, but in unsalaried and informal jobs. The first job for inexperienced young people pays 25% less on average. During the last decade, some cyclical changes can be observed in employment and unemployment rates, but there are clear trends with respect to employment quality. Youth who enter the labor market without experience are not obtaining salaried or formal jobs. Additionally, the income gap has not changed substantially from 2008-2017.

Our analysis shows clear patterns for youth in the Colombian labor market. First, we identify that some young people are more vulnerable than others. To provide an up-to-date diagnosis about which groups present worse results, we use monthly data for youth from the 2017 GEIH to calculate differences in the main labor indicators. The results are presented in Table 1. We show the average value of the indicator for each group and the probability that the indicators are equal between groups. In other words, we test the null hypothesis that there is no inequality between groups. The results indicate that youth in rural areas, with less education, from lower socioeconomic status, and without work experience are the ones who face more unfavorable conditions in the labor market. Although these differences cannot be interpreted in a causal manner, they can be useful to decide on which groups of young people Colombian labor policies should focus.

Second, our findings confirm that youth labor market attachment has increased over time. When we analyze trends in labor market indicators over time by groups, we observe a greater participation rate for women, people in rural areas, lower skilled individuals, and young people from low socioeconomic status. However, this greater labor attachment is be due to an increase in the number of low-quality jobs: unsalaried and informal. These jobs usually pay less and can have lasting consequences if youth cannot transition towards more productive jobs, with better conditions in earnings and social protection. This result suggests that the current problem of Colombian youth in the labor market has to do with the form of employment, not whether to participate or not.

[15] Given that the GEIH only asks employed and unemployed individuals if they have previous labor market experience, it is impossible to calculate labor force participation by level of experience. In order to obtain that estimate, we require that inactive individuals be asked about their level of experience in the labor market, which is not currently asked.

Table 1. Differences in youth labor market indicators by characteristics, 2017

	Labor force participation	Employment rate	Unemployment rate	Salaried occupation	Informality	Monthly earnings
A. Gender						
Male	0.658	0.578	0.122	0.582	0.643	554,212
Female	0.505	0.398	0.212	0.616	0.604	528,269
Pr(Male=Female)	0.000	0.000	0.000	0.468	0.411	0.000
Observations	199,389	199,389	108,551	88,787	87,874	75,708
B. Region						
Urban	0.589	0.484	0.178	0.649	0.562	588,335
Rural	0.558	0.505	0.093	0.413	0.860	374,998
Pr(Urban=Rural)	0.001	0.000	0.000	0.000	0.000	0.000
Observations	199,389	199,389	108,551	88,787	87,874	75,708
C. Education level						
Unskilled	0.901	0.754	0.163	0.737	0.285	832,517
Skilled	0.619	0.508	0.180	0.630	0.628	504,993
Pr(Unskilled=Skilled)	0.000	0.000	0.028	0.000	0.000	0.000
Observations	133,827	133,827	84,562	68,232	68,135	59,081
D. Socioeconomic status						
Medium/High	0.582	0.488	0.161	0.726	0.426	759,872
Low	0.582	0.486	0.164	0.573	0.673	487,575
Pr(Medium/High=Low)	0.000	0.000	0.246	0.000	0.000	0.000
Observations	194,668	194,668	105,780	86,311	85,491	73,744
E. Experience						
With experience	-	0.819	0.181	0.663	0.567	582,552
Without experience	-	0.891	0.109	0.440	0.772	437,444
Pr(With=Without)		0.000	0.000	0.000	0.000	0.000
Observations		108,551	108,551	88,787	87,874	75,708

Source: Authors' elaboration from GEIH microdata for all months from 2017.
Notes: This table presents averages by youth characteristics. In the third row of each panel, we present the probability that the averages between groups are equal. This value is obtained by means of a regression of the indicator on an dummy variable for each vulnerable group, age fixed effects, department fixed effects (the administrative unit) and month fixed effects, with robust standard errors that are clustered by the month in which the person was surveyed. The null hypothesis is that there are no differences between the groups.

5 Youth labor policy: past, present, and future

The previous section showed that from 2008 to 2017, youth labor market indicators in Colombia have improved. Youth have higher labor force participation, employment rates, lower unemployment rates, and real earnings. The data also reveal improvements for adults but, comparatively, the gains have been greater for youth than adults. Furthermore, two sub-periods can be observed in the past decade: most of the changes took place over the first four years (from 2008 to 2011), whereas between 2012 and 2017 all indicators remain stable. Moreover, when trends are clear, the differences between years are not always statistically significant. In terms of inequalities among youth,

there have also been improvements with respect to the gender gap and the difference between skilled and unskilled young people for all the indicators considered. However, no improvements were observed with respect to differences by region of residence (rural vs. urban).

In this section, we review youth labor policies over the period of study.[16] The goal of this analysis is to answer two questions. On the one hand, we want to trace out how much recent policies have contributed to the results documented in this paper. On the other hand, we critically assess the current state of youth labor policies in order to discuss recommendations to guide future efforts to improve the school-to-work transitions of Colombian youth.

Youth employment policies in Colombia have followed recent global trends (Kluve et al., 2019), which can be divided into three strands. First, there are policies whose main objective is to generate employment by providing training to workers. Second, there are measures which seek to stimulate labor demand through exemptions or tax benefits for employers or entrepreneurs. Finally, there are measures aimed at improving job search, mainly through labor market intermediation.

Table 2. Recent youth labor policies in Colombia

Name	Year	Measures	Ages
Youth in Action (*Jóvenes en Acción*) - First stage	2005	Cash transfers conditional on program participation. Three months of theoretical training and a three month internship	18-25
First job act (*Ley del Primer Empleo*) - Law 1429	2010	Exemption from payroll taxes for employers who hire young workers. Tax benefits and simplification of procedures for enterprises.	18-28
40,000 First Jobs (*40,000 Primeros Empleos*)	2015	Offers a grant to companies that hire young people. The grant covers wages, compulsory social contributions, and a travel allowance for siz months. Participating firms must guarantee siz additional months to 60	
Pro-Youth Act (*Ley Projoven*) - Law 2780 of 2016	2016	Promotes entrepreneurship among young people by providing seed money and tax benefits. Attracts talented young people to work in the public sector through paid internships. Exemption from payroll taxes for companies that hire inexperienced young individuals. Removes the requirement of military service for young males to obtain a formal job.	18-28

Source: Authors' elaboration from program documents.
Notes: This table contains labor policies specifically aimed at youth and omits those that affect them indirectly.

Table 2 summarizes recent policies aimed specifically at Colombian youth. Since several measures indirectly affect young people, we concentrate on those explicitly focused on this age group.[17]

[16] Farné (2009) reviews labor policies for youth and women in the years preceding our analysis.
[17] For a wider discussion on labor policy in Colombia, see López (2010) and Casas et al. (2018).

Most of these policies have two goals: i) generate more jobs, and ii) promote formal employment.

Youth in Action (*Jóvenes en Acción*) was created in 2005 to improve the employability of young people and remains in place to this day.[18] During its first phase, besides granting beneficiaries a cash transfer, it also provided training and traineeships to people aged 18-25 belonging to economic strata 1 and 2 in the seven largest Colombian cities. This program was successful at increasing the number of employed young people, the number of hours worked, the formality rate, and wages in the short-term (Attanasio et al., 2011). More recent evidence confirms that the positive impacts of Youth in Action remain a decade later (Attanasio et al., 2015; DPS, 2017).

Since 2010, new initiatives have surfaced that seek to improve youth employability. The First Job Act (*Ley del Primer Empleo*, Law 1429 of 2010) aimed to improve the employment situation of young people in their first job or enterprise. It provided non-pecuniary incentives to firms that hire young people, tax benefits, and simplified bureaucratic procedures to encourage entrepreneurs to formalize their activities. The available evidence indicates that, although the youth employment rate increased slightly, the informality rate for youth did not decrease (Moya, 2013).

The 40,000 First Jobs program (*40,000 Primeros Empleos*), created in 2015, helps inexperienced young people to obtain formal jobs. The government gives employers a grant that covers wages, compulsory social contributions, and travel allowance for six months. In exchange, the employers benefiting from the program commit to keeping 60% of these young people on their payroll for no less than six months (Dema et al., 2015). However, the impact evaluation of this program is not yet available, but is being carried out by the Colombian consulting firm *Econometría*.[19].

The most recent youth labor policy is the Pro-Youth Act (*Ley Projoven*, Law 1780 of 2016). This policy seeks to promote the creation of jobs and youth entrepreneurship by eliminating the barriers that prevent young people from entering the labor market as workers or entrepreneurs. This program has four components: i) Young Entrepreneurs (*Jóvenes Emprendedores*), which provides seed capital and tax benefits to encourage enterprises led by young people; ii) Talented Young Peo-

[18] Youth in Action has undergone multiple changes. Initially, it provided training for youth to help them find jobs, but now it concentrates on providing incentives to enroll in and complete higher education. While the program maintains the goal of improving youth employability, it now seeks to reach it through investments in human capital formation.
[19] See project 100793 at http://portal.econometria.com.co/es/proyectos?estado=20.

ple for the State (*Jóvenes Talentos para el Estado*), which creates paid traineeships in public firms and a career plan in the public sector; iii) Young People Working in the Private Sector (*Jóvenes Trabajando en el Sector Privado*), which provides exemptions from payroll taxes to companies that hire inexperienced people and creates paid traineeships; and iv) Youth for Peace (*Jóvenes por la Paz*), which seeks to remove the requirement of completing military service to obtain a formal job. This is the most complete youth labor policy to date. However, there is still no evaluation of the effects of this policy or any of its individual components. This is an area for future research that can provide crucial evidence on the effectiveness of a wide-ranging labor strategy for youth.

These policies may partially explain some of the results presented in Section 4. For instance, the First Job Act can explain the increase in youth labor attachment. The most pronounced changes in the trends presented in our figures occur from 2011 onwards. More recent policies may also explain some of the observed trends, although the lack of evidence on the impact of 40,000 First Jobs and the Pro-Youth Act prevents us from drawing definitive conclusions on this matter. In general, there is suggestive evidence that some of these measures have contributed to improving the labor market attachment of Colombian youth. Nevertheless, despite greater attachment in the labor market, existing evidence and our own estimates indicate that additional efforts are required to generate more and better jobs for young people, specifically with respect to job quality.

Given our empirical results and the analysis of recent youth labor policy, we want to highlight four recommendations to guide future efforts to help youth navigate the labor market. First, it is necessary to articulate existing measures so that they constitute an integral policy rather than independent, disjointed efforts. On their own, training programs, tax benefits to stimulate labor demand, and intermediation services show small and modest results (McKenzie, 2017; Kluve et al., 2019). We concur with the recommendations made by Casas et al. (2018) to the Ministry of Labor in Colombia, especially with the recommendation that the government should establish a regulatory agenda instead of implementing isolated programs with no evaluations. A comprehensive labor strategy, such as the Pro-Youth Act, could improve the employment situation of young people if it's components are complementary between each other instead of substitutes.

Second, we find that there is insufficient evidence to know what works and what is the best way to implement youth labor policies. Given the increased availability of administrative panel data and a growth in the number of youth labor policies, there is an opportunity to generate much needed evidence on youth trajectories and how the current policies are affecting their lives. It is crucial to asses the impact of recent policies such as 40,000 First Jobs and the Pro-Youth Act to determine whether they achieve their goals. Whatever the answer is, it will provide key evidence to help establish the best course of action to improve the labor transition of Colombian youth.

Third, we have shown that youth labor markets trends allow arriving at two main conclusions. The first is that trends for youth are not too different from those for adults. The second is that there is a marked trend in the reduction of certain gaps between vulnerable and non-vulnerable groups among youth. This is possibly a result of youth labor market policies that target youth from the most socioeconomically disadvantaged groups. While this may result in a reduction in gaps, changes in the labor force attachment of socioeconomically disadvantaged groups are still not large enough to be reflected in the overall level of youth labor market attachment. The targeting strategies of these policies usually takes into account household characteristics. This conclusion points towards a necessity to reconsider how labor market policies for youth are targeted, considering whether beneficiaries are selected based on household socioeconomic conditions or if other considerations should be taken into account. For instance, a key question is whether youth who may still be vulnerable but do not live in the most socioeconomically disadvantaged households are being excluded from programs that could improve and facilitate their path into the labor market.

Finally, our estimates show that, in addition to promoting youth labor participation, it is necessary to consider the form this participation takes. Many young people are obtaining employment, but in unsalaried and informal jobs. We believe it is necessary to prioritize the design, implementation, and evaluation of policies that, besides incentivizing formality, facilitate the transition from the informal to the formal sector. Policies that provide tax benefits or exemptions for hiring formal employees show an increase in the formality rate, but this effect tends to be modest and

short-lived.[20] The main challenge lies in proposing ways of creating and moving jobs from the informal to the formal sector taking into account the existing barriers and rigidities (Bosch and Esteban-Pretel, 2012) and the long-term consequences informality has on labor, economic, and social mobility (Cruces et al., 2012). Although this recommendation applies to the labor market in general, youth are one of the most vulnerable populations due to the precarious jobs they obtain when entering the labor market, from which they cannot transition out of during their life cycle.

6 Conclusion

This paper analyzes the labor market situation of Colombian youth over the past decade. We calculate labor market indicators for people aged between 14-28 from 2008-2017 using microdata from the *Gran Encuesta integrada de Hogares* (GEIH), the main official Colombian household survey. Using this information, we document the main patterns and trends in labor market indicators for this age group, including labor force participation, employment, unemployment, informality, and earnings. We compare results for young people to the same results for adults (aged between 29-65) and explore differences among youth with respect to gender, region of residence, educational level, socioeconomic status, and level of experience. Our goal is to provide up-to-date evidence on the labor market situation of youth with the aim of discussing the past, present, and future of labor policies that may help facilitate the transition of young people into the labor market.

Our results indicate that young people still face disadvantages in the labor market compared to adults. The estimates also show that youth are catching up. However, the slow speed at which this process is taking place casts doubts on the effectiveness of recent youth labor market policies to reduce the vulnerability of youth in the Colombian labor market. In several dimensions,

[20]Two reforms wanted to create formal jobs for the general population, including youth indirectly. The Labor Reform (Law 789 of 2002) provided an exemption of payroll taxes to companies that increased the percentage of youth on their payroll (aged 16-25 years). The available evaluations show that this reform had a positive impact on job creation and the formality rate, although its effects were smaller than expected (Gaviria, 2004; Amarante et al., 2005; Núñez, 2005; Guataquí-Roa and García-Suaza, 2009). The Tax Reform (Law 1607 of 2012) reduced the non-pecuniary costs of hiring formal workers by 13.5%. Some studies find that this measure reduced informality in the short term at the aggregate level (Kugler et al., 2017; Bernal et al., 2017; Morales and Medina, 2017; Fernandez and Villar, 2017).

including labor force participation, unemployment, and informality, the situation of youth has improved recently. These findings suggest that although the transition into the labor market remains challenging for Colombian youth, young people are now participating more in the labor market.

We identify some young people who are more vulnerable than others within the labor market. Women, youth living in the rural areas, less skilled individuals, people from low socioeconomic backgrounds, and individuals without work experience find themselves in more unfavorable conditions. We find that the increase in youth labor market attachment is partly due to greater participation of vulnerable groups. However, this greater labor attachment is mainly due to an increase in low-quality jobs: unsalaried and informal. This result suggests that the current problem of youth is not whether they participate or not in the labor market but the form in which they participate.

We document an increase in the number of labor policies focused on youth. These measures partly explain the greater labor attachment observed. However, we conclude that further efforts are required to generate more and better jobs. We provide four recommendations to guide the youth labor policy. First, it is necessary to articulate existing measures so that they constitute an integral policy instead of disjointed efforts. Second, recent policies such as 40,000 First Jobs and the Pro-Youth Act should be evaluated to gather evidence on their effectiveness. Third, youth are a vulnerable population, independently of whether they live in socioeconomically disadvantaged households. However, the main criteria to qualify to receive labor market policies benefits is based on being part of a socioeconomically disadvantaged household. We consider that the targeting of youth labor market policies should be considered independently from a household's vulnerability status. Finally, it is crucial to prioritize the design, implementation, and evaluation of policies that, in addition to incentivizing formality, facilitate the transition from the informal to the formal sector.

The discussion of labor markets is a broad topic of general interest. We focus on youth because they are one of the population groups that face greater disadvantages in this setting, but there are many possible directions for future research. The heterogeneity of workers in the labor market implies that different people have different trajectories. A better knowledge of the factors that determine successful and unsuccessful stories is important to understand and improve the functioning

of the labor market. For instance, a longitudinal study can help understand the dynamics behind these aggregate results and generate additional policy insights. Evidence in this direction will allow researchers and policymakers to contribute in reducing the risk of vulnerability for some people in the labor market, and help improve people's welfare.

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Online Appendix (Not for publication)

Table A.1. Trends in labor market indicators for youth and adults

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A. Time use										
Youth										
Working	0.621	0.626	0.631	0.644	0.634	0.637	0.647	0.659	0.650	0.649
Seeking work	0.034	0.038	0.033	0.028	0.027	0.025	0.024	0.027	0.026	0.024
Studying	0.004	0.005	0.005	0.005	0.005	0.004	0.005	0.005	0.005	0.006
Other	0.340	0.331	0.331	0.323	0.334	0.333	0.324	0.308	0.319	0.321
Adults										
Working	0.363	0.371	0.373	0.382	0.382	0.381	0.384	0.393	0.389	0.384
Seeking work	0.057	0.057	0.047	0.045	0.037	0.035	0.038	0.041	0.039	0.038
Studying	0.355	0.358	0.357	0.353	0.342	0.356	0.357	0.356	0.353	0.352
Other	0.225	0.214	0.223	0.219	0.239	0.228	0.221	0.209	0.218	0.226
B. Labor market indicators										
Youth										
Labor force participation	0.753	0.777	0.792	0.795	0.803	0.808	0.805	0.810	0.809	0.809
Employment rate	0.693	0.708	0.727	0.737	0.745	0.753	0.755	0.758	0.755	0.754
Unemployment rate	0.079	0.089	0.082	0.073	0.072	0.068	0.062	0.064	0.067	0.068
Adults										
Labor force participation	0.530	0.552	0.573	0.574	0.587	0.582	0.582	0.581	0.573	0.576
Employment rate	0.426	0.442	0.463	0.472	0.485	0.489	0.491	0.490	0.484	0.483
Unemployment rate	0.196	0.200	0.191	0.178	0.174	0.160	0.156	0.157	0.155	0.161
C. Employment quality										
Youth										
Salaried occupation	0.465	0.456	0.449	0.444	0.446	0.461	0.467	0.474	0.472	0.470
Informality	0.654	0.666	0.671	0.658	0.654	0.631	0.618	0.614	0.603	0.596
Sector: Agriculture	0.173	0.176	0.178	0.170	0.168	0.163	0.161	0.158	0.159	0.165
Sector: Manufacturing	0.202	0.208	0.213	0.214	0.208	0.201	0.201	0.197	0.197	0.195
Sector: Services	0.625	0.616	0.609	0.616	0.624	0.636	0.639	0.644	0.644	0.641
Occupation: STEM	0.039	0.037	0.042	0.047	0.048	0.055	0.054	0.057	0.054	0.057
Adults										
Salaried occupation	0.596	0.590	0.571	0.576	0.579	0.580	0.593	0.600	0.599	0.593
Informality	0.691	0.705	0.720	0.712	0.703	0.677	0.663	0.640	0.633	0.631
Sector: Agriculture	0.181	0.204	0.193	0.181	0.170	0.162	0.163	0.151	0.164	0.168
Sector: Manufacturing	0.219	0.205	0.211	0.227	0.215	0.210	0.204	0.206	0.202	0.197
Sector: Services	0.600	0.590	0.596	0.592	0.615	0.629	0.633	0.643	0.634	0.635
Occupation: STEM	0.037	0.029	0.041	0.040	0.046	0.050	0.054	0.061	0.062	0.057
D. Real monthly earnings										
Youth	648,638	633,078	653,693	671,388	667,310	690,540	698,319	676,237	681,665	681,402
Adults	495,919	493,676	499,359	519,657	521,473	549,504	557,946	556,813	544,201	553,089

Source: Authors' elaboration from GEIH third trimester microdata for 2008-2017.

Table A.2. Classification of economic sectors

	Section	Description	CIIU Code
Primary sector	A	Agriculture, livestock, forestry	01, 02
	B	Fishery	5
Secondary sector (Industry and manufacturing)	C	Mining and quarrying	10 a 14
	D	Manufacturing industries	15 a 37
	E	Electricity, gas, and water supply	40 y 41
	F	Construction	45
Tertiary sector (Services)	G	Wholesale and retail trade, repair of motor vehicles, motorcycles, personal belongings, and household goods	50 a 52
	H	Hotels and restaurants	55
	I	Transport, storage, and communications	60 a 64
	J	Financial intermediation	65 a 67
	K	Real estate, business, and rental activities	70 a 74
	L	Public administration and defense, compulsory social security	75
	M	Education	80
	N	Social services and health	85
	O	Other activities related to community, social, and personal services	90 a 93

Fuente: Authors' elaboration from CIIU industry codes.

Table A.3. STEM occupations

Code	Occupation (CIUO-68)
1	Specialists in physical and chemical sciences and related technicians
2 and 3	Architects, engineers, and related technicians
4	Pilots, deck officers, machinists' mates (aviation and navy)
5	Biologists, agronomists, and related technicians
6 and 7	Physicians, odontologists, veterinarians, and related workers
8	Statisticians, mathematicians, system analysts, and related technicians
9	Economists
11	Accountants
12	Jurists

Fuente: Authors' elaboration from CIUO-68 industry codes.

Table A.4. Trends in youth labor market indicators by gender

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A. Time use										
Male										
Working	0.472	0.484	0.488	0.500	0.495	0.495	0.492	0.497	0.497	0.493
Seeking work	0.068	0.070	0.061	0.059	0.052	0.045	0.049	0.049	0.049	0.049
Studying	0.367	0.368	0.363	0.358	0.350	0.359	0.364	0.363	0.361	0.356
Other	0.092	0.078	0.088	0.084	0.103	0.101	0.095	0.091	0.093	0.102
Female										
Working	0.254	0.256	0.258	0.261	0.268	0.267	0.276	0.288	0.280	0.272
Seeking work	0.045	0.044	0.034	0.032	0.023	0.024	0.026	0.034	0.029	0.028
Studying	0.342	0.347	0.350	0.349	0.335	0.352	0.351	0.349	0.346	0.348
Other	0.359	0.352	0.358	0.358	0.375	0.357	0.347	0.329	0.344	0.352
B. Labor market indicators										
Male										
Labor force participation	0.621	0.642	0.666	0.665	0.679	0.667	0.664	0.658	0.656	0.654
Employment rate	0.524	0.544	0.569	0.577	0.588	0.586	0.582	0.580	0.578	0.575
Unemployment rate	0.155	0.153	0.145	0.132	0.135	0.122	0.123	0.118	0.119	0.121
Female										
Labor force participation	0.438	0.461	0.479	0.481	0.494	0.495	0.498	0.503	0.489	0.496
Employment rate	0.326	0.338	0.357	0.364	0.382	0.390	0.398	0.398	0.389	0.389
Unemployment rate	0.255	0.267	0.255	0.243	0.228	0.213	0.201	0.209	0.205	0.216
C. Employment quality										
Male										
Salaried occupation	0.578	0.575	0.566	0.574	0.578	0.582	0.591	0.588	0.587	0.589
Informality	0.711	0.732	0.732	0.727	0.723	0.688	0.678	0.657	0.651	0.642
Sector: Agriculture	0.249	0.283	0.262	0.245	0.229	0.220	0.218	0.202	0.223	0.222
Sector: Manufacturing	0.245	0.225	0.242	0.260	0.251	0.248	0.239	0.254	0.245	0.239
Sector: Services	0.506	0.492	0.496	0.495	0.520	0.533	0.543	0.544	0.532	0.539
Occupation: STEM	0.035	0.028	0.044	0.043	0.051	0.052	0.054	0.066	0.069	0.062
Female										
Salaried occupation	0.625	0.615	0.580	0.580	0.580	0.577	0.595	0.619	0.618	0.598
Informality	0.658	0.661	0.702	0.687	0.673	0.660	0.640	0.616	0.606	0.615
Sector: Agriculture	0.060	0.063	0.071	0.068	0.071	0.067	0.075	0.069	0.071	0.081
Sector: Manufacturing	0.173	0.170	0.158	0.170	0.156	0.148	0.150	0.131	0.133	0.131
Sector: Services	0.767	0.768	0.771	0.762	0.774	0.785	0.775	0.799	0.795	0.788
Occupation: STEM	0.040	0.030	0.035	0.036	0.040	0.047	0.055	0.053	0.053	0.050
D. Real monthly earnings										
Male	500,932	501,119	510,920	535,673	532,080	564,317	562,065	569,403	555,072	568,149
Female	487,625	481,327	480,364	493,004	504,352	526,027	551,717	537,741	527,592	529,785

Source: Authors' elaboration from GEIH third trimester microdata for 2008-2017.

Table A.5. Trends in youth labor market indicators by region

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A. Time use										
Urban										
Working	0.367	0.369	0.370	0.382	0.388	0.389	0.396	0.402	0.394	0.390
Seeking work	0.060	0.061	0.052	0.050	0.040	0.038	0.040	0.044	0.042	0.044
Studying	0.374	0.378	0.381	0.377	0.361	0.372	0.372	0.372	0.367	0.365
Other	0.199	0.191	0.198	0.191	0.211	0.201	0.192	0.182	0.197	0.201
Rural										
Working	0.351	0.376	0.386	0.382	0.361	0.356	0.343	0.361	0.371	0.358
Seeking work	0.045	0.045	0.033	0.029	0.028	0.024	0.028	0.033	0.029	0.020
Studying	0.292	0.289	0.275	0.277	0.277	0.298	0.305	0.299	0.304	0.304
Other	0.313	0.290	0.306	0.313	0.334	0.322	0.323	0.307	0.296	0.317
B. Labor market indicators										
Urban										
Labor force participation	0.541	0.559	0.577	0.578	0.596	0.590	0.593	0.589	0.581	0.584
Employment rate	0.431	0.438	0.457	0.468	0.485	0.489	0.493	0.494	0.484	0.479
Unemployment rate	0.204	0.216	0.208	0.191	0.187	0.171	0.168	0.162	0.166	0.179
Rural										
Labor force participation	0.492	0.531	0.559	0.563	0.556	0.553	0.541	0.550	0.544	0.547
Employment rate	0.408	0.455	0.485	0.487	0.486	0.487	0.482	0.475	0.483	0.497
Unemployment rate	0.170	0.144	0.132	0.135	0.125	0.120	0.109	0.136	0.112	0.092
C. Employment quality										
Urban										
Salaried occupation	0.625	0.633	0.618	0.621	0.627	0.621	0.638	0.650	0.654	0.643
Informality	0.633	0.636	0.660	0.648	0.636	0.618	0.599	0.574	0.570	0.568
Sector: Agriculture	0.044	0.050	0.043	0.034	0.035	0.029	0.030	0.032	0.037	0.039
Sector: Manufacturing	0.248	0.229	0.236	0.248	0.237	0.230	0.223	0.226	0.220	0.217
Sector: Services	0.708	0.721	0.721	0.717	0.728	0.741	0.747	0.742	0.743	0.743
Occupation: STEM	0.047	0.038	0.052	0.051	0.058	0.063	0.067	0.074	0.077	0.071
Rural										
Salaried occupation	0.495	0.454	0.427	0.434	0.415	0.438	0.431	0.414	0.401	0.419
Informality	0.889	0.924	0.909	0.915	0.933	0.885	0.899	0.890	0.867	0.854
Sector: Agriculture	0.647	0.682	0.651	0.639	0.624	0.617	0.636	0.589	0.624	0.610
Sector: Manufacturing	0.122	0.131	0.134	0.161	0.142	0.140	0.138	0.135	0.134	0.128
Sector: Services	0.231	0.186	0.215	0.200	0.234	0.243	0.226	0.276	0.242	0.262
Occupation: STEM	0.003	0.001	0.005	0.005	0.007	0.007	0.007	0.009	0.008	0.009
D. Real monthly earnings										
Urban	539,281	538,921	546,006	564,167	569,131	597,107	607,002	602,954	585,825	594,071
Rural	333,284	331,863	335,225	362,220	339,247	367,432	357,491	365,652	375,807	394,925

Source: Authors' elaboration from GEIH third trimester microdata for 2008-2017.

Table A.6. Trends in youth labor market indicators by educational level

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A. Time use										
Skilled										
Working	0.663	0.685	0.655	0.681	0.661	0.665	0.669	0.690	0.669	0.675
Seeking work	0.126	0.109	0.097	0.090	0.064	0.066	0.068	0.076	0.077	0.071
Studying	0.061	0.068	0.077	0.080	0.089	0.091	0.090	0.082	0.074	0.066
Other	0.150	0.138	0.171	0.150	0.186	0.178	0.173	0.152	0.180	0.187
Unskilled										
Working	0.372	0.385	0.385	0.402	0.401	0.395	0.399	0.414	0.407	0.404
Seeking work	0.069	0.073	0.057	0.055	0.045	0.038	0.041	0.047	0.043	0.044
Studying	0.351	0.344	0.350	0.337	0.321	0.345	0.344	0.331	0.327	0.326
Other	0.207	0.198	0.208	0.206	0.233	0.222	0.216	0.207	0.223	0.226
B. Labor market indicators										
Skilled										
Labor force participation	0.903	0.907	0.901	0.912	0.894	0.901	0.893	0.902	0.901	0.911
Employment rate	0.723	0.747	0.733	0.754	0.747	0.758	0.757	0.765	0.756	0.769
Unemployment rate	0.200	0.177	0.186	0.173	0.164	0.159	0.152	0.152	0.160	0.155
Unskilled										
Labor force participation	0.578	0.604	0.624	0.627	0.644	0.625	0.624	0.631	0.614	0.624
Employment rate	0.446	0.460	0.485	0.500	0.514	0.512	0.512	0.522	0.509	0.510
Unemployment rate	0.230	0.238	0.223	0.204	0.201	0.181	0.180	0.172	0.170	0.183
C. Employment quality										
Skilled										
Salaried occupation	0.748	0.729	0.718	0.714	0.710	0.723	0.752	0.752	0.743	0.730
Informality	0.280	0.288	0.334	0.326	0.333	0.320	0.297	0.281	0.282	0.291
Sector: Agriculture	0.017	0.026	0.016	0.022	0.020	0.014	0.009	0.017	0.026	0.031
Sector: Manufacturing	0.174	0.152	0.166	0.180	0.160	0.175	0.175	0.175	0.167	0.170
Sector: Services	0.809	0.823	0.818	0.798	0.821	0.811	0.816	0.808	0.808	0.800
Occupation: STEM	0.207	0.160	0.183	0.180	0.187	0.174	0.195	0.199	0.234	0.208
Unskilled										
Salaried occupation	0.638	0.665	0.628	0.621	0.626	0.606	0.629	0.637	0.633	0.621
Informality	0.635	0.627	0.662	0.667	0.663	0.673	0.665	0.637	0.631	0.641
Sector: Agriculture	0.073	0.080	0.079	0.086	0.078	0.080	0.090	0.092	0.101	0.108
Sector: Manufacturing	0.234	0.219	0.220	0.229	0.236	0.219	0.221	0.211	0.213	0.205
Sector: Services	0.694	0.701	0.701	0.685	0.686	0.701	0.690	0.696	0.686	0.687
Occupation: STEM	0.016	0.017	0.032	0.026	0.029	0.031	0.028	0.035	0.029	0.025
D. Real monthly earnings										
Skilled	901,194	900,018	892,860	888,346	866,497	884,256	890,851	857,286	861,026	821,858
Unskilled	485,135	488,930	495,174	499,146	499,384	511,002	509,471	515,089	501,342	512,423

Source: Authors' elaboration from GEIH third trimester microdata for 2008-2017.
Notes: We define skilled individuals as those who report at least some post-secondary education. Unskilled individuals are those who have complete high school or less.

Table A.7. Trends in youth labor market indicators by socioeconomic status

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A. Time use										
Medium/High										
Working	0.387	0.383	0.392	0.401	0.402	0.404	0.412	0.411	0.389	0.408
Seeking work	0.050	0.048	0.037	0.040	0.035	0.031	0.030	0.036	0.035	0.042
Studying	0.419	0.441	0.437	0.437	0.423	0.434	0.434	0.434	0.445	0.430
Other	0.144	0.127	0.134	0.123	0.141	0.132	0.124	0.119	0.131	0.120
Low										
Working	0.355	0.368	0.366	0.375	0.376	0.374	0.375	0.389	0.390	0.377
Seeking work	0.059	0.061	0.050	0.048	0.039	0.036	0.042	0.044	0.042	0.038
Studying	0.330	0.337	0.338	0.333	0.326	0.338	0.340	0.339	0.332	0.333
Other	0.256	0.234	0.246	0.244	0.259	0.252	0.243	0.228	0.236	0.252
B. Labor market indicators										
Medium/High										
Labor force participation	0.546	0.550	0.582	0.584	0.599	0.593	0.597	0.575	0.565	0.577
Employment rate	0.445	0.447	0.472	0.487	0.496	0.498	0.508	0.494	0.481	0.486
Unemployment rate	0.185	0.187	0.189	0.166	0.173	0.160	0.150	0.140	0.150	0.159
Low										
Labor force participation	0.527	0.557	0.575	0.572	0.585	0.577	0.576	0.582	0.573	0.574
Employment rate	0.423	0.442	0.462	0.465	0.480	0.482	0.482	0.487	0.482	0.478
Unemployment rate	0.199	0.206	0.196	0.187	0.179	0.165	0.163	0.164	0.159	0.168
C. Employment quality										
Medium/High										
Salaried occupation	0.686	0.704	0.684	0.665	0.696	0.683	0.703	0.702	0.716	0.719
Informality	0.509	0.496	0.521	0.541	0.520	0.489	0.472	0.443	0.449	0.426
Sector: Agriculture	0.038	0.039	0.027	0.022	0.027	0.019	0.038	0.018	0.021	0.010
Sector: Manufacturing	0.214	0.188	0.202	0.194	0.195	0.183	0.171	0.178	0.175	0.171
Sector: Services	0.748	0.773	0.770	0.785	0.777	0.798	0.792	0.804	0.804	0.819
Occupation: STEM	0.079	0.081	0.094	0.105	0.103	0.121	0.112	0.130	0.132	0.130
Low										
Salaried occupation	0.565	0.571	0.555	0.571	0.558	0.567	0.571	0.587	0.584	0.574
Informality	0.756	0.748	0.764	0.743	0.742	0.721	0.709	0.682	0.665	0.679
Sector: Agriculture	0.213	0.219	0.205	0.194	0.181	0.177	0.174	0.166	0.177	0.185
Sector: Manufacturing	0.230	0.212	0.217	0.238	0.223	0.219	0.216	0.219	0.211	0.210
Sector: Services	0.557	0.569	0.578	0.567	0.595	0.605	0.610	0.614	0.612	0.605
Occupation: STEM	0.019	0.016	0.026	0.022	0.032	0.031	0.039	0.043	0.046	0.038
D. Real monthly earnings										
Medium/High	675,895	736,662	754,662	731,048	730,208	793,309	785,198	783,915	752,541	760,710
Low	423,830	433,017	431,666	467,717	467,387	479,347	493,527	498,883	497,061	495,066

Source: Authors' elaboration from GEIH third trimester microdata for 2008-2017.
Notes: We define individuals as Medium/High SES as those who report their strata as 3, 4, 5, or 6. Individuals with low SES are those who report their strata as 1 and 2.

Table A.8. Trends in youth labor market indicators by level of experience

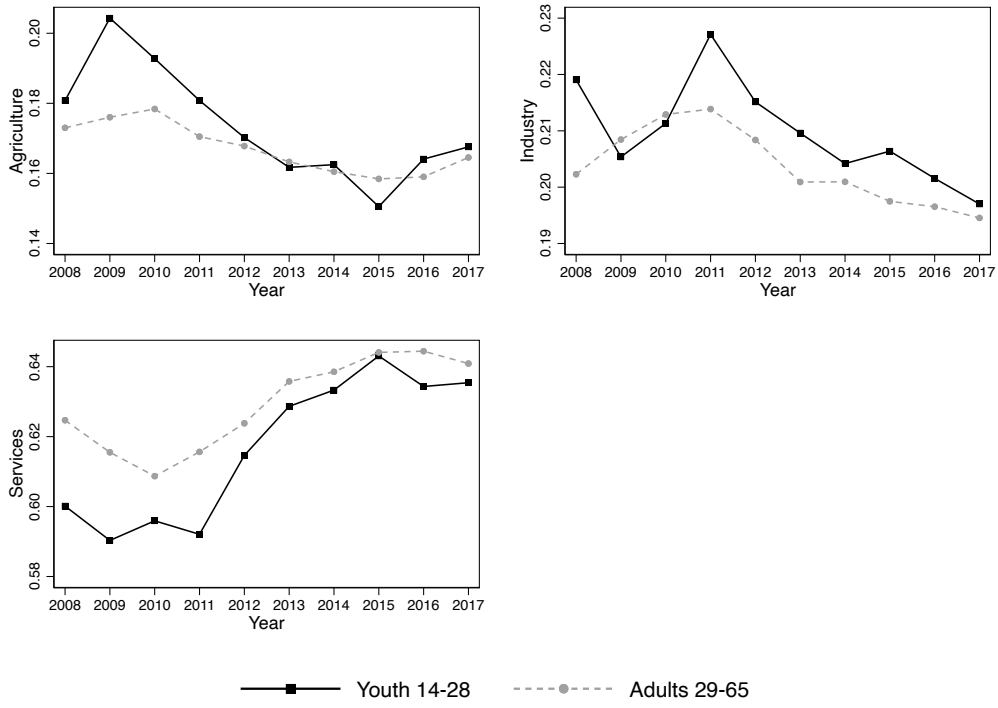
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A. Time use										
With experience										
Working	0.695	0.675	0.668	0.689	0.673	0.684	0.685	0.701	0.696	0.689
Seeking work	0.112	0.122	0.096	0.088	0.072	0.067	0.076	0.080	0.079	0.075
Studying	0.047	0.053	0.066	0.066	0.076	0.068	0.075	0.070	0.063	0.062
Other	0.145	0.151	0.170	0.156	0.179	0.180	0.165	0.149	0.162	0.175
Without experience										
Working	0.659	0.655	0.614	0.607	0.588	0.575	0.591	0.610	0.630	0.598
Seeking work	0.093	0.070	0.054	0.057	0.043	0.039	0.035	0.048	0.040	0.045
Studying	0.122	0.145	0.194	0.191	0.207	0.225	0.219	0.201	0.195	0.192
Other	0.126	0.131	0.138	0.145	0.161	0.161	0.155	0.141	0.135	0.165
B. Labor market indicators										
With experience										
Labor force participation	-	-	-	-	-	-	-	-	-	-
Employment rate	0.784	0.768	0.786	0.805	0.804	0.817	0.818	0.827	0.825	0.822
Unemployment rate	0.216	0.232	0.214	0.195	0.196	0.183	0.182	0.173	0.175	0.178
Without experience										
Labor force participation	-	-	-	-	-	-	-	-	-	-
Employment rate	0.834	0.856	0.856	0.859	0.878	0.895	0.909	0.883	0.894	0.883
Unemployment rate	0.166	0.144	0.144	0.141	0.122	0.105	0.091	0.117	0.106	0.117
C. Employment quality										
With experience										
Salaried occupation	0.669	0.669	0.654	0.655	0.655	0.650	0.669	0.670	0.665	0.656
Informality	0.624	0.644	0.659	0.654	0.645	0.615	0.598	0.578	0.572	0.575
Sector: Agriculture	0.152	0.180	0.161	0.151	0.144	0.132	0.126	0.122	0.140	0.140
Sector: Manufacturing	0.239	0.216	0.236	0.249	0.230	0.231	0.221	0.222	0.215	0.209
Sector: Services	0.609	0.604	0.603	0.600	0.626	0.637	0.653	0.656	0.645	0.651
Occupation: STEM	0.043	0.032	0.047	0.045	0.051	0.055	0.060	0.069	0.069	0.063
Without experience										
Salaried occupation	0.488	0.470	0.421	0.418	0.416	0.423	0.418	0.439	0.446	0.439
Informality	0.789	0.799	0.832	0.830	0.829	0.820	0.819	0.790	0.781	0.774
Sector: Agriculture	0.223	0.241	0.250	0.241	0.227	0.230	0.247	0.217	0.220	0.235
Sector: Manufacturing	0.189	0.189	0.166	0.184	0.182	0.161	0.165	0.169	0.170	0.167
Sector: Services	0.587	0.569	0.583	0.575	0.591	0.609	0.588	0.613	0.610	0.598
Occupation: STEM	0.028	0.025	0.029	0.031	0.037	0.040	0.042	0.041	0.047	0.043
D. Real monthly earnings										
With experience	542,193	533,520	536,718	559,216	560,676	599,597	610,078	598,259	585,625	591,337
Without experience	421,243	422,818	418,807	423,611	418,927	412,597	411,887	445,508	432,209	442,297

Source: Authors' elaboration from GEIH third trimester microdata for 2008-2017.
Notas: We define individuals with experience as those who report that this is not their first job or first time seeking employment. Individuals without experience are those who report being employed or looking for work for the first time.

Figure A.1. Seasonality of youth labor market indicators in Colombia

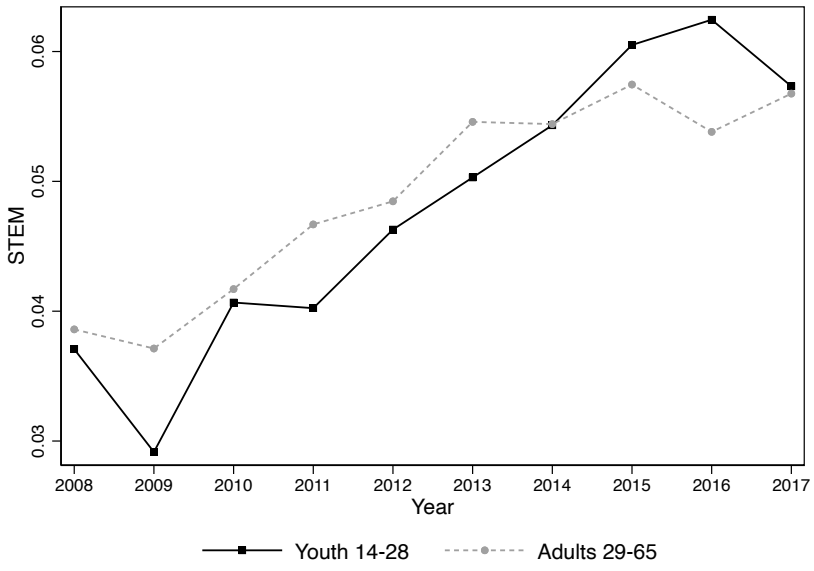
Fuente: Authors' elaboration from LABLAC (2018) data.
Notes: Youth are defined as people aged between 15 and 24.

Figure A.2. Trends in economic sector for youth and adults



Source: Authors' elaboration from GEIH third trimester microdata for 2008-2017.

Figure A.3. Trends in STEM occupation for youth and adults



Source: Authors' elaboration from GEIH third trimester microdata for 2008-2017.