Child Labor in Colombia: Factors Affecting the Selection of Economic Activity

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Abstract

The aim of this research was to determine whether child labor in Colombia's urban areas shows specific characteristics and backgrounds once it is divided by economic activity. The descriptive analysis was based on basic statistics and multiple correspondence analysis, and the probability of working was modeled through a logit model. Finally, a multinomial logit model was applied to consider the six most common economic activity sectors these children work at. The evidence suggests that the probability of a particular type of work is affected by personal characteristics and lifestyles.

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Trabajo infantil en Colombia: factores que inciden en la selección de la actividad económica

Resumen

El objetivo de esta investigación fue determinar si el trabajo infantil en las zonas urbanas de Colombia muestra características y antecedentes específicos según la actividad económica. El análisis descriptivo se basó en estadísticas básicas y análisis de correspondencia múltiple, y la probabilidad de trabajar se modeló a través de un modelo *logit*. Finalmente, se estimó un modelo *logit* multinomial para considerar los seis sectores más comunes de la actividad económica que realizan los niños. La evidencia sugiere que la probabilidad de algún tipo particular de trabajo está afectada por características personales y estilos de vida.

Trabalho infantil na Colômbia: fatores que influenciam a seleção da atividade econômica

Resumo

O objetivo deste trabalho é determinar se o trabalho infantil nas áreas urbanas da Colômbia apresenta características e antecedentes específicos de acordo com a atividade econômica. A análise descritiva é baseada em estatísticas básicas e análise de correspondência múltipla; a probabilidade de trabalho é modelada por meio de um modelo *logit*; finalmente, estima-se um modelo *logit* multinominal considerando os seis setores de atividade econômica mais comuns exercidos por crianças. A evidência sugere que a probabilidade de um determinado tipo de trabalho é afetada por características pessoais e estilos de vida.

Introduction

There is not a clear or unique scheme to identify whether or not a work can be considered as child labor and if, as such, it should be eliminated; it depends on the child's age, type, and conditions of the job, working hours, as well as cultural and social factors. According to the International Labour Organization (ILO), not all work done by children can be considered as child labor in a negative sense. Children should be encouraged to participate in activities such as helping their parents at home or family businesses or earning some money, as long as these activities do not imply a risk for their health and development and do not interfere with their education.

Based on that, child labor can be defined as work that "deprives children of their childhood, their potential, and their dignity, and that is harmful to physical and mental development" (ILO, 2004, p. 20). That includes work that is harmful from the physical, mental, social, and moral points of view and that forces them to abandon school or to combine it with long or heavy hours of work. However, beyond slavery and exploitation, widely considered as deplorable, it is difficult to distinguish between acceptable and unacceptable jobs for children. Under some cultural and social circumstances, the fact that children participate in productive activities is considered as part of their learning process, which helps them to be responsible, to learn an occupation, and to gain the strength necessary to face life. Even more, in some families in which each member must act as a provider, child labor implies the possibility of surviving. In those cases, education may be considered irrelevant. According to Bachman (2000), that children perceive the work as detrimental depends on whether they learn or not from it and how much more they can benefit from it, compared with schooling. For these reasons, the ILO (2002) defined the standards for the different types of child labor. Since Colombia has ratified the International Conventions on Child Labor, such standards apply to the country. The 2006 Código de infancia y adolescencia —Ley 1098— of Colombia allows children under 15 years of age to work for remuneration for up to 14 hours a week in art, sport, culture, and recreation-related activities. As for indigenous people, the Colombian Constitution recognizes their right to be ruled by their regulations.

The worst forms of child labor include slavery, forced labor (including debt bondage), sale and trafficking, forced recruitment in armed conflicts, prostitution, pornography, illicit activities (theft, hired killing, drug sales, etc.), and hazardous work. The latter is defined based on the working conditions under which they are performed: underground or water activities in

confined spaces, working at heights, using dangerous tools or substances, carrying heavy loads, working at night or for long hours, and being exposed to any kind of abuse. But even some acceptable forms of child labor can be disapproved, not just because they deprive children of their right to childhood or to education, but because they perpetuate poverty. Children are generally working in the informal sector and paid wages below the minimum established by law, which lowers wages for adult workers as well. In some cases, they are not paid at all or are just fed; they usually work under the worst conditions, with no access to health and legal support.

According to the Departamento Nacional de Estadística (DANE, for its initials in Spanish), child labor in Colombia has decreased from 21.6 %, in 2001, to 11.4 %, in 2017, including those who work in household services for more than 15 hours, which represent 46 %. If disaggregated by areas, the incidence of child labor is higher in rural than urban areas (19.8 % and 8.2 %, respectively, in 2017). As for gender, that same year, the rate of child labor was 10.7 % for boys and 12.2 % for girls. Of them, 30.0 % do not attend school, 26.0 % work for 30 hours or more. Despite these numbers, child labor in Colombia is yet a field that has not received due attention. Most of the studies are reports carried out by international organizations such as ILO and Unicef. On yearly bases, the DANE presents a summary of the information they collect through the Gran Encuesta Integrada de Hogares (GEIH, for its initials in Spanish) at the national level.

The United States Department of Labor (2010) analyses the laws of Colombia governing exploitative child labor following the standards set by ILO to make clear the conditions under which child labor can be considered acceptable. The International Program for the Eradication of Child Labour —IPEC— (2010) sets the course of action necessary to eliminate the worst forms of child labor, which include the enforcement of national regulations, the access to education and training, the social protection to families and victims, and labor market and international trade policies. Another study conducted by IPEC (2007) analyzes the national programs and strategies to prevent and eradicate child labor in eighteen Latin American countries, including Colombia. Among them, only Colombia and Brazil explicitly set goals and specific actions and their costs as part of the government programs. As part of these strategies, Martínez et al. (2004) developed games for working children and their parents and for teachers, entrepreneurs, and communities in general, to educate them about the children's rights and thus reduce the incidence of child labor in artisanal mines in the country.

Pinzón et al. (2003) described the situation of a group of 162 children working in the streets of Bogotá, some of them younger than 5 years old (38.5 %).

Almost half of the children come from displaced families who escaped from the violence in rural areas, and 61.1% live by themselves. School desertion, long working hours, and exposure to risk factors are common problems affecting them. The situation of children working as street vendors in Bogotá is also analyzed by Estrada et al. (2002). Poverty is probably the main factor that pushes children into the workforce, as concluded by Pedraza and Ribero (2005). We use a probit model to identify factors affecting the probability of child labor in the country, based on information from the 2003's National Living Standards Survey. According to this study, the higher the level of education of the mother or both parents (Bernal & Cárdenas, 2007), the lower the probability of child labor. A similar study conducted by the Instituto Colombiano de Bienestar Familiar —ICBF— (2013), at the national level, concluded that children coming from families in which the head of the household is employed are less likely to work. The importance of the employment condition of the head of the household is also emphasized by Urueña et al. (2009) and Acevedo et al. (2011) in the cases of child labor in Cauca and Cartagena, respectively. As Aguirre (2008) highlights, after studying a group of families in Bogotá, parents may exert emotional pressure on their children, pushing them into the workforce when going through difficult economic conditions. Working children will repeat their parents' experiences, perpetuating poverty conditions. Dehejia and Gatti (2002), using a panel of 172 countries, including Colombia, during the period of 1950-1995, found evidence that the access to credit to overcome these difficult times substantially reduces child labor.

Aparicio (2013), on the other hand, based on data from the 2011 GEIH and the National Survey on Children Labor, found that living in rural areas, having the head of household working in the informal sector, living in overcrowded homes, and having a teenage mother positively affect the children's decision of doing both working and studying. The second part of that same study defined six structures of child labor based on a qualitative study of children in Bogotá: instructional child labor, taking care of younger siblings to free their parents to pursue remunerative jobs, increasing parent's productivity by helping them with small duties at their workplace, contribute to the family as an economic provider, emancipatory work, and taking over of their parents.

Holgado et al. (2014) used analytic hierarchy processes and a logit regression model to evaluate the impact of child labor on academic performance in Colombia, considering a sample of children from a social program called Edúcame primero Colombia, aimed at reducing the worst forms of child labor. Most of the children of the sample work in family businesses or as

street vendors, in construction or domestic services, with an average age of 9.7 years. All of them were enrolled at a school, more than 80.0 % at either elementary or high school. The study concluded that working conditions rather than the type of activity negatively affect the children's performance at school. The length of working hours and whether the work is performed in the morning are among these significant factors. Colombian armed conflict exposure increases the drop-out rates and reduces the average years of schooling in about 9.0 %, mainly due to the risk of mortality rather than economic shocks (Rodriguez & Sánchez, 2009).

Santos (2018) proposed a model to estimate the impact of the gold boom in some Colombian regions. Using data from the Integrated Public Use Microdata Series, from the censuses and the Ministerio de Educación (MinEducación) for the years 1985, 1993, and 2005, he estimates that a boom in gold mining increases the probability of child work by 9.3 % and decreases their school attendance by almost 24.0 %. This is so because of the lack of mechanisms to effectively ban child labor. Palacio et al. (2007) used a not probabilistic sample of 191 children attending the same school in a small town in Colombia to compare the quality of life between those who work breaking stones in quarries, in agriculture, as vendors, or in domestic services (18.8 %) and those who do not work at all. The sample included children —57.1 % boys— aged 11 to 17. The study measured their quality of life based on the Health-Related Quality of Life Survey developed by the New England Medical Center, which distinguishes between physical and mental health factors. The results showed that working children generally exhibit relatively lower values in the different aspects evaluated by this instrument but not always the differences are statistically significant. All in all, working children have more physical health problems, as well as stress and anxiety. A previous study by Araujo et al. (2005) found that children are gradually introduced in the activities in these quarries, moving on according to their age. These activities include cleaning, organizing, and even handling hazardous material, including explosives. Despite the seriousness of the health issues that working children may face, there is no statistical information in this regard in Colombia (Briceño-Ayala & Pinzón, 2004).

As observed by Melguizo (2004), that the learning process in artisanal mines in Colombia is based on intuition passed down from generations does not allow a clear perception of the health risks faced by children working in them. Injuries, mutilations, and visual and hearing loss are frequent. Moreover, since the work is carried out informally, it is often classified as a collaborative or training activity, for which there is no remuneration. Thus, young people are prepared to learn by working, so that school attendance

reaches only 26 % among these children. Minercol (2001) analyzed the situation of children working in coal mines in Sogamoso. The study used a sample of 603 children, of which 51.9 % worked extracting, breaking, loading, or processing coal. Of those, 57.6 % are not paid at all, percentage much larger than the 20.5 % reported in Brazil (Guedes, 2018), a difference attributable to the fact that this author does not consider the ACLR; the remaining receive 35 % of a minimum wage, at most. Schooling is not valued, so children are satisfied with the idea of working. However, the level of satisfaction decreases as children get older. The study also found a relatively higher incidence of respiratory and skin problems among working children. However, Pedraza and Ribero (2006), using propensity score matching methods applied on data for the year 2001, did not find evidence of statistically significant differences in health issues between working and non-working children, probably because effects of child labor on health appear later in their lifetime.

As shown before, most of the research conducted in the country has focused on describing child labor and school attendance, along with the factors affecting them. Yet, many questions need to be answered regarding child labor in Colombia. For example, it may be interesting to figure out whether family background and living conditions affect the type of activity these children perform. This is the issue this paper approaches, using official household survey information for urban areas during the last quarter of the year 2017. The remaining parts of the document are organized as follows. The second section sets the Colombian problem in context; then, we describe the source of statistical information and the methodology used to analyze it, followed by the results and discussion; the conclusions are presented in the last section.

Child Labor in Context

Child Labor Around the World

By 2016, one in ten children aged 5 to 17 around the world were involved in some type of labor, equivalent to 152 million children of which, 73 million were under dangerous situations. The majority worked in agriculture (79.9 %) and others in services (17.2 %); 32.0 % did not attend school, while the others divided their time between working and studying (ILO, 2017a). This percentage has been decreasing, but at a low and declining rate: the 3% drop observed between 2008 and 2012 fell to only 1 % during the following four-year period. According to the same ILO (2017a) report, Africa (19.6 %) and Asia and the Pacific (7.4 %) showed the highest prevalence, which adds

to more than 130 million working children followed by the Americas (5.3 %), Europe and Central Asia (4.1 %), and the Arab States (2.9 %). The magnitude of the problem is such that the United Kingdom Global Risk Advisory Firm Verisk-Maplecroft estimates a child labor index to help companies to evaluate child labor-related risks within their supply chain. According to it, by 2012, Myanmar, North Korea, Somalia, Sudan, and the Democratic Republic of Congo were at the top of the list of the extreme risk of abuse of child workers with rates above 60 %. Brazil and Mexico were the first Latin-American countries in the list.

The magnitude of child employment in developed countries is not clear since the information in this regard is generally not collected. It has been estimated that by the year 2000, about 300000 children were working illegally in factories and farms in the United States. In Italy, it is common for children to participate in agricultural activities, while the footwear industry in Eastern Europe employs children who work from home or in clandestine factories, and it is not unusual to find children offering sexual services in the streets. In some countries, children illegally introduced in Europe are recruited join criminal gangs (ILO, 2002).

However, in these countries, working children show different characteristics compared to those observed in developing countries: lower incidence and higher average age; it is common for these children to combine part-time jobs with school activities so that the workload and the drop-out rates are lower too; working conditions are frequently, but not always, better due to the existence and the enforcement of laws that protect them. An important difference is the reasons for working: accumulating some money for personal expenses or contributing to education expenses, which explains why most of these working children do not belong to the lowest income strata. In Latin America and the Caribbean, in the middle of the 2010s, child labor among children aged 7 to 14 was about 11 %, working on average 13 hours a week.[1]

The considerable heterogeneity that this phenomenon exhibits in the region is represented in Figure 1. As shown, Nicaragua (47.8 %) and Haiti (37.8 %) stand out as the countries with the highest proportion of working children in the region, while Paraguay (29.3 hours) and Bolivia (23.4 hours) show the highest average of weekly working hours which, as we have said, attempts against school attendance and student performance.

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1   Most of the information available at the World Bank is for years 2014 and 2015, exceptions made for Uruguay (2009), Nicaragua, Haiti, and Argentina (2012), Venezuela (2013), and Costa Rica (2016).
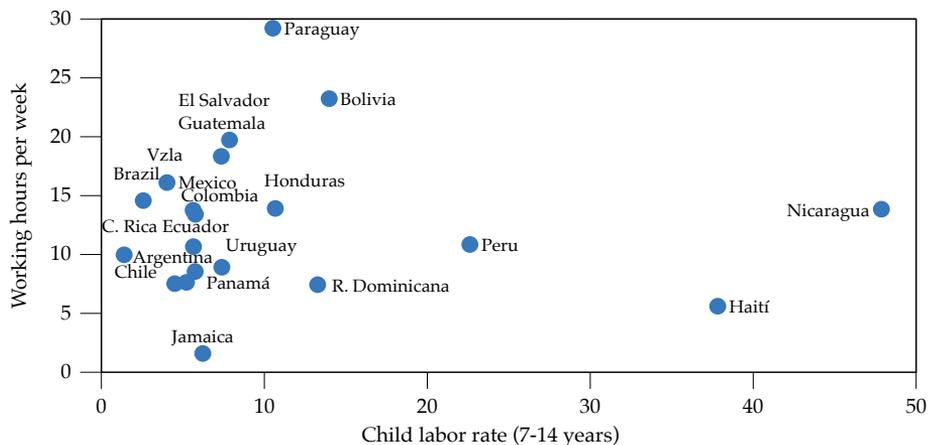
Figure 1. Weekly working hours vs. child labor rate (7-14 years) in LAC (2017)
Source: Based on data from the World Bank.

There is a low and non-significant correlation between working hours and the proportion of working children, but a negative and statistically significant correlation between these two variables and real per capita gross domestic product (GDPpc) adjusted to parity of purchasing power. Indeed, high levels of GDPpc are correlated with less demanding working schedules (-0.6) and lower proportions of children in labor activities (-0.3), highlighting once again the role of poverty in this problem. According to Salazar (1998), the low academic performance of Colombian students may be attributable to the combination of exhaustive hours of work with classes, leaving very little time to study or do homework. Unfortunately, this conclusion may be extended to Latin America as a whole (Post, 2018).

General description of child labor in Colombia

In Colombia, the GEIH collects data on child labor since 2001[2] and uses it to quantify both the child labor rate (CLR) and the augmented child labor rate (ACLR). The first one is calculated as the proportion of children aged 5-17 who work relative to the total number of children within that age range; the second one accounts also for children working at domestic services for more than 15

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2   In 2001, the DANE conducted the first and unique National Survey on Child Labor. Since 2003, the Continued Household Survey included a section in child labor every two years. In 2007, the survey became the GEIH, which since 2012 includes a section in the last quarter of each year dedicated to child labor.

hours a week. By 2001 the ACLR in Colombia was 21.6 %, dropping relatively fast during the first eight years (more than 6 percent points) to eventually slow down its declining trend, being 11.4 % in 2017. This rate is lower in urban areas (17.1 % and 8.2 % for the same years) than in rural areas (31.6 and 19.8 %, respectively). Girls are more likely to work (12.2 %) than boys (10.7 %), with rates decreasing faster for the last group (see Figure 2). The exclusion of children working at domestic services can underestimate the problem with a CLR moving from 12.9 % to 7.3 % in the same time frame and boys being more likely to work (9.0 % versus 5.4 % for girls in 2017).
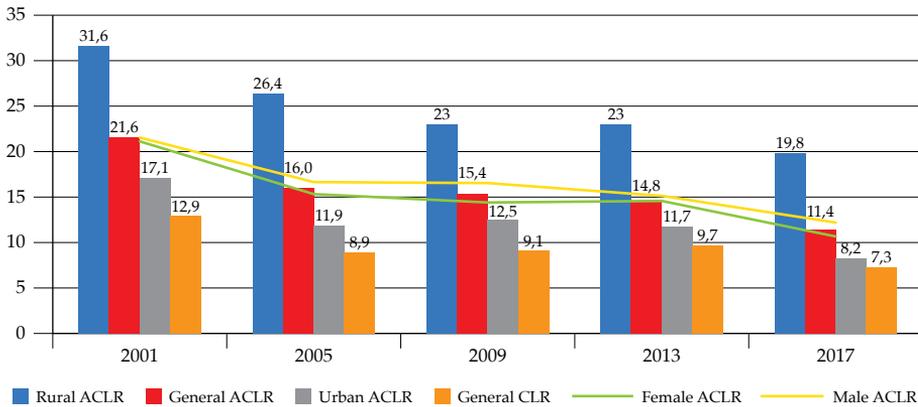

Figure 2. Evolution of CLR and ACLR in Colombia (%) 2001-2017
Source: GEIH (2017, p. 4).

When analyzed by age group, the ACLR has moved from 43.5 % in 2003 to 29.7 % in 2017 among children aged 15 to 17, which represents a drop of about 32 % (see Table 1). For children aged 5 to 14, this rate has fallen 50 % during the same period, from 12.2 % and 6.0 %. Once again, children in rural areas are more likely to work, with rates up to 11.6 % for the youngest group (3.8 % in urban areas) and 49.7 % for the oldest group (22.8 % in urban areas). On average, the CLR is 63.9 % lower than the ACLR; the difference can be as high as 81.1 % (children aged 5-14 in urban areas) and as low as 51.6 % (children aged 15-17 in rural areas).

The still high but declining proportion of child labor in Colombia seems to be accompanied by an also decreasing number of hours worked by them. As shown in Figure 3, in 2017, children working less than 15 hours a week are the majority in the rural sector (53.6 %), and represent an important proportion of those in urban areas (43.2 %), while the proportion of children working between 15 and 29 hours a week has increased in both sectors at the expenses of those working 30 hours and more.

Table 1. Augmented child labor rate by age group (%)

Year	ACLR for children aged 5-14			ACLR for children aged 15-17		
	General	Urban	Rural	General	Urban	Rural
2003	12.2	9.0	19.9	43.5	35.2	65.3
2005	10.0	6.8	18.2	37.1	29.7	57.0
2009	8.8	6.6	14.3	37.4	31.5	54.8
2013	8.4	6.0	14.4	36.0	29.6	54.8
2017	6.0	3.8	11.6	29.7	22.8	49.7

Source: GEIH (2017, p. 4).
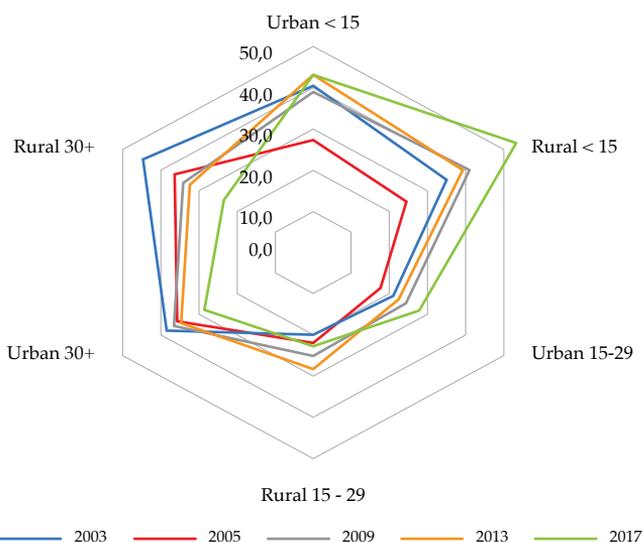
Figure 3. Working hours for children in Colombia (%)
Source: GEIH (2017, p. 4).

However, we have to keep in mind that these official statistics do not include children working in household services for more than 15 hours a week, for which little information is available; considering them, the general proportion of children working less than 15 hours a week would go down to 31.0 %. As expected, in rural areas, agriculture and domestic services employ most of the working children (73.4 % and 16.5 %, respectively). The same happens with services (70.5 %) and manufacturing (13.9 %) in urban areas. Children working in rural areas are said to have more job stability (Salazar & Alarcón, 1998) but face hazardous situations. The Scandinavian countries

have identified agriculture as a health risk occupation, which may be classified as hazardous work based on the standards set by ILO.

About three-fourths of the working children in Colombia are currently in the informal sector, a proportion that has increased over time. A report from the International Organization for Migration (IOM) indicates that more than 66000 children under 17 years of age work in mining, construction, and other work considered hazardous in Colombia (IOM, 2014).

The reasons for working have varied over time. In the year 2017, children might work to have money on their own (37.7 % in urban areas and 26.0 % in rural areas) or participate in family businesses (30.1 % and 51.0 %, respectively). The proportion of children who act as economic providers have substantially declined over time from 24.2 % in 2003 to 9.2 % in 2017, while a small but increasing part of them consider their work as instructive (see Table 2). However, these proportions exclude household services whose economic participation is generally unrecognized.

Table 2. Reasons for working according to children aged 5-17 (%)

Reasons for working	General		Urban		Rural	
	2003	2017	2003	2017	2003	2017
Participate in family businesses	33.5	44.8	26.3	37.1	41.8	51
Have money on their own	27.2	31.2	30.7	37.7	23	26
Economic providers/pay education	24.2	9.2	29.9	12.6	17.6	6.6
Instructive labor	8	11.6	7.5	10.7	8.6	12.4
Other	7.2	3.1	5.6	2	9	4

Source: GEIH (2017, p. 4).

Child labor is said to adversely affect the demand side of the labor market through wages. The less remunerated child labor is the higher incentive for employers to engage children as workers, if they are a suitable substitute for adult labor. In this case, child labor will exert a depressing effect on the demand for adults as well as their remuneration. In Colombia, in 2017, an amazing 45.7 % of working children in urban areas and 66.5 % in rural areas receive no payment at all. However, the real numbers are presumed to be worse. If children working in household services for more than 15 hours were considered, and assuming as expect that they receive no payment at all, these proportions could go up to 69.6 % in the cities and 74.6 % in the rural sector. Even worse, this proportion has increased over time, while the percentage of children that receive more than half of the minimum wage

decreases (see Figure 4). The fact that child labor is assumed as "help" and therefore not remunerated only contributes to perpetuating the poverty cycle, especially if these duties prevent children from attending school.
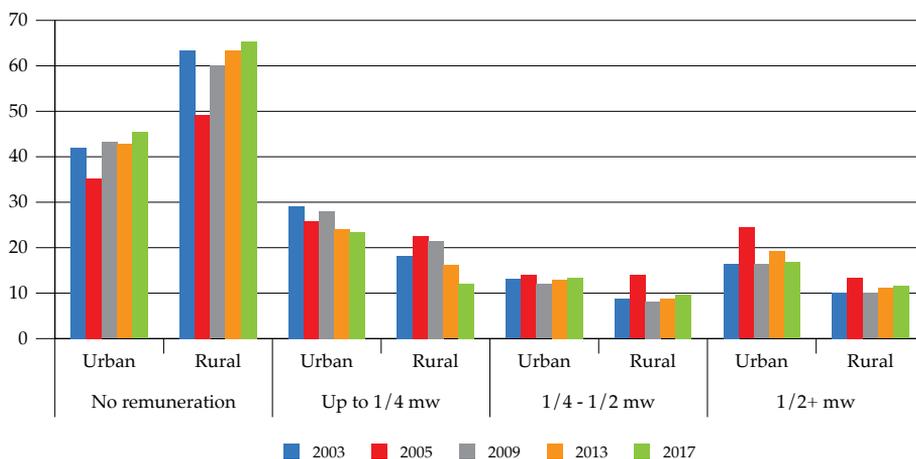

Figure 4. Remuneration of child labor in Colombia as percentage of the minimum wage (mw)

Source: GEIH (2017, p. 4).

Usually, parents decide about children working or attending school based on the family's needs, the value attributed to formal education, and their perception of the immediate and future benefits and costs of schooling. As expected, school attendance is much lower among working children. The difference to the general enrollment level can exceed the 20 percentage points in both urban and rural sectors but narrows faster in the last one. In 2017, the school attendance rate among working children in rural areas was greater than the one in urban areas. This fact supports the idea that children working in manufacturing in services, common in the cities, are more likely to drop from school and contradicts the general perception that peasants consider education to be irrelevant (see Figure 5).

Regarding the worst forms of child labor, there is no clarity about how many children were enrolled, forced or not, in the Colombian guerrilla armies, and there is neither exact information about the number of members in these groups, it is estimated that one-third of them were children (PNUD, 2003). According to Unicef, between September 2011 and June 2016, 1556 children aged on average 13.4 for girls and 14.1 for boys were forced to enter these armed forces. Other sources consider that 6421 children entered these groups between 1960 and 2013 (GMH 2013). Yet, these numbers seem to

underestimate the magnitude of the problem. The Procuraduría General de la Nación —Colombia's general attorney's office— considers that between 1974 and 2014 about 11556 children were recruited by the Fuerzas Armadas Revolucionarias de Colombia (FARC), the largest guerrilla army in Colombia. In addition, several organizations, including guerrilla and paramilitary groups, are responsible for recruiting and training children to work as drug dealers, smugglers, hitmen/women, and perform other illicit activities. Once again, there are no statistics in this regard.
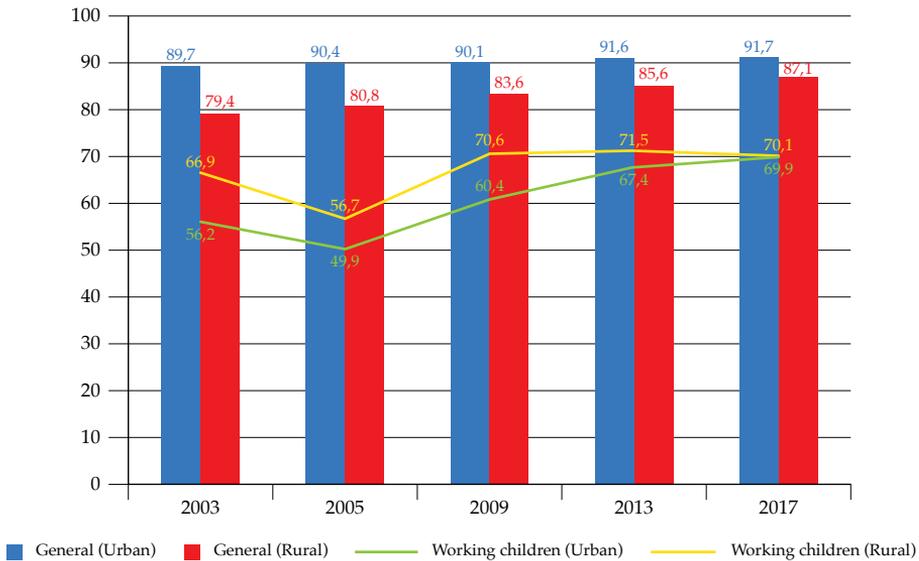
Figure 5. School attendance for children aged 5-17 (%)
Source: GEIH (2017, p. 4).

According to Unicef (2002), there are 35000 sexually exploited children in Colombia. Their number is increasing while the age of initiation decreases. Most often, they are girls, but there is a rising market for boys. Many have been lured, trafficked, or coerced into this activity after being abandoned by their families or having been violence victims. Sometimes, their families encourage them to enter prostitution. That same report indicates that a similar number of children live in the street of Colombia, begging, scavenging for garbage, or committing theft. By 2007, the ICBF estimated this number to be just 4457.

However, Colombia has made significant efforts to reduce child labor and eliminate the worst forms of it. They include changes in regulations to facilitate the access of non-emergency services to victims of human trafficking;

the enactment of the National Strategy to Combat Trafficking in Persons for 2016-2018; the negotiation of peace agreements with revolutionary armed groups and mechanisms for them to end the recruitment of children and the release of those in service; inspections in specific high-risk sectors (mining, agriculture, etc.), as well as agreements with local authorities to combat child labor. These efforts are in line with the ratification by Colombia of key international conventions in this regard: Following international conventions discussed in ILO (2016), the Code of Childhood and Adolescences establishes 15 years as the minimum working age with conditions and 18 years as the minimum age to work in hazardous jobs. Children are banned from some specific hazardous occupations listed in Resolution 3597. The Colombian Constitution and Penal Code prohibit forced labor, child trafficking, sexual exploitation, and the use of children for illicit purposes. Also, these efforts are in line with the Sustainable Development Goals set by the United Nations in 2015 since they help promote peaceful and inclusive societies (goal 16) and set the bases to reduce inequalities within the country (goal 10). However, the legal framework in Colombia seems to be insufficient to protect children since child labor in Colombia is still a problem whose magnitude and characteristics are yet to know. For most of them, the government does not provide specific assistance.

Methodology

The GEIH is a monthly sample survey conducted by the DANE in Colombia since August 2006 to collect information on social, economic, and demographic variables for a representative sample at individual and household levels. Each sample is independent; information on child labor is only included in the last quarter of every year. This paper analyses the information corresponding to the last quarter of the year 2017, the most recent database available by the time we started the study, with an average of 65000 individuals and 20000 households per month in urban areas. Of them, about 3000 households have at least one working child. However, there are limitations in any household survey since some children reported not working might be involved in some kind of work. Additionally, these surveys do not include children living in the streets.

We consider the information at the house, household, and individual level to figure out the conditions surrounding working children. The analysis of the children's living conditions is based on the characteristics of their housing (construction materials, number of rooms, number of members, services provision, etc.) as well as their endowment (stove, refrigerator, etc.).

The head of the family is characterized based on his/her level of education, gender, working status, sector and place of employment, and wage, among others. In addition to the basic description of these variables, multiple correspondence analysis (MCA) were conducted in each case to combine these variables, reducing dimensionality. Besides, MCA helped to identify categories of the auxiliary variables associated with having working children at home. The factors generated along with the children's characteristics were then used in a multinomial logistic regression to identify any possible significant impact of these variables on the type of activity they performed.

MCA is a factorial analysis used to uncover the latent structures in a large set of variables by measuring nonlinear relations among categories of qualitative variables. This descriptive technique allowed us to analyze the data without imposing a priori restrictions on the expected association among categories It generates a visual representation of its structure in a two-dimensional space, which facilitates its interpretation.

We considered the fact that children face multiple choices regarding the economic activity sector. Taking that into account, we reduced the activities to the six most important ones where most of the children are concentrated, based on the International Standard Industrial Classification of all economic activities (ISIC, Rev. 4): (1) agriculture, forestry, and fishery; (2) wholesale and retail trade, renting and leasing; (3) hotels and restaurants; (4) health care and household services; (5) manufacturing of food, textile, apparel, and leather, and (6) other activities including transportation. This last sector includes activities such as construction, transportation, communications, etc., and will be treated as the comparison group in this study. To model these choices, we resort to a multinomial logistic regression model (MLM), assuming some children's characteristics, as well as their living conditions, may affect the decision. In other words, for a given random variable Yi that may take values from j=1…6, we can estimate the probability that the *i-th* response falls in the category *j-th* conditioned to the information provided by a set of explanatory variables. The model is given as:

$$\pi_{ij} = Pr\{Y_i = j\} = exp\{\eta_{ij}\} / \sum_{j=1}^{J} exp\{\eta_{ij}\} \quad (1)$$

with $\eta_{ij} = \log(\pi_{ij}) / \pi_{ij} = \alpha_j + X_i'\beta_j.$

In our example, X includes information on gender, education, age, region, housing, and household characteristics. Specifically, *male* takes value

one for boys and cero for girls. It is expected that some jobs are more likely to be performed by boys, while others are traditionally done by girls; similar reasoning may apply if children *age* out. The education factor enters the model through two variables: the level of education, in this case, it reduces to having or not a *high school* diploma, and another variable that specifies whether the child is *studying* or no. It is expected that children with some level of education may apply for somehow better jobs; also, those who study may try to work at jobs with more flexible schedules. The particularities of each region are accounted for by a set of dichotomous variables that identify the different regions in which Colombia is divided. Living conditions enter the model through the factors resulting from the MCA, as well as by the working activity of the head of the household. We corrected for selection bias by including the inverse Mills' ratio (*imr*), following Heckman's two-step type regression model. The *imr* is obtained from a logistic regression model in which the probability π_i of a child being working under the notion of augmented child labor is given by:

$$\ell = \log\left(\pi_i / 1 - \pi_i\right) = Z_i' \beta \quad (2)$$

Where Z includes information on gender, *studying*, economic strata, age, number of adults working in the family, and the gender of the head of the household. We assume that girls are more likely to work; attending school may reduce this probability, while age may increase it. Children living in lower-income strata may be required to work, but the probability should decrease with the number of adults within the family that works. As for the effect of the gender of the head of the household, we do not have a clear expectation.

Results and discussion

Living conditions

As said before, the GEIH (2017, p. 4) sample accounts for a monthly average of about 3000 households in which at least one child works, which translates into 614000 households once the expansion factor is applied. Within them, the majority (84.4 %) have only one working child, 13.6 % have two working children, while the remaining 2.0 % have three or four. The general characterization of their housing compared to those with no working children and the definition of the variables used in this regard are summarized in

Table A1 in the appendix, while Figure 6 provides a graphical representation based on the MCA. This analysis yields two factors with a combined explanation power of 88.4 % of the total variability. Households without working children (right) exhibit an average and relatively homogeneous behavior that differs from the one observed among houses with working children. Working children tend to live in overcrowded homes[3] with four children or more (children/adult ratio of 1.2, compared to 0.5 in homes with no working children). The housing structure tends to be of poor quality, with floors made of cement or earth and walls made of cane, adobe, or mod, without access to basic services (water, electricity, sewers, and garbage collection). Usually, the kitchen is not located in a separate room and lacks the basic endowment (stove, fridge, laundry machine, for example).

From this MCA, we generated two factors to be included in the MLM. Increasing values of the first factor (*home1*) tend to refer to homes lacking basic services, built with low-quality materials, and with a poor basic household endowment. The second factor (*home2*), on the other hand, refers to one-room housing, with no kitchen and only one adult with children living in it.
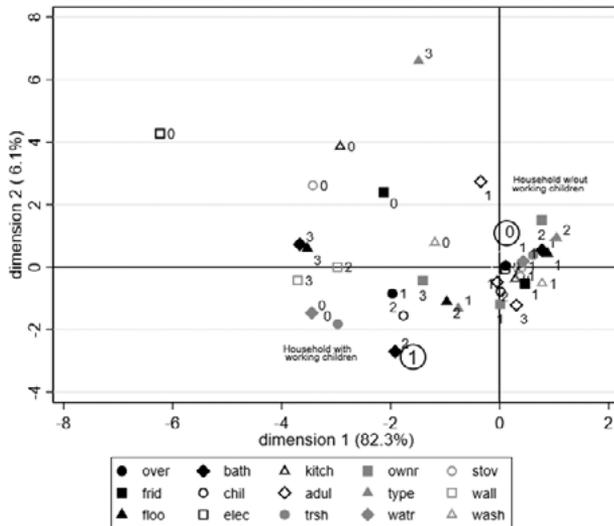
Figure 6. MCA of General Housing Conditions for Households with and without Working Children

Source: GEIH (2017, p. 4).

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3   More than three people per room, following the Economic Commission of the Latin America and the Caribbean parameters.

The characterization of the head of the households is depicted in Figure 7 (see Table A2 in the appendix for a general description and definition of the variables). The MCA suggests that the head of households with working children (right) tends to be an individual with a low level of education (less than high school), who works in the informal sector, usually at home or farms. It is mostly engaged in activities related to the primary sector or in transportation, earns at most one minimum monthly wage, does not contribute to pension plans, and belongs to subsidized health plans. Once again, we obtained two factors. The first one (*head1*) has an explanatory power of 67.6 %. Increasing values of this factor tend to represent individuals with a relatively higher level of education, who work in the formal sector as skilled workers, are paid a salary or professional fees, and contribute to their pension and health plans. The second factor (*head2*), with a 14.1 % explanation power, on the contrary, depicts individuals that are either idle or unemployed or working in the primary sector, transportation, or in personal and household services.
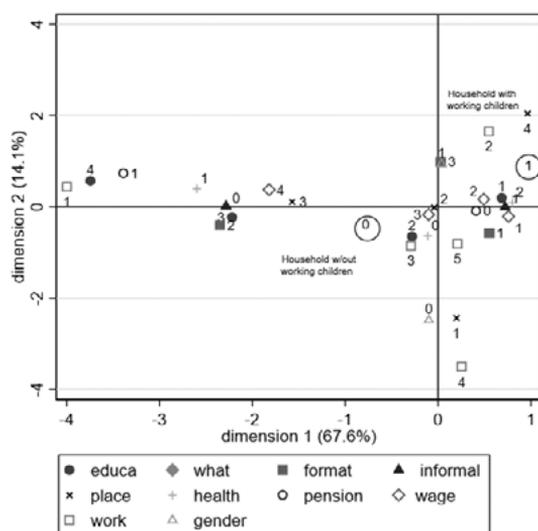

Figure 7. MCA for the Head of the Household with and without Working Children

Source: GEIH (2017, p. 4).

Working children

According to the GEIH, there were about 2.3 million working children in Colombia during 2017, which represent 15.3 % of the total individuals of 17 years of age and under, while another 0.6 % of the remaining children were looking for a job. Also, 19.1 % of children aged 10 to 17 are neither studying nor working for pay or not.

This percentage goes down to 5.3 % if other activities to which children devote 15 hours a week or more were excluded (husbandry, house chores at home or somewhere else, baby, elderly and disabled assistance, construction, garment making). Among workers, almost 54 % are girls, and more than 20 % are not attending school. The incidence varies across regions, being the highest one observed in the Pacific region (20.5 % and 17.4 % for girls and boys, respectively), while the Caribbean region exhibits the largest gap between genders (4.6 percent points).

As shown in Table 3, less than 7.0 % of girls and 19.0 % of boys are paid; if paid, most of them (62.0 % girls and 55.0 % boys) receive at most half the minimum wage. Less than 3.0% of the working children say to have paid vacations, no more than 1 % receive Christmas bonuses, and about 35.0 % of those who are paid are also fed; none is paid extra hours, even though 5.0 % of the children work more than 40 hours a week.

As for working conditions, about 60.0 % said to have a contract of employment, which is generally a verbal agreement. One out of four workers feels that their working environment is not healthy in terms of noise, temperature, pollutants, odors, etc., while more than 35 % of them consider that their jobs are physically or mentally demanding. On average, girls work relatively more hours a week and are more likely to undertake extra activities. That the proportion of working girls is generally underestimated and that they work relatively longer hours than boys have been highly documented by Narasaiah (2003). The percentages of girls and boys with at least one extra activity besides their regular jobs are 92.5 % and 75.0 %, respectively. It is more likely for girls to have two or more obligations (23.5 % versus 9.0 %).

Table 3. General Characteristics of Working Children Aged 10-17 (%)

	Description	Female	Male
Gender		53.59	46.41
Attending school	No (0)	20.88	20.74
	Yes (1)	79.12	79.26
Level of education	Basic or less (1)	92.25	95.35
	High school (2)	7.75	4.65
Incidence of child labor by region	Andean (1)	16.94	13.27
	Caribbean (2)	18.38	13.77
	Pacific (3)	20.5	17.38
	Rest (4)	12.29	8.86
Working for monetary payment	No (0)	93.55	81.36
	Yes (1)	6.45	18.64
Wage category based on minimum wage (мw)	Up to 0.5 мw (1)	61.9	55.01
	0.5–1 мw (2)	18.81	25.86
	More than 1 мw (3)	19.26	19.12
Other benefits	Paid vacations	2.66	1.32
	Christmas bonus	0.5	1.07
	Extra hours	0	0
	Food	53.24	26.96
Sector of paid economic activities (% of total working children)	Agriculture, forestry & fishing	14.48	48.04
	Trade	23.9	17.68
	Hotels, restaurants	20.19	5.31
	Household services	18.34	0.1
	Food, textile, leader manufacturing	9.61	7.36
	Construction	0.58	8.06
	Health services	5.73	0.05
	Transportation	0.13	4.26
	Other activities	7.04	9.14

Continúa

	Description	Female	Male
Number of unpaid extra activities	Cero (0)	7.47	25.03
	One (1)	69.02	65.96
	Two (2)	21.11	8.57
	Three or more (3)	2.39	0.43
Unpaid activities	House chores at home	84.02	53.88
	Husbandry	14.31	30.94
	Baby, elderly, and disable assistance	20.43	7.63
	House chores outside the home	2.9	2.81
	Others (construction and garment making)	0.25	0.87
Working in the informal sector	No (0)	13.87	10.86
	Yes (1)	86.13	89.14
Working place	Home (1)	40.46	17.84
	Street (2)	9.48	9.73
	Office / factory / fixed place (3)	28.72	18.58
	Farm/ files/ other (4)	21.34	53.85
Contract of employment	No (0)	65.26	59.59
	Yes (1)	34.74	40.41
Written employment contract	No (0)	0.25	3.16
	Yes (1)	99.75	96.84
Healthy working environment	No (0)	28.02	24.19
	Yes (1)	71.98	75.81
Physical or mental effort	No (0)	34.94	37.71
	Yes (1)	65.06	62.29
Hours of work per week	Mean	38.31	35.79
	Standard deviation	12.32	8.25

Source: GEIH (2017, p. 4).

Boys tend to be occupied in agriculture, forestry, and fishing (48.0 %), and trade (17.7 %) sectors, while girls are employed in a wider variety of activities: trade (23.9 %), hotels and restaurants (20.2 %), house services (18.3 %), agriculture, forestry, and fishing (14.5 %), and food, textile, or leader manufacturing (9.6 %). In general, more than 85.0 % of working children are

employed in the informal sector with jobs performed at home (girls, 40.5 %) or in farms and similar (boys, 53.9 %). A report from the ɪᴏᴍ indicates that more than 66000 children under 17 years of age work in mining, construction, and other work considered hazardous in Colombia (ɪᴏᴍ, 2014).

According to ɪʟᴏ (2004), children doing particular jobs may have similar characteristics and lifestyles. To find evidence in this regard, we run an ᴍʟᴍ, as given by equation (1), after running a binary logistic regression to model the children's decision of entering the labor market based on equation (2). Besides the parents' decision, it can be assumed that some factors may contribute to this decision regardless of who makes it. As expected, on average, the probability of girls working is 4 percentage points higher than that of boys. This result is consistent with others that indicate that families tend to take girls out of school and send them to work (Zapata et al., 2011), but contradicts the idea that boys tend to be exploited by their families since they are stronger than girls (Chang et al., 2011). Children attending school are less likely to work, being this effect larger for girls than for boys, probably as the result of the family effort to keep them in school (Buchmann, 2000; Kruger, 2007). The number of adult members of the family that work reduces the chances that children need to act as providers, as also shown by Buchmann (2000) and Manacorda (2006), while the likelihood of working decreases faster, the higher the economic strata they belong at. This last result is consistent with the idea that economic inequalities significantly impact child labor (Tanaka, 2003). This likelihood increases (decreases) if the father (mother) is the head of the household: children from homes run by women are 2.4 percentage points less likely to work, while those coming from homes run by men are 1.4 percentage points more likely to work. In line with other studies (Serra 2009; Shafiq 2007), on average, age increases the probability of working by almost 4 percentage points per year of age (see Table 4).

Table 4. Likelihood of Child Labor Based on ᴀᴄʟ

Variable	Coefficient	Robust Standard Error	Marginal Effect
Male	-0.2914*	0.0006	-0.0406
Studying	-0.3867*	0.0009	-0.0639
Studying male	0.1043*	0.0017	0.0154
Father present	0.1051*	0.0006	0.0143
Mother present	-0.1598*	0.0008	-0.0239
Strata 2	-0.5174*	0.0009	-0.0557

Continúa

Variable	Coefficient	Robust Standard Error	Marginal Effect
Strata 3	-1.1493*	0.0041	-0.0691
Adults working at home	-0.0269*	0.0004	-0.0037
Age	0.2702*	0.0001	0.0371
Constant	-3.4647	0.0016	

Note: Significant at 1% (*)
Source: GEIH (2017, p. 4).

We found evidence of some factors driving the decision about economic activity. The results shown in Table 5 leave working in other activities as the comparison group. As for personal characteristics, it can be said that gender has a significant effect on the decision to work in the agricultural, trade, and household services sectors. Specifically, boys are more likely to work in the first sector compared to the other two, which occupy most of the girls. Regarding this, Chang et al. (2011) have found that in China, boys are more likely to work in farming and family businesses, while girls are mostly occupied in household chores. That children in domestic service consist mostly of girls in charge of house cleaning, cooking, washing, and caring for other children and the sick has been also documented by Thijs (1997), who highlights the importance of this role as they free their parents and employers to work at paid jobs. Cunningham and Viazzo (1996) pointed out that the introduction of some basic tools in the mining sector may have displaced children working out of the manufacturing sector, while sewing machines have attracted more girls to the garment sector in Colombia.

Being studying significantly reduces the probability of working in household services, probably due to its rigidity and workload; after all, this is the sector with the highest average of hourly working hours per week (39.85). The average working hours in the other sectors are as follow: 39.85 in household services, 32.81 in agriculture, 30.85 in manufacture, 27.27 in trade, 26.38 in other activities, and 23.71 in hotels and restaurants. Having a high school diploma reduces the likelihood of working as a vendor or a servant compared to performing other activities but does not necessarily increase the probability of working in another sector. It is known that there are activities that children do not perform as they age out; in fact, it seems that children move away from the agricultural sector but tend towards sales and manufacture as they get older. This behavior can be explained by the fact that at an early age, families can conceal the agricultural and household activities

that children carry out, even if they are ineligible for, and eventually move to better paid jobs as they become eligible for them (Manacorda, 2006).

It is not surprising that the type of activity that characterizes each region also influences the sector in which children work. Although agriculture is important all around Colombia, 80 % of the coffee crops and a good part of the agricultural fields belong to the Andean region. The most suitable lands for agriculture are located in the Caribbean region, where the main palm, cotton, and banana crops can be found, in combination with intense livestock and fishing activities. Hence, it is not surprising that the probability of working in agriculture is greater and highly significant in these two regions. However, although the mining activity is present in this and other regions of Colombia, its weight within the child labor population in the survey turned out to be insignificant. We must keep in mind that these two are also the regions most affected by the guerilla armed forces in Colombia that recruited children to work at illicit activities (Child Soldiers International, 2001).

Table 5. Results of the multinomial logistic model
for the sector of economic activity

	Sector of economic activity				
Variable	Agriculture, forestry, and fishery (1)	Wholesale and retail trade, renting and leasing (2)	Hotels and restaurants (3)	Health care and household services (4)	Manufacturing of food, textile, apparel, and leather (5)
Male	0.9792*	-1.2632*	-1.9584	-0.8740*	0.8740*
	(0.2985)	(0.2642)	(0.2659)	(0.0831)	(0.2786)
Attending school	0.3939	-0.1103	0.2056	-1.1667*	-0.0836
	(0.3384)	(0.2843)	(0.2864)	(0.2985)	(0.2916)
High-school diploma	0.3463	-0.6937**	0.0484	-2.5180*	-0.3878
	(0.4525)	(0.3386)	(0.3341)	(0.3428)	(0.3615)
Age	-0.3927**	0.2264**	0.9428	0.09	0.2262**
	(0.179)	(0.153)	(0.1541)	(0.1473)	(0.1567)
Andean	0.3399**	0.1199	-0.449	0.382	0.4338
	(0.186)	(0.274)	(0.2871)	(0.2783)	(0.32)
Caribbean	1.4005*	0.3566	0.3336	0.4548*	0.5216
	(0.3248)	(0.298)	(0.3039)	(0.1211)	(0.3359)

Continúa

Variable	Sector of economic activity				
	Agriculture, forestry, and fishery (1)	Wholesale and retail trade, renting and leasing (2)	Hotels and restaurants (3)	Health care and household services (4)	Manufacturing of food, textile, apparel, and leather (5)
Home1	-1.1099*	-0.0536	-0.0078	0.2188**	-0.4288*
	(0.1131)	(0.1138)	(0.1348)	(0.1055)	(0.1245)
Home2	-0.7942*	0.0011	0.1283	0.1726***	0.2629**
	(0.1308)	(0.1111)	(0.1373)	(0.1029)	(0.1249)
Head1	-0.9442**	-0.2378	-0.7526**	-0.8275*	-0.3482*
	(0.3911)	(0.3109)	(0.3783)	(0.3375)	(0.085)
Head2	0.4598**	0.8522	-0.6911*	2.8899*	0.5219***
	(0.1965)	(0.1601)	(0.2002)	(0.3562)	(0.2895)
Parent's work 2	3.0356*	-0.4394	-2.4794	-6.3915*	-2.2947*
	(0.4709)	(0.3134)	(2.4153)	(0.3771)	(0.4901)
Parent's work 3	-2.1539*	5.7421*	-0.3929	-3.9312*	-0.792
	(0.3757)	(1.0793)	(0.4335)	(0.3959)	(0.4872)
Parent's work 4	-2.9376*	0.3819	-1.7332	-5.2907*	-3.0795*
	(0.3192)	(1.1381)	(0.9977)	(0.3569)	(0.3146)
Parent's work 5	-2.9878*	3.3556*	-1.4954	-6.5867*	0.5361***
	(0.3155)	(1.0709)	(1.3939)	(0.3741)	(0.3026)
IMR	1.2189*	0.3762	0.5675***	-0.0526	0.1476
	(0.2739)	(0.2721)	(0.3432)	(0.5114)	(0.3498)
Cons.	2.1067*	6.2944**	-2.4755	-3.2445	-0.4856
	(0.1929)	(2.3702)	(2.8361)	(0.4773)	(2.8408)

Note: Coefficients and robust standard errors in parenthesis. Significant at 1% (*), 5% (**) and 10% (***).
Source: GEIH (2017, p. 4).

Regarding the living conditions of these young workers, the data indicates that having heads of the household with a relatively better economic condition (*head1*) reduces the probability of working in almost all sectors as compared with other activities, except in the commercial one. This could be due to some parental altruism, according to which parents' decisions on child labor are viewed as a last resort, but the extreme poverty may force parents to send their children even into the worse forms of child labor (Dessy & Pallage, 2005). It should be said that the idea of working in commercial

activities is pretty much rooted in Colombia and is usually encouraged by the same family, although not necessarily among children. Note also that this is one of the sectors with the highest median hourly wage among working children. Keep in mind that the median hourly wages in Colombian pesos for working children are as follow: 12140 in hotels and restaurants; 12006 in other activities; 11385 in commercial activities; 9690 in household services; 9517 in agriculture, and 8282.6 in manufacture. On the other hand, if the head of the household is idle, unemployed o works in activities related to agriculture, manufacture, or household services (*head2*), children likely work in the sectors of higher working load.

The precariousness of living conditions (*home1* and *home2*) increases the likelihood of working as servants, once again the activity with the highest hourly load, the highest incidence of unpaid work (98.3 %), and the lowest wages, if any (27.27 % of the workers in this sector are paid only with food). This may be explained by the fact that these activities are highly associated with extreme poverty (ILO, 2002), so that families living in poor and over-crowded homes are likely to push children into working activities (ILO, 2017b). These variables also seem to favor working in manufacture but reducing the chances of working in agriculture. Finally, it is not a surprise that children are likely to perform similar activities to those of their parents, as indicated by the positive effect of parent´s work 2 on the agricultural sector parent´s work 3 on the commercial sector, and parent´s work 5 on the manufacturing sector (see Table 5). According to (ILO, 2017b), a significant number of children get to work through their parents or friends, so it is likely for them to replicate the same activities as their relatives.

Conclusions

It is difficult to define and quantify child labor since the perception of children participating in the labor market varies based on cultural, religious, regional, and economic factors. However, children should be granted their right to enjoy their childhood, they should be offered the possibility of getting the skills to improve their future living conditions to break poverty circles, and they should be protected against abuse, exploitation, and, in general, the worst forms of child labor. Colombia has made great efforts in this regard, reducing the rate of augmented child labor by about 10 percentage points between 2001 and 2017.

It is also clear that statistics are incomplete and underestimate the problem since they usually do not account for unpaid activities to which children devote 15 hours or more a week. Similarly, household surveys lack

information on children living in the street and on unreported illegal activities (some agricultural and mining activities, sexual exploitation, smuggling, drug trafficking, etc.) that in Colombia also include the participation, voluntarily or not, in the guerrilla armed forces.

This study used multivariate statistical analysis and binary and multinomial logistic regressions to analyze official household survey data for urban areas in Colombia for the last quarter of the year 2017 in an attempt to identify personal, housing, and household factors affecting the economic sector of employment chosen by working children.

The data indicates that about 15 % of children aged 17 and younger were involved in some kind of working activity, all of them underpaid or not paid at all. As expected, children living in poor housing conditions without basic services and lacking endowment are more likely to work. The characteristics of the household head play an important role in this decision: being unemployed, poorly educated, working in the informal sector or some specific jobs increases the likelihood of having at least one working child in the family. A revealing finding is that this likelihood also is greater if the head of the family is a man. Personal factors affect this decision since girls are more likely to work while being studying reduces this probability. Most of these children work in the informal sector so that besides being paid less than the minimum wage, they do not have health, social, nor legal protection. About three-fourths of the working children in Colombia are currently in the informal sector, a proportion that has increased over time.

We found evidence supporting the idea that personal characteristics and living conditions affect not only the probability of working but also the selection of the economic sector of employment. For example, we found that some factors significantly increase the probability of working in agriculture, forestry, and fishing activities: being young or a boy, living in the Andean and Caribbean region, coming from homes characterized by very poor housing conditions without basic services, where the head of the family carries out the same activity, is unemployed, or idle. In this sector, where most of the children are employed, they face hazardous situations since their job requires to handling sharp tools, carrying heavy loads, handling and spraying agrochemicals, and working long hours in exhausting conditions and postures.

Boys are also more likely to work in the manufacturing sector; the probability increases with age and with the head of the household performing similar activities, not working or looking for a job. It is also more likely to be in this sector if living with single parents in single rooms. The health and household services sector, on the other hand, is characterized by having the largest workload, the highest proportion of unpaid workers, and one of

the lowest average wages. Girls are more likely to be employed in this sector, but studying or having a high school diploma increases the chances of moving away from it. Being in the Caribbean region, living in precarious conditions, or in a house in which the head of the household is idle or unemployed increases the probability of ending up working in this sector. Even though ILO does not classify them as such, IMO (2014) considers household chores among the worst forms of child labor, since they may represent servitude and domestic work in abusive conditions. However, not all household chores are done in abusive conditions; most of the time, these activities are unreported and undetected. Therefore, in addition to servitude, household services might be considered among the hazardous jobs. According to IMO, accidents at home are the fourth most common cause of death and injury in Colombia.

In the manufacturing and services sectors, children face longer and more rigid working schedules, so they are more likely to leave school prematurely. The job is usually performed indoors, so they might be subject to abusive behavior from their employers. They mostly concentrate on the informal sector, so wages and working conditions are poor, and they lack job security. Working as vendors seems to be an option for girls and older children with no high school diploma and with parents working in the trade sector or as unskilled workers. Hotels and restaurants also seem to attract children whose head of the household is not well educated, paid, and employed.

In light of this, policies designed to grant children the right and the possibility to access education and finish at least high school will not be sufficient to reduce child labor or help them to move to better jobs. It is also necessary to help their parents to get the skills and the possibility to formalize and find better-paid jobs, as well as to help the family as a whole to live in better and more suitable environments.

Appendix

Table A1. Living Conditions in Households with and without Working Children

Variable	Meaning	Categories	Working Children	
			Yes	No
Over	Overcrowding, more than 3 people per room (%)	No (0)	87.82	94.98
		Yes (1)	12.18	5.02
Adult	Number of adults in the household	One (1)	13.82	22.66
		Two (2)	75.9	45.39
		More than two (3)	40.28	31.94

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Variable	Meaning	Categories	Working Children	
			Yes	No
Child	Number of children in the household	Up to Three (1)	81.47	94.41
		Four or more (2)	18.53	5.59
Bath	Toilet facilities	WC w sewer (1)	44.59	77.21
		WC w septic tank (2)	39.88	16.04
		Other/none (3)	15.53	6.76
Kitch.	Housing with kitchen room	No (0)	12.24	8.77
		Yes (1)	87.76	91.23
Stove	Housing with electric or gas stove	No (0)	19.61	9.54
		Yes (1)	80.39	90.46
Fridge	Housing with refrigerator	No (0)	28.04	13.42
		Yes (1)	71.96	86.58
Wash	Housing with laundry machine	No (0)	56.42	38.81
		Yes (1)	43.58	61.19
Sewer	Sewage service	No (0)	31.85	21.05
		Yes (1)	68.15	78.95
Elect.	Electricity service	No (0)	7.05	0.89
		Yes (1)	92.95	99.11
Garb.	Garbage collection service	No (0)	46.58	15.76
		Yes (1)	53.42	84.24
Water	Potable water service	No (0)	27.45	10.41
		Yes (1)	72.55	89.59
Type	Type of housing unit	House (1)	76.82	50.72
		Apartment (2)	20.1	47.95
		Room / other (3)	3.08	1.34
Wall	Main material of walls	Brick (1)	73.59	90.18
		Adobe, wood (2)	13.97	5.25
		Rod / other (3)	12.44	4.57
Floor	Main material of floor	Tile /brick (1)	33.9	64.47
		Cement (2)	49.17	28.27
		Mod/other (3)	16.92	7.26

Variable	Meaning	Categories	Working Children Yes	Working Children No
Owner	Tenancy of the housing	Own (1)	42.66	40.56
		Rented (2)	25.69	38.77
		Invasion /other (3)	31.65	20.67
Strt.	Economic strata for services	Low (1)	91.12	71.48
		Medium (2)	8.76	25.99
		High (3)	0.12	2.53

Source: Based on the GEIH (2017, p. 4).

Table A2. Head of Households with and without Working Children

Variable	Meaning	Categories	Working children Yes	Working children No
Educ.	Level of education	Less than high school (1)	80.92	54.01
		High school (2)	14.32	27.81
		Technical (3)	3.15	7.49
		University or more (4)	1.6	10.68
Gender	Gender	Female (0)	33.05	36.13
		Male (1)	66.95	63.87
Civil	Marital status	Single (1)	5.98	11.12
		Married / stable partner (2)	67.21	58.7
		Other (3)	26.81	30.18
What	Main activity	Working (1)	81.37	67.72
		Looking for a job (2)	2.04	1.79
		Studying (3)	0.54	0.68
		Housekeep/disable/other (4)	16.05	29.82
Form	Way of working	Work for a wage (1)	4.01	13.42
		Tradespeople (2)	46.3	51.26
		Business owner (3)	49.69	35.32
Informal	Sector of employment	Formal (0)	20.78	45.87
		Informal (1)	79.22	54.13

Continúa

Variable	Meaning	Categories	Working children	
			Yes	No
Place	Working place	Home (1)	20.49	17.95
		Street (2)	10.69	17.94
		Office / factory / fixed place (3)	18.92	41.38
		Farm/ files/ other (4)	49.9	22.74
Work	Occupation or activity	Skilled worker (1)	2.59	10.42
		Primary industry / transportation (2)	56.34	34.82
		Commercial activities (3)	12.43	18.06
		Home & personal services (4)	13.37	16.44
		Unskilled tradesperson but drivers (5)	15.28	20.27
Wage	Wage category based on minimum wage (mw)	Up to 0.5 mw (1)	35.34	23.94
		0.5–1 mw (2)	27.69	24.39
		1 – 1.5 mw (3)	24.23	25.38
		More than 1.5 mw (4)	12.74	26.28
Health	Health plan	Contributory (1)	16.67	44.66
		Subsidized (2)	68.75	40.12
		Other (3)	14.58	15.22
Pension	Pension plan	No (0)	84.85	61.75
		Yes (1)	15.15	38.25

Source: Based on the GEIH (2017, p. 4).

References

Acevedo, K., Quejada, R., & Yañez, M. (2011). Estudio transversal de los determinantes del trabajo infantil en Cartagena, año 2007. *Revista Latinoamericana de Ciencias Sociales, Niñez y Juventud*, 2(9), 589-606. http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S1692-715X2011000200008

Aguirre, E. (September, 2008). *La percepción sobre el trabajo infantil de niñas, niños y padres de familia en sectores populares de la ciudad Bogotá, D.C.* [Ponencia presentada en la Sexta Reunión del Grupo de Trabajo Familia e Infancia de Clacso], Familias latinoamericanas, pasado y presente: Continuidades, transiciones y rupturas.

Aparicio, S. (2013). *Análisis intragrupo sobre el trabajo infantil en Colombia: Un ejercicio cuanti y cualitativo*. Instituto Colombiano de Bienestar Familiar.

Araujo, A., Durán, E., Matuk, S., & Torrado, M. (2005). *Políticas públicas e inclusión social: reflexiones desde las políticas de infancia*. Observatorio sobre la Infancia de la Universidad Nacional, Universidad Nacional de Colombia.

Bachman, S. (2000). A new economics of child labor: Searching for answers behind the headlines. *Journal of International Affairs*, *53*(2), 545–572. https://www.jstor.org/stable/24357765

Bernal, R., & Cárdenas, M. (2006). *Child labor in Colombia*. Fedesarrollo. https://www.repository.fedesarrollo.org.co/handle/11445/1016

Briceño-Ayala, L., & Pinzón, A. (2004). Efectos del trabajo infantil en la salud del menor trabajador. *Revista de Salud Pública*, *6*(3), 270-288. https://www.scielosp.org/article/rsap/2004.v6n3/270-288/es/

Buchmann, C. (2000). Family structure, parental perceptions, and child labor in Kenya: What factors determine who is enrolled in school? *Social Forces*, *78*(4), 1349–1378. https://doi.org/10.1093/sf/78.4.1349

Chang, H., Xiao-Yuan, D., & MacPhail, F. (2011). Labor migration and time use patterns of the left-behind children and elderly in rural China. *World Development*, *39*(12), 2199-2210. https://doi.org/10.1016/j.worlddev.2011.05.021

Child Soldiers International. (2001). *Child Soldiers Global Report 2001–Colombia*. https://www.refworld.org/docid/498806061e.html

Cunningham, H., & Viazzo, P. (1996). *Child labor in historical perspective 1980-1985: Case studies from Europe, Japan and Colombia*. Unicef International Child Development Center.

Dehejia, R., & Gatti, R. (2002). *Child labor: The role of income variability and access to credit in a cross section of countries*. Working Paper n.° 9018. https://www.nber.org/papers/w9018

Dessy, S., & Pallage, S. (2005). A theory of the worst forms of child labour. *The Economic Journal*, *115*(550), 68-87. https://doi.org/10.1111/j.1468-0297.2004.00960.x

Estrada, J., Romero, F., Torrado, M., Luna, J., & Durán, E. (2002). *Creciendo en el asfalto. Niños, niñas y jóvenes vendedores en la calle de Bogotá*. Universidad Nacional de Colombia.

Grupo de Memoria Histórica. (2013). *Basta ya! Colombia: memorias de guerra y dignidad*. Centro Nacional de Memoria Histórica.

Guedes, M. (2018). *Child labor in Brazil and Uruguay*. Oxford Research Encyclopedia, Latin American History.

Holgado, D., Maya, I., Ramos, I., & Palacio, J. (2014). Impact of child labor on academic performance: Evidence from the program "Edúcame Primero Colombia". *International Journal of Educational Development*, *34*, 58-66. https://doi.org/10.1016/j.ijedudev.2012.08.004

Instituto Colombiano de Bienestar Familiar. (2013). *Una doble mirada al trabajo infantil en Colombia*. Observatorio del Bienestar de la Niñez, Instituto Colombiano de Bienestar Familiar.

ILO. (2002). *A future without child labour. Global report under the follow-up to the ILO Declaration on Fundamental Principles and Rights at Work*. International Labour Organization.

ILO. (2004). *Child labour. A textbook for university students. International Programme on the Elimination of Child Labour*. International Labour Organization.

ILO. (2016). *Findings on the worst forms of child labor*. International Labour Organization.

ILO. (2017a). *Estimaciones mundiales sobre el trabajo infantil*. International Labour Organization.

ILO. (2017b). *Office for Pacific Island Countries. Report of the rapid assessment of children working on the street of Apia, Samoa: A pilot study*. International Labour Organization.

IOM. (2014). *Spotlight: Child Labor in Colombia*. International Organization for Migration.

IPEC. (2007). *Child labor: cause and effect of the perpetuation of poverty*. International Labour Organization.

IPEC. (2010). *Roadmap for Achieving the Elimination of the Worst Forms of Child Labour by 2016*. International Labour Organization.

Kruger, D. (2007). Coffee production effects on child labor and schooling in rural Brazil. *Journal of Development Economics*, *82*(2), 448–436. https://doi.org/10.1016/j.jdeveco.2006.04.003

Manacorda, M. (2006). Child labor and the labor supply of other household members. *The American Economic Review, 96*(5), 1788–1801. https://www.aeaweb.org/articles?id=10.1257/aer.96.5.1788

Martínez, M., González, I., Jordan, I., Murillo, L., Fonseca, L., & Herrera, N. (2004). *Traviesa travesía. Rumbos y rutas para alejarse del trabajo infantil*. International Labour Organization.

Melguizo, M. (2004). *Sin pala con alas. Sistematización del proyecto de prevención y erradicación del trabajo infantil en la minería artesanal colombiana*. International Labour Organization.

Minercol. (2001). *El trabajo infantil en la minería artesanal del carbón. Diagnóstico sociocultural y económico del municipio de Sogamoso en Boyacá*. Empresa Nacional Minera Ltda; Organización Internacional del Trabajo.

Narasaiah, M. (2003). *Child labour and agriculture*. Discovery Publishing House.

Palacio, J., Amar, J., Madariaga, C., Llinás, H., & Contreras, K. (2007). La calidad de vida en salud en los menores trabajadores de Toluviejo (Sucre).

Investigación y Desarrollo, *15*(2), 366-393. https://www.redalyc.org/pdf/268/26815206.pdf

Pedraza, A., & Ribero, R. (2006). El trabajo infantil y juvenil en Colombia y algunas de sus consecuencias claves. *Revista Latinoamericana de Ciencias Sociales, Niñez y Juventud*, *4*(1), 4-28.

Pedraza, A., & Ribero, R. (2005). Los determinantes del trabajo infanto-juvenil en Colombia. *Coyuntura Social*, *33*, 81-101.

Pinzón, A., Briceño, L., Gómez, A., & Latorre, C. (2003). Trabajo infantil en las calles de Bogotá. *Revista Ciencias de la Salud*, *1*(2), 151-163.

PNUD. (2003). *El conflicto, callejón con salida. Informe nacional de desarrollo humano para Colombia*. Programa de las Naciones Unidas para el Desarrollo; Editorial El Malpensante S. A.

Post, D. (2018). *Schooling, and welfare in Latin America*. Routledge.

Rodriguez, C., & Sánchez, F. B. (2009). *Armed conflict exposure, human capital investments and child labor: Evidence from Colombia. Documentos CEDE 005400*. Universidad de Los Andes.

Salazar, M., & Alarcón, W. (1998). *Child work and education: Five case studies from Latin America. Editado por International Child Development Centre*. Innocenti Publications; Ashgate Publishing Limited.

Salazar, M. (1998). Child work and education in Latin America. *The International Journal of Children's Rights*, *6*(2), 155–177. https://heinonline.org/HOL/LandingPage?handle=hein.journals/intjchrb6&div=18&id=&page=

Santos, R. (2018). Blessing and curse. The gold boom and local development in Colombia. *World Development*, *106*, 337–355.

Serra, R. (2009). Child fostering in Africa: When labor and schooling motives may coexist. *Journal of Development Economics*, *88*(1), 157–170. https://doi.org/10.1016/j.jdeveco.2008.01.002

Shafiq, M. (2007). Household schooling and child labor decisions in rural Bangladesh. *Journal of Asian Economics*, *18*(6), 946–966. https://doi.org/10.1016/j.asieco.2007.07.003

Tanaka, R. (2003). Inequality as a determinant of child labor. *Economic Letters*, *80*(1), 93–97. https://doi.org/10.1016/S0165-1765(03)00061-2

Thijs, G. (1997). *Child labor-trends and challenges in Asia*. International Labour Organization.

Unicef. (2002). *La niñez colombiana en cifras*. Fondo de las Naciones Unidas para la Infancia.

Urueña, S., Tovar, L., & Castillo, M. (2009). Determinantes del trabajo infantil y la escolaridad: el caso del Valle del Cauca en Colombia. *Revista Latinoamericana de Ciencias Sociales, Niñez y Juventud*, *7*(2), 707-733. https://www.redalyc.org/pdf/773/77315614006.pdf

United States Department of Labor. (2010). *Colombia. Laws governing exploitative child labor. Labor report*. Bureau of International Labor Affairs.

Zapata, D., Contreras, D., & Kruger, D. (2011). Child labor and schooling in Bolivia: Who's falling behind? The roles of domestic work, gender, and ethnicity. *World Development*, *39*(4), 588–599. https://doi.org/10.1016/j.worlddev.2010.08.022