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http://encuestalongitudinal.uniandes.edu.co

Centro de Estudios sobre Desarrollo Económico – CEDE
Department of Economics
Universidad de los Andes

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↑ Luz Dary Díaz and her family live in the farm Saraza in Saboyá (Boyacá), where they earn their living cultivating potato and onion and working the land

Introduction

In order to adequately design effective public policies that increase long-term household income, stimulate the accumulation of assets, and create adequate conditions for the accumulation of human capital among the younger generations it is imperative to understand the dynamics of poverty. However, Colombia lacks the appropriate data required to study those dynamics. Although detailed data collection from a specific moment in time is available from several household surveys, these do not allow for poverty dynamics analysis. In consequence, while we know the characteristics of the poor population, we can't point out which short-term or long-term phenomena determined their current status, and even worse, we know very little about which public programs or investments could contribute to the improvement of their living conditions.

This book presents an initiative led by the Centro de Estudios sobre Desarrollo Económico (CEDE —acronym for its name in Spanish) and the Department of Economics of Universidad de los Andes, an in depth study on poverty and its long-term evolution: the Colombian Longitudinal Survey by Universidad de los Andes (ELCA —acronym for its name in Spanish). ELCA will keep track of 10,800 Colombian households, 6,000 urban households and 4,800 rural hoseholds, during a twelve-year period, or more, with the purpose of collecting information that will contribute to fill this gap. The first phase was implemented in the first semester of 2010, and the most suggestive results are presented in this book.

ELCA answers many questions. Its design allows the identification of dynamics and phenomena that generate structural poverty, poverty traps or transitory poverty. This makes it possible to identify the households that remain in poverty during prolonged periods of time, as well as the policies that need to be implemented in order for them to overcome poverty traps. In addition, the impact of several shocks (adverse or destabilizing events) on households is analyzed, such as job loss and violence in rural areas, as well as the most effective strategies required to provide insurance against these shocks, thus preventing a loss in income that could imply a difficult recovery in the near future. Chapter 2 shows different poverty measurements based on ELCA data. Chapter 3 explores the shocks and their economic impact, as well as the coping strategies adopted by households, while Chapter 4 presents a detailed analysis of the shocks regarding health and access to health services, and their effect on households.

The second main objective of ELCA is an in-depth study of the labor market. ELCA data allows studying the causes of the high level of informality within the Colombian labor market that has not decreased regardless of the numerous different policies adopted during the last decade, as well as the determinants for the transition of workers between the formal and informal markets. In addition, the survey includes detailed modules in order to examine the effect of social protection programs on informal job rates. Chapter 5 presents an analysis on urban and rural labor markets, and discusses alternative measures designed for understanding better the dynamics of rural labor markets, which in Colombia have traditionally been analyzed using urban labor market indicators.

The investment in early childhood and its short and long-term benefits is both an innovation and a central issue of this survey. ELCA collects anthropometric data on children under the age of 5 and applies cognitive development tests to children between the ages of 3 and 9. This valuable information offers a detailed diagnosis on the conditions of Colombian children, which did not exist until now. Chapter 6 presents an initial analysis. In addition to the diagnosis of current conditions, ELCA data will help determine how investing in early childhood reflects in better school performance, higher wages, and better long-term living conditions. Furthermore, the impact of economic shocks on the present and future development of children may be analyzed.

Finally, ELCA will offer new information about rural poverty in Colombia. Little is known about this topic, regardless of the high poverty incidence in rural areas, and also about the impact of conflict in rural areas and the malignant dynamics that have generated informality regarding land ownership. The rural module collects detailed information on the possession of land, agricultural and livestock production, land disputes and the incidence of armed conflict. This will allow us to understand the specific dynamics of rural poverty and the consequences of the armed conflict on rural development. In addition, informality on land possession and its implications on agricultural and livestock production, as seen in Chapter 7, can be analyzed in depth.

The contributions made by ELCA are not limited to the topics mentioned in this book. It is worth mentioning at least four additional contributions of the survey. First, ELCA will help us understand the impact of natural disasters, in particular that of the emergency generated by seasonal rains during the second semester of 2010 and the first semester of 2011. Given that the survey was conducted before the floods, and since many of the

affected areas are included in the sample, the living conditions of the families can be analyzed before and after the emergency. This information is vital for understanding the impact of the natural disaster, analyzing the strategies adopted by the affected households, and evaluating government aid. Secondly, ELCA gathers information on how poor households access financial markets, as well as formal and informal insurance coverage. Until now, Colombia has no knowledge of the percentage of poor households that have savings, access to formal credit or insurance against adversity. In addition, we have little information on the alternative saving, credit and insurance systems adopted by poor households, whose long-term effects may perpetuate poverty (high interest lending or usury). Thirdly, ELCA includes a module that examines low-income urban home markets and collects information on the location of the home, the structure of the property, and the financing mechanisms. Fourthly, the survey inquires about the different transfers urban and rural households receive in order to supplement their income and reduce adverse events, such as subsidies, remittances, and support from family and friends, among others.

Through ELCA, CEDE and the Department of Economics wish to continue with the tradition begun in 1970, when we designed and implemented the first household surveys in the country. Those surveys were the basis for the current Great Comprehensive Household Survey, currently applied quarterly to measure labor market performance. We hope that the data collected through ELCA will be used and exploited by policy makers, by the private sector, and by the general public interested in the evolution and development of the country's population, and also that it will become the basis for rigorous national and international academic studies, which will then offer the empirical evidence needed to design effective public policies with the ultimate goal of reducing poverty in Colombia.

→ San Silvestre´s marsh is a center of fishing, tourism and entertainment for the residents of Barrancabermeja

↑ Teobaldo de Jesús Betancourt lives with his wife Maria Teresa Álvarez and their three kids: Augusto, Yeira and Jhefferson, in Montería (Córdoba).

Chapter 1

ELCA's Sample and Field Operation

The estimated sample of ELCA is 10,800 households, 6,000 urban households and 4,800 rural households. This is a representative sample of urban areas and four rural micro regions in Colombia. The field operation took place during the first semester of 2010. The sample, instruments and field operation are described in this chapter.

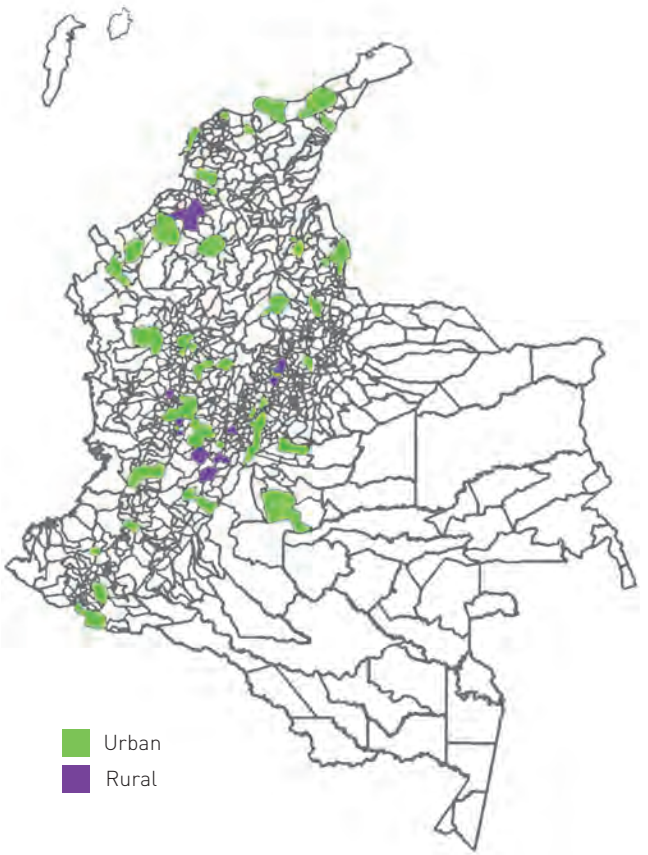
1.1. ELCA's Sample

→The urban area study is comprised of single unit households belonging to socioeconomic levels 1 through 4, living in five regions of the country: Bogotá, Central, Eastern, Atlantic and Pacific (excluding the Pacific corridor). The rural sample is comprised of small productive households (mostly socioeconomic level 1) located in four micro regions located in the Mid Atlantic, Cundinamarca and Boyacá, the Coffee Region and East Central regions. These regions were chosen according to the following characteristics: their economic growth, production, poverty and living conditions.

The estimated sample size was determined at 1,200 households in each urban region or rural sub-region, for a total of 6,000 urban households and 4,800 rural households. The cluster sample design is probabilistic, stratified, multi-staged and clustered. The first step was the selection of the municipalities in each of the urban and rural samples. Within each of these samples, blocks or districts were respectively selected, and finally the set of households to be interviewed was chosen. Map 1 indicates the urban and rural sampling distribution for the country's municipalities (48 and 17 municipalities respectively).

Due to the longitudinal nature of this survey, tracking all household members over time is costly and complex, given the fact that they grow up and create new households. Therefore, the longitudinal survey will only monitor the household's head, his/her spouse, and the children and grandchildren of at least one of them. The survey allows us to build the complete composition of the household in which each monitored member lives, during each moment in time when they are observed.

Map 1.
Selected Municipalities for the Sample



1.2. Instruments

In order to gather the necessary information according to ELCA objectives, three types of instruments were defined:

- Household questionnaire[1].
- Community context questionnaire[2].
- Instrument for taking anthropometric measurements (weight and size) in children under 5, and verbal skill tests for children between the ages of 3 and 9.

The household questionnaire, which is made up of 272 questions for the urban area and 364 for the rural area, gathers information on the composition of the household, demographic characteristics of all members, detailed information on the head of household, spouse and children under 10, regarding education, health, employment, income, social and community participation, and household information on adverse events, assets, savings, debt, transfers, and living and housing conditions. This is the first time this type of information is gathered in Colombia at a household level. The rural questionnaire includes issues on land possession and usage, agricultural and livestock and non-agricultural and livestock production, and a reconstruction of the use of time, with the purpose of obtaining a more appropriate measurement of rural employment than that currently used in traditional household surveys.

The community questionnaire is made up of 28 questions in the urban area and 57 in the rural area, and gathers information on institutional supply, infrastructure and public services, adverse events and conflict, and social capital. The rural community questionnaire also includes issues on markets, land conflict, and insertion into agricultural and livestock rural markets. Complementarity between the community and the household questionnaires is significantly important for understanding several dynamics of household economics.

The measurement test instrument for children between the ages of 0 and 9 includes the Peabody Picture Vocabulary Test (PPVT) for children between the ages of 3 and 9, and weight and size measurements for all children between the ages of 0 and 4. Qualified personnel, mainly psychologists, implemented this questionnaire. This is the first time that the practice of verbal testing has such wide geographical coverage.

1.3. Field Operations

The first round of data gathering, or baseline, for ELCA took place between the 25th of February and the 4th of July 2010. The operation was directly handled by CEDE and the Deparment of Economics of Universidad de los Andes. For this purpose, a Field Director was appointed and 12 work groups established, made up of a supervisor, four surveyors and one psychologist or professional with a similar background, for a total of 72 persons in the field. Data gathering was directly input into computers, making data collection more efficient and qualitatively better.

A total of 10,168 surveys was completed: 5,448 urban and 4,720 rural, resulting in 91% coverage in urban areas and 98% in rural areas. Table 1.1 depicts the operation's results by area and region. Bogotá was the region with least coverage (81%), mainly because many households belonging to the fourth socioeconomic level (the highest one included in ELCA) refused to participate in the survey. The remaining urban regions obtained a response level above 90%. The response level in rural areas was high (no less than 94%), where the East Central sub region showed the least coverage, although the response level obtained is within the expected range.

1. This questionnaire may be consulted in the ELCA webpage: http://encuestalongitudinal.uniandes.edu.co
2. This questionnaire may be consulted in the ELCA webpage: http://encuestalongitudinal.uniandes.edu.co

↑View of downtown Cali (Valle del Cauca)

Table 1.1.
Sample Size: Household Surveys by Area and Region

Urban Sample				Rural Sample			
Region	Sample	Completed Surveys	Coverage	Region	Sample	Completed Surveys	Coverage
Atlantic	1,200	1,126	93.8%	Mid Atlantic	1,200	1,180	98.3%
Eastern	1,200	1,081	90.1%	Cundiboyacense	1,200	1,203	100.3%
Central	1,200	1,164	97.0%	Coffee Region	1,200	1,209	100.8%
Pacific	1,200	1,101	91.8%	East Central	1,200	1,128	94.0%
Bogotá	1,200	976	81.3%				
Total	**6,000**	**5,448**	**90.8%**	**Total**	**4,800**	**4,720**	**98.3%**

Source: Own calculations based on ELCA.

Regarding community questionnaires, a total of 779 were applied of which 557 were in urban areas and 222 in rural areas, as indicated in Table 1.2.

Table 1.2.
Community Surveys by Area and Region

Urban Sample		Rural Sample	
Region	Completed surveys	Region	Completed Surveys
Atlantic	112	Mid Atlantic	57
Eastern	109	Cundiboya-cense	48
Central	114	Coffee Region	58
Pacific	110	East Central	59
Bogotá	112		
Total	**557**	**Total**	**222**

Source: Own calculations based on ELCA.

Of the 10,168 households, which completed the surveys, children under the age of 10 were found in around half of the households (5,254), for a total of 8,437 children under the age of 10. Anthropometric measurements were applied to 4,050 children under the age of 5 (99.1% of children) and PPVT tests applied to 5,965 children between the ages of 3 and 9 (98.4% of children) as shown in Table 1.3. This relatively high coverage is explained by the household's interest in obtaining information on the nutritional conditions and verbal development of their children. Standardized and personalized test results for each child are sent to each household and, when needed, as indicated by the results, they are accompanied by a recommendation that the household member visits the corresponding health or educational institution.

Table 1.3.
Anthropometric Measurements for Children and PPVT Tests by Area and Region

Urban Sample								
Region	Total households	Households with children	Total children aged 0 to 9	Children per household	Children aged 0 to 4	Children with anthropometric measurements	Children aged 3 to 9	Children with PPVT
Atlantic	1,126	651	1,140	1.01	552	550	815	803
Eastern	1,081	555	825	0.76	406	401	569	562
Central	1,164	497	703	0.60	375	374	492	487
Pacific	1,101	525	777	0.71	376	367	556	550
Bogotá	976	458	669	0.69	341	331	465	456
Total	**5,448**	**2,686**	**4,114**	**0.76**	**2,050**	**2,023**	**2,897**	**2,858**
Muestra rural								
Region	Total households	Households with children	Total children aged 0 to 9	Children per household	Children aged 0 to 4	Children with anthropometric measurements	Children aged 3 to 9	Children with PPVT
Mid Atlantic	1,180	664	1,220	1.03	596	595	875	860
Cundiboyacense	1,203	676	1,095	0.91	510	507	800	789
Coffee Region	1,209	630	934	0.77	423	422	692	689
East Central	1,128	598	1,074	0.95	506	503	793	769
Total	**4,720**	**2,568**	**4,323**	**0.92**	**2,035**	**2,027**	**3,160**	**3,107**
National Total	**10,168**	**5,254**	**8,437**	**0.83**	**4,085**	**4,050**	**6,057**	**5,965**

Source: Own calculations based on ELCA.

Finally, the field operation in rural areas registered 5,857 land plots properties of which 5,599 are owned by the household, 209 are rented or otherwise held, and 49 were sold by households during the 12 months prior to ELCA, as indicated by Table 1.4.

↑Brayan Daniel Gómez Morales (striped shirt) talks with a friend in the driveway. Armenia (Quindío).

Table 1.4.
Land Plots by Rural Regions: Owned, Rented* or Sold

Region	Own property	Rented property*	Sold property	Total land plots
Mid Atlantic	1,332	71	14	1,417
Cundiboyacense	1,727	56	15	1,798
Coffee Region	943	32	10	985
East Central	1,597	50	10	1,657
Total	**5,599**	**209**	**49**	**5,857**

**Land plots offered for rent, sharecropping, lease, pawn or antichresis*

Source: Own calculations based on ELCA.

→ Elva Marina Santander, teacher, walks around Gramalote (Norte de Santander) after the avalanche that swept through their village

↑ The Petro Ortiz family raises fighting cocks, a common activity in Cereté (Córdoba).

Chapter 2

Poverty and Wealth Conditions in Colombian Households

Jorge Luis Castañeda
Paula Escobar

↑ Armando González, coffee picker in Santander.

2.1. Introduction

→One of the primary objectives of public policy is to improve people's quality of life. In order to design programs and projects that effectively contribute to this end, it is essential to define what an adequate quality of life means and what the conditions of the population are compared to this definition. Poverty is one of the main aspects that determine quality of life. There are, however, various definitions of poverty and, consequently, different measurement methodologies to identify the population that meets this condition.

In Colombia different approaches for measuring poverty have been used, be it structural or transitory. The Unsatisfied Basic Needs Index (UBNI), which measures structural poverty, defines it as a condition where an individual cannot meet basic needs such as adequate nourishment, housing, utilities and infrastructure, and access to education or a source of autonomous income, among others. The more commonly used income approach relates to transitory poverty and identifies a minimum income with which a person could guarantee the consumption of a food basket that fulfills minimum caloric

requirements (i.e. extreme poverty threshold). The poverty threshold is obtained by including expenses in commodities or services besides foodstuffs requirements, also necessary to achieve an adequate living standard. When people have an income below one of these two lines, they are identified as extremely poor or poor.

This chapter describes the distribution of structural and transitory poverty of the population surveyed in ELCA. First, the monthly per capita expense, or average monthly expense per person (monthly household's expenses divided by the number of people from the household) is used to measure the ability of satisfying their basic needs (poverty threshold) and food needs (extreme poverty threshold). In the second place, a multidimensional wealth index is shown, that includes some of the household's socioeconomic conditions: access to public utilities, housing conditions, and some of the durable assets owned by the household members. Finally, a comparison between the wealth index and conventional indicators of the household's socioeconomic status (such as in- come and expenditure levels) is performed in order to demonstrate that, although this index only includes aspects related to structural poverty, it maintains a close relation to conventional monetary measures of transitory poverty. The wealth index here depicted therefore reflects the status and evolution of household welfare. In the following chapters of this book, this index will be used to examine, according to the household's socioeconomic level, the differences in the incidence and type of reaction to adverse effects, in the access and use of health services, in working conditions, in living conditions of infants and children, and in land possession in rural areas.

ELCA offers detailed information on labor and non-labor income for both the head of the household and his or her spouse. It also includes the aggregated income of all household members derived from labor, pensions, rent, interest, remittances, and subsidies, among others.

↑ Supply center in Bogotá (Corabastos)

2.2. Households Living in Poverty and Extreme Poverty According to the Income Method

ELCA offers detailed information on labor and non-labor income for both the head of the household and his or her spouse. It also includes the aggregated income of all household members derived from labor, pensions, rent, interest, remittances, and subsidies, among others. However, in order to calculate the household's expenditure and compare it to the extreme poverty and poverty thresholds, ELCA uses detailed information on frequent, quarterly and annual expenses. Therefore, the household expenditure per capita was calculated as an approximation to its socioeconomic level, thus reflecting its ability to access a set of goods and services. Table 2.1 shows the average monthly expenditure per capita for each region and each area where the survey was applied. Both Bogotá, in the urban area, and the Coffee Region, in the rural area, exhibit the highest level of average expenditure per capita, while the Atlantic region in the urban area and the Mid Atlantic region in the rural area present the lowest levels.

Table 2.1.
Monthly expenditure per capita by region (COP $)

Urban sample		Rural sample	
Region	Monthly expense	Region	Monthly expense
Atlantic	195,554	Mid Atlantic	86,531
Eastern	279,287	Cundiboyacense	95,546
Central	250,502	Coffee Region	143,974
Pacific	263,052	East Central	90,373
Bogotá	392,290		
Total	**278,399**	**Total**	**98,839**

Source: Own calculations based on ELCA.

When per capita expenditure is compared with the extreme poverty and poverty thresholds, we find that the percentage of poor population is higher in rural areas. In 59.3% of urban households, income is beneath the poverty threshold, while 82.9% of rural households are beneath this threshold. A similar behavior is observed for the extreme poverty threshold[1] (Table 2.2).

Table 2.2.
Percentage of Households Beneath the Extreme Poverty and Poverty Thresholds by Area

Area	Poverty	Extreme poverty
Urban	59.3	18.3
Rural	82.9	39.1

Source: Own calculations based on ELCA.

These results seem high when compared to the estimates presented by the Great Comprehensive Household Survey applied by the National Administrative Statistics Department (DANE —acronym for its name in Spanish), according to which 39.6% of the population living in the urban areas of the municipalities, 30.6% in 13 metropolitan areas (biggest cities), and 64.3% in the other areas live beneath the poverty line (extreme poverty percentages are: 12.4%, 7.1% and 29.1%, respectively)[2]. However, it is important to recall who makes up ELCA sample. On the one hand, the urban sample excludes households belonging to the highest socioeconomic levels (5 and 6), which are also those with highest income, and includes a higher proportion of population belonging to the lowest socioeconomic level (levels 1 and 2), which generally has the lowest incomes. Table 2.3 exhibits the average monthly per capita expenditure for the four socioeconomic levels in the urban area. On the other hand, the rural sample is made up of small landowners or households with access to small plots of land, regardless type of land tenure, that represent their main source of income and are generally dispersed throughout the rural area.

1. Extreme poverty and poverty thresholds correspond to those calculated by the National Planning Department (DNP for its acronym in Spanish) for 2009. These thresholds are different for each of the Great Comprehensive Household Survey territories: 13 metropolitan areas, urban areas of municipalities, and others.
2. Source: DNP. The numbers correspond to calculations by the Misión para el Empalme de las Series de Empleo, Pobreza y Desigualdad (MESEP —acronym for its name in Spanish) for 2009

Table 2.3.
Monthly Expenditure in the Urban Area by Socioeconomic Level

Socioeconomic level	Number of surveyed households	Monthly expense per capita (COP$)
1	1,440	154,574
2	2,190	224,512
3	1,533	333,279
4	285	621,636
Total	**5,448**	**278,399**

Source: Own calculations based on ELCA.

In Table 2.4 it is observed that in the urban sample the Atlantic region presents the highest percentage of poor households (73.1%) and extreme poverty households (31.7%) by region, while Bogotá shows a 35.6% of poor households and 5.8% of households in extreme poverty. In the rural area, the highest percentage of poor households is found in the East Central sub-region, where 87.6% of small homeowners are poor.

↑ Montezuma Campo family is composed of 28 people between grandparents, children and grandchildren who live in the same house in Barrancabermeja

Table 2.4.
Households Below the Poverty and Extreme Poverty Thresholds By Area And Region (%)

Urban area		
Region	Poverty	Extreme poverty
Atlantic	73.1	31.7
Eastern	59.4	13.7
Central	69.4	22.4
Pacific	62.5	17.8
Bogotá	35.6	5.8
Rural area		
Region	Poverty	Extreme poverty
Mid Atlantic	84.9	40.8
Cundiboyacense	77.9	34.8
Coffee Region	76.9	25.7
East Central	87.6	51.9

Source: Own calculations based on ELCA.

↑ Myriam Diaz and her sister Consolación inherited the farm Saraza of Saboyá, that has been in their family since the early twentieth century

2.3. Household Socioeconomic Status According to the Wealth Index

The wealth index that is shown in this section, and used throughout the book to portray the socioeconomic status of households, could be considered as an indicator of structural poverty. It was constructed using the principal component analysis (Filmer & Pritchett, 2001), which summarizes a set of variables related to the socioeconomic conditions of the households into an indicator intended to describe the level of household wealth on its various dimensions.

A total of 23 variables were used to construct the index and can be classified into three categories (Vyas and Kumaranayake, 2006): six variables related to public utilities and infrastructure (sanitation services, water and sewage, electricity, etc.), three other related to housing conditions (flooring and wall materials, and number of bedrooms), and finally 18 indicators encompassing the ownership and use of some durable assets (for example, refrigerator, washing machine, television, computer, motorcycle). Table 2.5 shows household's access, use or ownership of some of the most relevant variables included in the wealth index for both urban and rural areas.

Table 2.5.
Household Socioeconomic Characteristics by Area (%)

Variable description	Urban	Rural
Access to public utilities and infrastructure		
Waste collected by public utility	98.39	3.03
Piped water as source for drinking and cooking water	97.09	66.08
Piped water as source for drinking and cooking water	92.73	3.56
Electricity, LPG or natural gas as fuel used for cooking	97.54	18.04
Home has access to electricity	99.73	93.39
Home has access to telephone services	57.85	0.91
Housing conditions		
Adequate flooring	68.45	8.52
Adequate exterior walls	96.17	58.82
Property and use of durable assets		
Household has and uses a refrigerator	84.73	55.71
Household has and uses a washing machine	59.85	19.04
Household has and uses an electrical shower	24.44	7.82
Household has and uses a television	96.28	81.21
Household has and uses a computer	42.92	7.92
Household has and uses a motorcycle	17.92	20.86
Number of households	5,448	4,720

Source: Own calculations based on ELCA.

For every variable related to access to public utilities and housing conditions, and in most cases of asset possession, there is a higher proportion of households in better socioeconomic conditions in urban areas than in rural ones. Furthermore, the inequality in the access to public infrastructure between areas is enormous: while in urban areas most of the utilities reach more than 90% of the population, in rural areas, with the exception of electricity covering 93% of rural households and water and sewage covering 66%, the remaining utilities do not reach one fifth of the population.

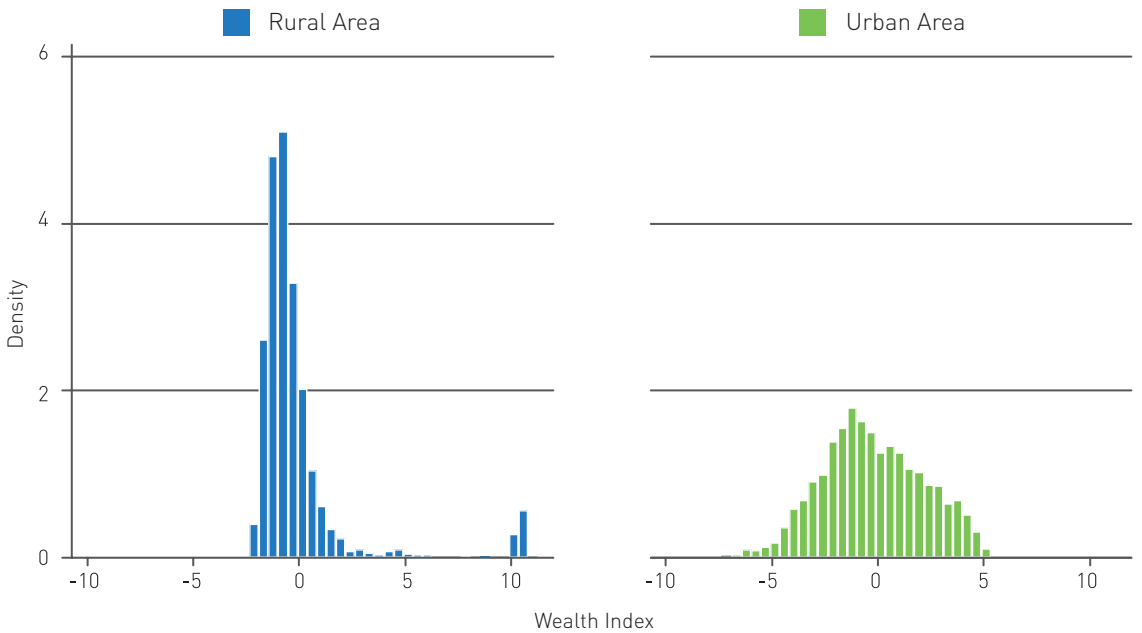
On the other hand, the differences between areas in the ownership of durable assets are considerably smaller. Moreover, given that motorcycles are an important means of transportation in rural areas, households in these areas own them more frequently than in urban ones. Meanwhile, families living in cities more often own a washing machine, an electrical shower, a television and computers.

Chart 2.1 shows the approximate distribution of the wealth index by area. In rural areas, there is a higher proportion of low wealth level households (lower index values) as well as a more unequal distribution than the urban case. In addition, there is a small concentration of households with considerably higher socioeconomic levels, well above the rural average. (In Chart 2.1, right hand side of the first panel). On the other hand, in urban areas there is greater wealth homogeneity among households, and a higher proportion of the population is wealthier. In short, cities exhibit lower levels of wealth inequality.

In rural areas, there is a higher proportion of low wealth level households as well as a more unequal distribution than in the urban case.

↑ Anderson Ramírez and Yessica Maya during an interview with the ELCA team, Palmira (Valle del Cauca)

Chart 2.1.
Wealth Index Distribution by Area



Source: Own calculations based on ELCA.

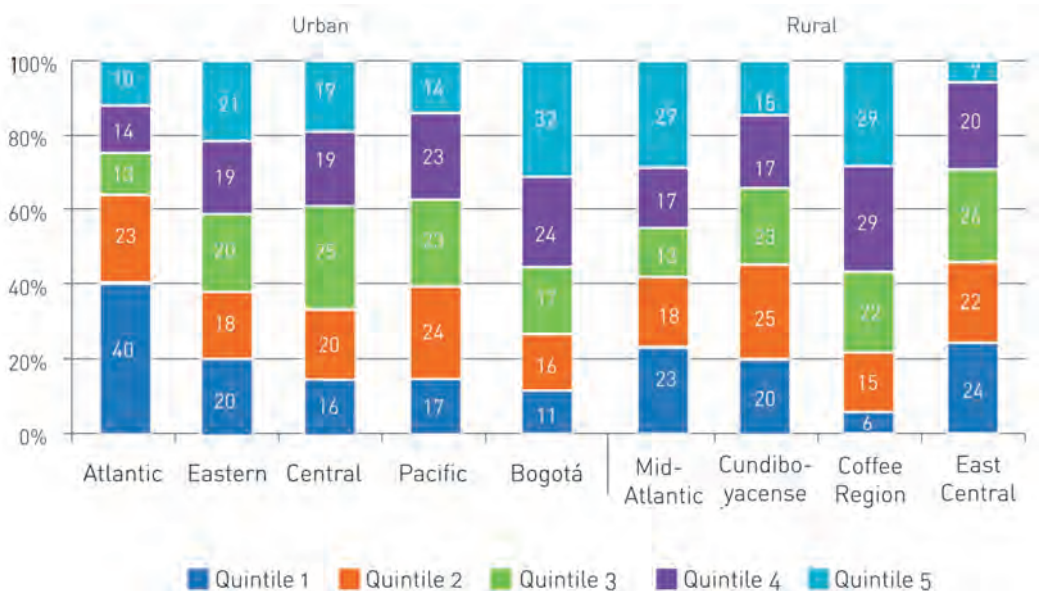
The wealth index simply orders households according to their wealth level; therefore its value does not have an absolute interpretation. In order to classify households into similar wealth groups, they were divided into wealth quintiles by geographic area[3] . The first quintile groups together households with the lowest wealth index values, which include the poorest households, while the fifth quintile includes the wealthiest households and those with better wealth conditions, therefore having the highest index values.

The distribution by quintiles reveals disparities in each area (Chart 2.2). For starters, within the urban sample, Bogotá emerged as the region with the highest proportion of households in the two highest quintiles (56%), while having the lowest percentage in the two lowest quintiles (27%). In contrast, in the Atlantic region the majority of the population falls in the lowest two wealth quintiles (63%), and another 24% in the two highest quintiles. The two cases described show great inequality both between and within urban and rural areas, although the other three regions —Eastern, Central and Pacific— all indicate a more equal and uniform distribution across wealth quintiles. In rural areas, the Coffee Region has the highest proportion of population in the top two quintiles and the least proportion of poor population, with 21% of the population in the first two quintiles and only 6% in the first.

The central regions of the country (East Central and Cundiboyacense) have a relatively balanced distribution across quintiles and low percentages of wealthy households, while in the Atlantic region the highest quintile exhibits the highest proportion of the population (29%).

3. The wealth index does not constitute a cardinal measure. Thus, assessing its distribution in quintiles synthesizes and facilitates the analysis, since it generates an easy interpretation for groups of households with similar conditions (Rutstein y Johnson, 2004).

Chart 2.2.
Wealth Distribution by Area and Region



Source: Own calculations based on ELCA.

2.4. Wealth Quintiles and Other Socioeconomic Status Measurements

Due to its multidimensional nature, the analysis of poverty requires going beyond the measurement of an indicator associated with only one dimension, like household expenditure or monetary income. The wealth index presented here manages to add comprehensively the characteristics of poor households, as suggested by Sen (1976). Additionally, its quintile distribution maintains a high correlation with conventional measures of poverty, as shown below.

Expenditure by households —and, in particular, food expenditure— is an indicator conventionally used as proxy for the socioeconomic status of households, together with aggregate family income (Kolenikov and Angeles, 2008). From the information provided by ELCA, per capita monthly household expenditure quintiles were constructed for monthly per capita expenditure of households (total and food) in order to compare the distribution against the one derived using wealth quintiles. The monthly salary of the head of the household and the socioeconomic level associated with power utility rates for the urban area, were also used as indicators of household wealth conditions. Lastly, keeping in mind the incidence of poverty on the capabilities and dynamics of assets and capital accumulation (Carter & Barret, 2006), in particular on human capital[4], the level of education achieved by the head of household is included as the last contrast variable.

Table 2.6 indicates a positive relation between quintile wealth distribution and other socioeconomic measurements. Although socioeconomic level is only available for cities, it is the variable that holds the highest correlation with wealth quintiles (0.51). Thus, while broadly capturing the quality of public utilities accessed by the household, the socioeconomic level is positively correlated with the wealth quintile. In turn, the quintile distribution of the monthly per capita expenditure shows a positive correlation greater than the monthly per capita expenditure on food, given that the latter does not

4. Human capital is defined as an individual´s collection of skills and abilities, which determines his/her productive capacity in the creation of aggregate value. The process through which human capital is accumulated partly depends on education and experience, and partly on well-being and health.

↑Children playing in the river in Cereté (Córdoba)

take into account the cost and ownership of durable goods, which are elements of the wealth index. The monthly salary of the head of the household shows a stronger relation than food expenditure quintiles and the educational level exhibits the least of the correlations among the indicators, despite being positive and statistically significant.

For urban areas, the head of the household's salary, in comparison with the quintile of monthly expenditure per capita, does not indicate a strong relation with wealth. This could be explained by the difficulty in measuring income, the tendency to report lower levels, the omission of other income sources other than labor, its instability and volatility, and the inability to value unpaid home production (Rutstein & Johnson, 2004). In rural areas, the latter two factors are particularly relevant in explaining not only the low association of the head of the household's monetary income with wealth distribution, but with other measures proposed, as will be shown immediately.

In this association analysis, the differences between areas reappear, as the urban area index has higher correlations with other measures of socioeconomic status than the one of rural areas. In addition, the greatest differences between areas are found in the indicator with the highest correlation: the quintile of monthly expenditure. It is then possible to assert that, since poverty conditions are different, the definition of poverty itself is also different. As an example, a rural household with acceptable wealth conditions could show low monthly food expenditure since much of the rural economy is based on agricultural production for self-consumption. In the same manner, given the working conditions of an agricultural laborer, wage-earning labor in rural areas may be associated with appalling socioeconomic household conditions, when compared to a family that owns a plot of land for growing products for self-consumption and trade.

Table 2.6.
Correlation between Wealth Quintiles and Other Indicators by Area

	Area	Expenditure quintile	Food expenditure quintile	Salary	Educational level	Socioeconomic level (urban)
Wealth quintile	Urban	0.54	0.41	0.43	0.41	0.51
	Rural	0.27	0.25	0.27	0.18	

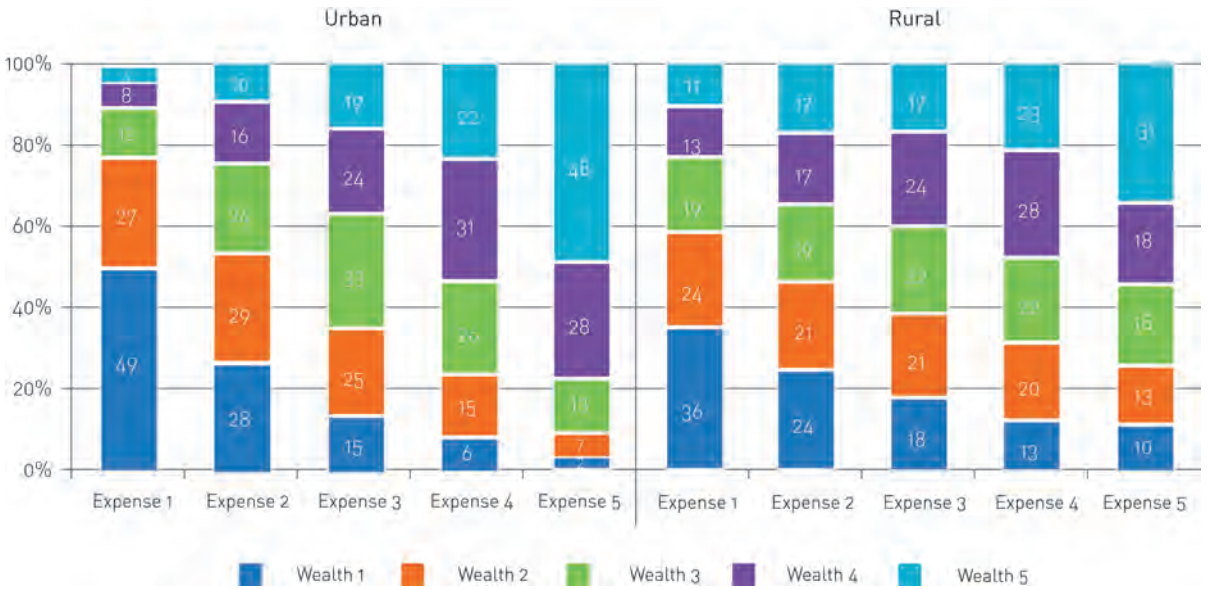
Source: Own calculations based on ELCA.

Graph 2.3 depicts the differences found when contrasting quintile distribution based on wealth index and monthly expenditure per capita. In particular it highlights the presence of some households with high per capita expenditure but low wealth levels, and others with low per capita expenditure but high wealth levels. This reflects that, ignoring other attributes of the wealth of households included in the index, the expenditure level does not necessarily represent socioeconomic conditions.

Notwithstanding, it is noteworthy that the distributions also indicate certain similarities. In the first place, for most of the expenditure quintiles, the largest proportion of households belongs to the corresponding wealth quintile. This equivalence is observed, for example, in the lowest expenditure quintile, where nearly half of the households (49% in urban areas and 36% in rural areas) are also in the first wealth quintile, that is, the poorest one. In the second place, wealthy households, as determined by the index, are not representative of households with low monthly per capita expenditure and, in turn, households with considerable poverty conditions correspond to a small proportion of households with high monthly expenses. In other words, in both urban and rural areas, households having the highest monthly expenditure are themselves those with a higher level of wealth, while households spending less are the ones that exhibit worse socioeconomic conditions.

↑ Adriana Diaz, 37, is a housewife and employee. She lives with her husband and three children, one of them is Dayana Stefanía Nuñez (in the picture).

Graph 2.3.
Wealth Distribution by Monthly Per Capita Expenditure Quintile by Area



Source: Own calculations based on ELCA

Finally, household income measurements show an increasing relation to wealth quintiles(Table 2.7). Thus, the head of the household's salary increases as the average household wealth quintile is increased. In particular, for urban areas the average salary more than tripled between the lowest and the highest quintile, with a difference of about one million pesos (US$555), while in rural areas, for the same quintiles the difference is much smaller, around $250,000 (US$139). Therefore, higher income is directly associated with an improved household wealth status, with a salary gap between the richest and the poorest of half a minimum wage in rural areas[5] , and nearly twice the minimum wage for urban areas.

Table 2.7.
Monthly Salary for the Head of the Household, by Quintile and Area (COP$)

Wealth quintile	Urban area	Rural area
Quintile 1	440,958	248,893
Quintile 2	590,100	307,178
Quintile 3	739,056	394,873
Quintile 4	1,076,342	388,334
Quintile 5	1,440,480	496,838
Quintile 5 – Quintile 1	999,523	247,945
Total	874,110	371,030

Source: Own calculations based on ELCA.

5. Current minimum wage for 2010, year in which the survey was conducted, is $515.000 pesos (US$286).

2.5. Conclusions

According to several wealth measurements, the poverty of Colombian households reflects great disparity between urban and rural areas, between regions, and wealth and expenditure quintiles. The persistence of a high portion of the population living in precarious conditions is noted, especially in rural areas and in some specific regions, such as the Atlantic region. In addition, urban and rural poverty are structurally different, with a lower level of inequality, higher access to public utilities and infrastructure, better housing conditions, and greater accumulation of durable assets for urban areas, and a lower association between expenditure, income, and education with wealth for rural areas.

In that sense, the analysis, measurement and characterization of poverty across geographic areas should be based on a multidimensional perspective, which includes elements taken from structural poverty dynamics. The wealth index proposed in this chapter is consistent with these elements when it comes to assessing the wealth conditions and standard of living of households over a long period of time (Filmer and Pritchett, 2001). This index then is consistent whit a comprehensive definition of poverty that goes beyond the deprivation of monetary resources or assets, and considers deprivation of opportunities and of possibilities of improving quality of living.

Thus, although the wealth index omits other dimensions in which poverty manifests itself, such as the level of human capital development in both health and education (Alkirie and Santos, 2010), it becomes a suitable instrument for studying and understanding the dynamics and effects of poverty in Colombian households, a task that will be completed across the following chapters.

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↑ The Barrancabermeja´s wharf neighborhood. Houses of Old Town, where the city´s development began

↑ Angela Patricia Valenzuela Pinzón (Santander)

Chapter 3

Adverse Shocks To Households And Coping Mechanisms

María Constanza Ballesteros
Christian R. Jaramillo

↑ Inés María Álvarez is the head of a family of nine people: herself, six grandchildren, a son and a nephew. She owns a billiard´s bar in Chinú (Córdoba)

3.1 Introduction

→ When a household suffers an adverse or shocking event —the death of a member, loss of assets, job loss— its response presumably should be directed towards mitigating its effects. This simple economic intuition translates, nonetheless, into an ample range of possible shocks and coping mechanisms, for several reasons. On the one hand, the nature of the shocks can be wide ranging and thus the ideal response depends on the type of shock. Nevertheless, even when faced with the same type of shock, different households can respond in different ways given that their preferences, available resources, institutional environment, and decision-making processes in the household all affect the reactions to shocks. Additionally, reactions evolve over time, thus the reaction of a household varies, not only in the time before and after the shock, but also between the moment immediately following the shock and in the mid-term: these strategies are dynamic. Finally, the shocks can alter the expectations of the household towards the future and change their long-term behavior. In any case, this variety of behaviors between households, and in time, has differential consequences on the well being of the household members.

In Colombia, up to this date, the initiatives that seek to address such issues have been limited and non-longitudinal in nature. The most significant effort to this date has been the formation of the Delegation for the Design of a Strategy Towards the Reduction of Poverty (Misión para el Diseño de una Estrategia para la Reducción de la Pobreza y la Desigualdad —MERPD)[1]. The MERPD broadly described and diagnosed poverty in Colombia, particularly that of the vulnerable population, in order to guide the relevant policies in the country. That is to say, it took a snapshot of the situation of the country in a given moment. However, its cross-sectional nature did not allow to examine the dynamics of poverty in detail for an effective focalization of public policy efforts. In contrast, the Colombian Longitudinal Survey of Universidad de los Andes (ELCA, by its Spanish acronym), which interviews the same households at various points in time, is the ideal instrument to allow researchers to examine the economic consequences of the different types of shocks, depending on how these households react, and the progression of their reaction.

ELCA asks the households —from a list of 17 for urban areas and 34 for rural areas (see Annex 1)— which shocks they suffered during the last year: 32.5% of the total 5,448 households in the urban area and 47.1% of the 4,720 households in the rural area report having suffered at least one shock. In this document, the shocks suffered by households are grouped into nine categories according to economic criteria. The first five categories are shocks occurring both in the rural and in the urban areas, and correspond to events that destabilized the household, identified as: shocks related to health, family cohesion, employment, assets, and violence. The last four types of shocks are only asked about in the rural survey and correspond to events that destabilized the community: armed conflict, general crime, natural disasters, and the bankruptcy/closing of businesses.

The possible coping mechanisms a household uses to deal with shocks are of a varied economic nature; some even involve behaviors that precede the shock. At the onset, there are *ex ante* strategies: if the household does not have insurance mechanisms, it can previously try to diversify its economic activities to prevent any shock from affecting them all simultaneously. In the second place, if the household has invested in insurance, whether formal or informal, the direct impact of the shock can be assuaged by resorting to it *ex post.* Finally, the uninsured portion of the shock is compensated for by changing the behavior of the household, both in consumption (and savings or investments) as well as production. In theory, the level of consumption of the household should diminish in an amount proportional to the impact of the shock on the present value of their income and assets, in so far as the remaining effect of the shock will be reflected in dissaving or decrease in the level of investment. Nonetheless, to the extent that the alternatives for reaction of the household are limited by the environment —for example, because of a lack of an adequate labor market, or because the household does not have access to financial markets— the reaction towards the shock might not be the one preferred by the household, but that which is within their reach.

In line with these economic alternatives, the survey included a menu of possible coping mechanisms used by the households in response to the shocks: 22 possible reactions for the urban area and 24 for the rural, plus 22 additional options for the rural area if the shock affected the community (see Annex 2). In this document we have grouped these options into eleven categories: insurance related (informal or with formal entities), consumption (participation in the labor force, migration, investment in security, changes in production decisions) and dissaving (assets, human capital, and change in housing), other answers, and, finally, if they decided to do nothing.

Of course, it is impossible to know what the household would have preferred to do in absence of constraints. The survey only tells us what they in fact did. This is in itself interesting for understanding the economic phenomenon of risk and for the design of public policies addressing it (Lipton and Ravallion 1993): understanding the mechanisms that households effectively resort to sheds light

1. In concert with the National Planning Department they published the book Pobreza y desigualdad en Colombia: diagnóstico y estrategias (Poverty and inequality in Colombia: Diagnosis and Strategies) in 2007.

on the nature of the shocks themselves; improving the efficacy of these mechanisms should increase the well-being of the population. But for a proactive public policy it is also desirable to know if there is a potentially better mechanism that is simply not available, but would be convenient to develop.

ELCA offers us an indirect way to support such proactive policies. Economic literature allows us to know which are the effects —costs and benefits in the short and long term— of the different ways to react towards shocks. Assuming a rational household, one can presume that if they choose a relatively costly reaction it is because a better option was not within their grasp. Or else, if for example the households in a region with good insurance markets choose to insure themselves, while similar households in another region that lacks access to these markets opt to increase their labor participation or to migrate, it is reasonable to suppose that the latter were forced into suboptimal strategies when faced with shocks.

As an initial review of ELCA's information, the following section describes the results of the baseline survey for the shock module, comparing the results for households in different urban socioeconomic levels and rural areas. Section 3.3 shows, with similar geographical breakdown, the results according to the type of shock and the response of each household in each case.

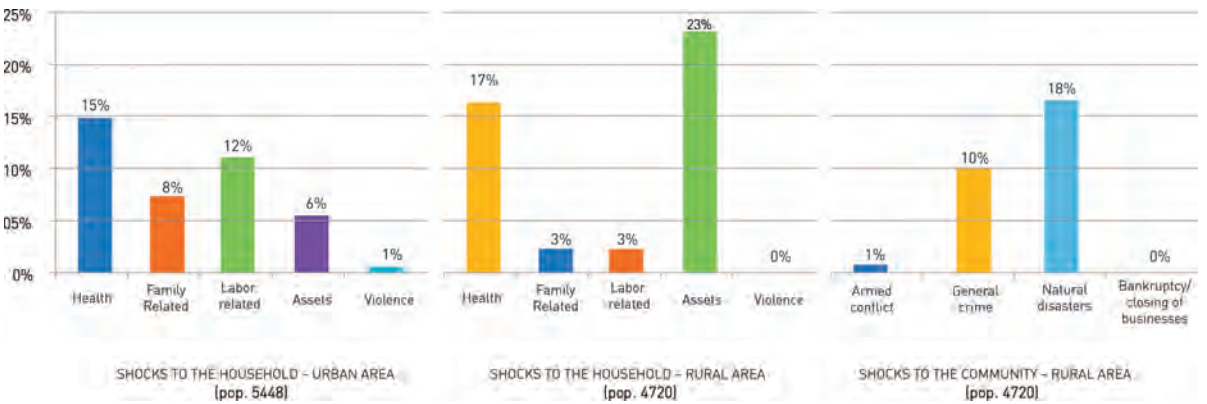
3.2. General description

3.2.1. By region and by socioeconomic level

Graph 3.1 shows the percentage of households that suffered at least one shock, according to the area to which the household belongs, and if the shock destabilized the household or the community. In the urban area, the principal shock that affected the population was related to health, followed by a shock in which some member of the household lost their employment, and by family related shocks. In the rural area, the events that affected the health of a household member also register a high percentage, but the most frequent type of shock was related to household assets. The shocks to the community that had the greatest occurrence were those considered as natural disasters and general crime, while the shocks relating to armed conflict and bankruptcy or closing of businesses affected less than 1% of households.

Graph 3.1

Percentage of households which experienced each type of shock, by area



Source: Own calculations based on ELCA

Table 3.1.

Percentage of Households that Experienced Each Type of Shock by Zone, by Area, and by Socioeconomic Level during the Last 12 Months.

		Region					
		Atlantic	Bogotá	Central	Eastern	Pacific	Total**
SHOCKS TO HOUSEHOLD (URBAN AREA)	Some shock*	27.3%	44,6%	15,5%	42,7%	33,7%	32,5%
	Health	12.4%	21.5%	6.4%	21.0%	16.0%	15.3%
	Family related	8.1%	13.3%	2.2%	9.2%	7.6%	8.0%
	Laboral related	9.1%	17.9%	5.5%	15.0%	13.1%	12.0%
	Assets	3.8%	8.5%	2.7%	10.9%	5.6%	6.3%
	Violence	0.9%	1.3%	0.8%	3.0%	1.2%	1.4%
	Total Households	1,126	1,081	1.164	1.101	976	5.448
		Mid- Atlantic	Cundiboyacense	Coffee Region	East Central		Total**
SHOCKS TO HOUSEHOLD (RURAL AREA)	Some shock*	33.9%	53.5%	24.8%	36.6%		37.3%
	Health	14.8%	20.8%	14.1%	17.6%		16.8%
	Family related	2.9%	3.7%	2.1%	2.9%		2.9%
	Laboral related	1.4%	6.2%	3.2%	0.6%		2.9%
	Assets	19.9%	38.6%	10.2%	22.3%		22.8%
	Violence	0.3%	0.1%	0.7%	0.5%		0.4%
SHOCKS TO THE COMMUNITY (RURAL AREA)	Some shock*	23.3%	34.8%	17.0%	23.9%		24.8%
	Armed Conflict	0.3%	0.2%	0.9%	1.1%		0.6%
	Common Crime	3.8%	18.9%	8.9%	10.2%		10.5%
	Natural Disasters	21.2%	24.4%	9.1%	15.8%		17.6%
	Business Bankruptcy/ Closing	0.2%	0.5%	0.0%	0.0%		0.2%
	Total Households	1,180	1,203	1,209	1,128		4,720
		Socioeconomic level					
		1	2	3	4		Total**
SHOCKS TO HOUSEHOLD (URBAN AREA)	Some shock*	34.2%	34.4%	29.6%	24.6%		32.5%
	Health	15.2%	16.8%	14.0%	11.6%		15.3%
	Family related	8.5%	8.7%	6.8%	6.7%		8.0%
	Laboral related	12.7%	12.4%	11.7%	6.3%		12.0%
	Assets	6.5%	7.1%	4.8%	6.7%		6.3%
	Violence	2.4%	1.4%	0.5%	1.8%		1.4%
	Total Households	1,440	2,190	1,533	285		5,448

* The percentage of households that suffered some shock does not coincide with the sum of the shocks broken down by category, as there are households that suffered more than one shock.
** The sum of households that suffered shocks is not equal to the total number of households (last column), given that the regions have differents sizes.

Source: Own calculations based on ELCA.

Of course, the aggregate rural / urban statistic underestimates the range of risk profiles: the two upper panels of Table 3.1 show that the overall incidence of shocks varies among the four rural and five urban regions. For the urban area, the region with the highest incidence was Bogotá (44.6% of households surveyed experienced at least one shock), followed closely by the Eastern region. In the rural area, the first place corresponds to the Cundiboyacense region, in which recorded rates of shocks in households are 53.5%, and 34.8% in the communities. In contrast, the Central and the Coffee regions had the lowest percentage rate of incidence for all shocks, except for general crime events in the Coffee Region[2]. Despite this heterogeneity, the relative importance of each type of shock within each region follows the same pattern observed in Table 3.1., both in rural and in urban areas.

2. It is important to note that even though it is possible to compare the regions of the urban area, it is impossible to run the same analysis with the regions in the rural area given the large differences that exist amongst them.

The last section of Table 3.1 illustrates the percentage of households affected by each type of shock in each socioeconomic level of the urban area. More than a third of the sample in socioeconomic level 1 and 2 experienced some type of shock in the last twelve months, compared to 29.6% in socioeconomic level 3 and 24.6% in socioeconomic level 4. As in Graph 3.1, in all socioeconomic levels the main destabilizing event is related to the health of the members of the household. The loss of employment is the second in frequency for the socioeconomic levels 1, 2, and 3, but loses its relative importance in the case of socioeconomic level 4.

3.2.2. Wealth Index

The question of whether shocks affect the poor more than the rich has been extensively studied in economic literature (Morduch, 2002). A first approach to this inquiry is presented in Table 3.2, which provides a standardized wealth index among the population affected by different types of shocks[3] . The top panel of the table shows that the urban households that suffered no shocks are on average 0.118 standard deviations richer than those who did; for rural households the difference is of 0.055 standard deviations. In contrast, the shocks that affect the community (rural areas only) do not discriminate between rich and poor households.

Table 3.2.
Difference between the Averages of the Wealth Index for Households that Suffered the Shock and Those that Did Not (Measured in Standard Deviations)

	Urban	Rural
Shock vs. no shock (household)	0.118***	0.055*
Shock vs. no shock (community)		-0.033

By Shock	Urban	Rural	*By Region*	Urban	Rural
Health	.083**	.006	Atlantic	.044	
Family related	.013	.096	Eastern	.286***	
Assets	.230***	.086**	Central	.064	
Labor related	.159***	-.053	Pacific	.136***	
Violence	.374***	.158	Bogotá	.018	
Armed conflict		-.393**	Mid- Atlantic		.490***
General crime		-.010	Cundiboyacense		-.090**
Natural disasters		-.033	Coffee Region		-.212***
B/C of businesses		.040	East Central		-.043*

*** Significant to 1%, ** Significant to 5%, * Significant to 10%

Source: Own calculations based on ELCA.

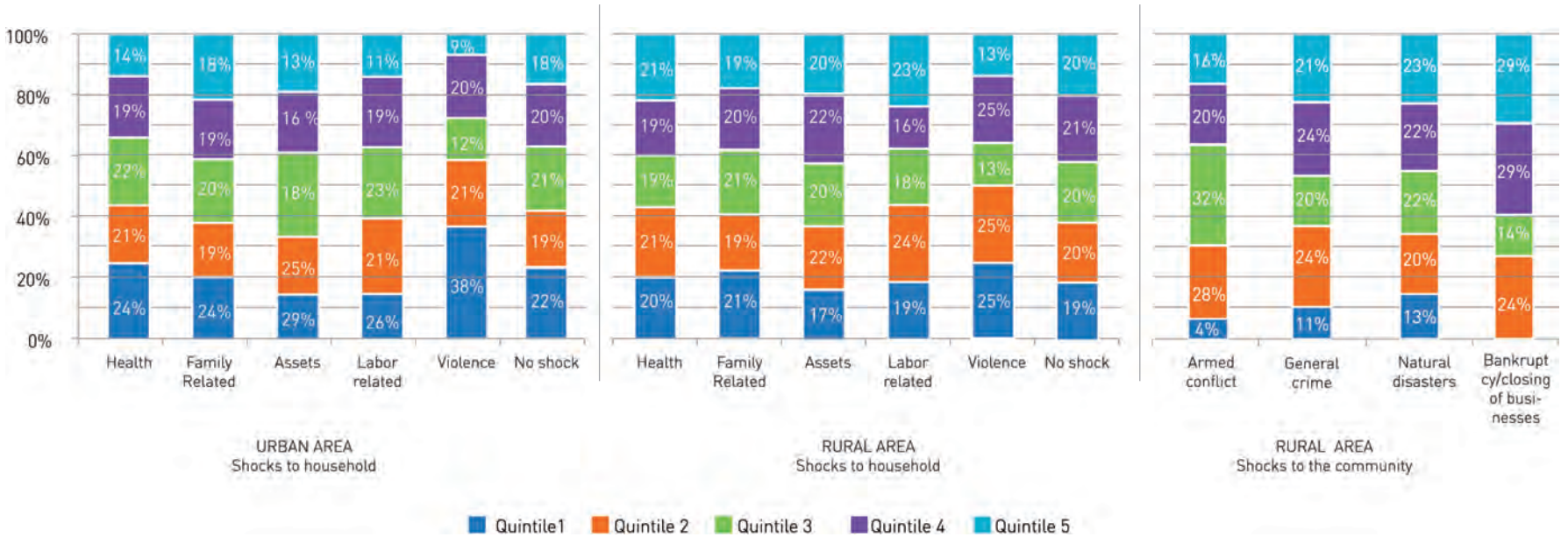
When broken down by type of shock, it is observed that this difference is maintained in urban areas for all categories, except for family related shocks. However, this urban result seems to be determined by the Eastern and Pacific regions, the only ones revealing a positive and significant difference in the wealth index. The rural area shows even more interesting results. The difference in the mean wealth index is statistically significant for all regions, but in reverse: except for the Mid-Atlantic region, the shocks affect the wealthiest households the most. The breakdown by type of shock shows that the difference in means in this index is significant only for shocks relating to assets and shocks relating to armed con-

3. We used the wealth index presented in Chapter 2 of this book.

flict. Shocks relating to assets are mainly associated with less wealthy households, and violence shocks with the wealthier.

Graph 3.2 shows the distribution of the population affected by each type of shock, according to wealth quintiles. In general, the shocks are distributed uniformly among the quintiles. The most notable exceptions are violence, which affects in the urban area mainly the poorest quintile (38.2% of the total affected), and the fact that shocks to the community do not seem to affect the poorest quintile in rural areas.

Graph 3.2.
Wealth Index by Quintiles according to Type of Shock



Source: Own calculations based on ELCA.

3.3. Shocks and Mitigating Mechanisms

After examining the incidence patterns of shocks, it is now appropriate to analyze how the households react towards them. Economic literature considers several types of responses, and classifies them as decisions regarding the smoothing of income (*ex ante* mechanisms) or the smoothing of consumption (*ex post*)[4]. The efficacy of the various options is, however, dissimilar, and to the extent that households do not have available optimal smoothing mechanisms that allow them to transfer resources over time, decisions can be detrimental in the long run. In extreme cases, such inefficiency can lead to poverty traps[5].

In the category of income smoothing, situations have been studied in which the household makes conservative or low-risk[6] decisions regarding production and investment , thereby protecting themselves against idiosyncratic risks, but reducing their expected future income, given that a less risky investment generates lower returns (Morduch, 1995; Kochar, 1998). Another method of *ex ante* protection is keeping productive liquid assets idle, so that if a shock occurs they have a mechanism of immediate reaction (Jalan and Ravallion, 2001), or selling productive assets such as animals and land to withstand the shock after it ensues (Morduch, 1994).

In terms of consumption smoothing mechanisms, these appear after the shock occurs, in such a way that the household consumption be disrupted as little as possible in relation to the variability of income. Among the decisions, are considered the situations where households borrow, save or insure themselves, individually or communally, in formal and informal environments, accumulate and dissolve non-financial assets, and adjust their labor supply (Baez, 2006; Kochar, 1998).

For the purpose of this report, we study the shocks related to health, assets, labor market, general crime, and natural disasters, and the main responses of the households towards them. The graphs presented in the following sections show the principal responses to the analyzed shocks. The category "other" comprises those responses whose incidence was relatively low; the answers included vary from shock to shock.

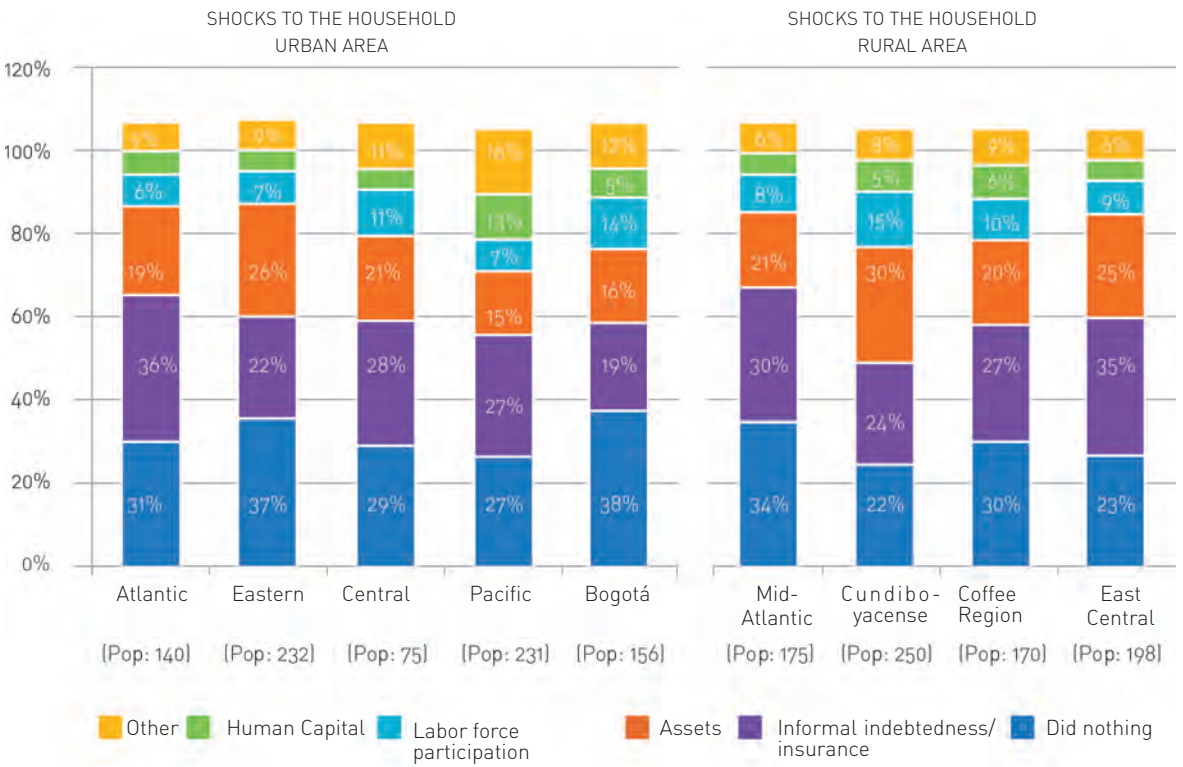
3.3.1. Health Related Shocks

Graph 3.3 shows the reactions of households who experienced a health related shock. The horizontal axis depicts each of the regions included in the survey for the urban area and rural area, and in parentheses the total number of households that suffered the shock in that region. Of those households affected, the columns show how they responded, indicating the percentage that reports each of the responses[7].

↑ Elva Marina Santander visits the ruins of her home in Gramalote (Norte de Santander) after the flood that wiped out her town.

4. Baez (2006) conducts a review of studies which analyze behaviors facing risk and the coping mechanisms available to households, focusing on rural households in developing countries.
5. Poverty traps refer to any self-enforcing mechanism that allows poverty to persist. (Azariadis and Stachurski, 2005, pág. 326).
6. A good part of related literature has developed in a rural environment, where agriculture is the predominant economic activity. Almost all the bibliography for this chapter has employed the survey developed by the ICRISAT (International Crops Research Institute for Semi-Arid Tropics).
7. Given that a household can choose not to respond to a shock, or have more than one response towards a shock, the percentage does not necessarily add up to 100.

Graph 3.3.
Percentage of Households that Had Each Type of Response Towards a Health Related Shock



Note : The "Other" category includes responses such as formal indebtedness or insurance, migration, change of home, change in production, security, and others.

Source: Own calculations based on ELCA.

A high percentage of households report not having acted when confronted with the shock: between 27.3% (Pacific region) and 38.5% (Bogotá) in the urban area, and between 22% (Cundiboyacense) and 34.3% (Mid-Atlantic) in the rural area.

The most common responses in both areas involve the use of assets and of informal insurance or indebtedness mechanisms. Within the use of assets, 90% of the answers correspond to the spending of household savings to cope with the shock, both in urban and rural areas. Another item particularly interesting is informal indebtedness or insurance, which economic literature highlights as a suboptimal solution when faced with lack of access to formal credit. Consistent with the literature, the main reason to borrow from friends or family is to meet immediate consumption decisions (see, for example, Fafchamps and Lund (2003) for the case of the Philippines).

3.3.2. Shocks Related to Assets

Section 3.2 presented that 6.3% of the urban sample and 22.8% of the rural households experienced a shock related to assets, being the shock of greater occurrence in the rural areas. In Graph 3.4 the responses regarding this type of shocks are shown.

Graph 3.4

Percentage of Households that Had Each Type of Response towards a Shock Related to Assets

Note : The "Other" category includes responses such as migration, labor force participation, change in home, security, and others.

Source: Own calculations based on ELCA.

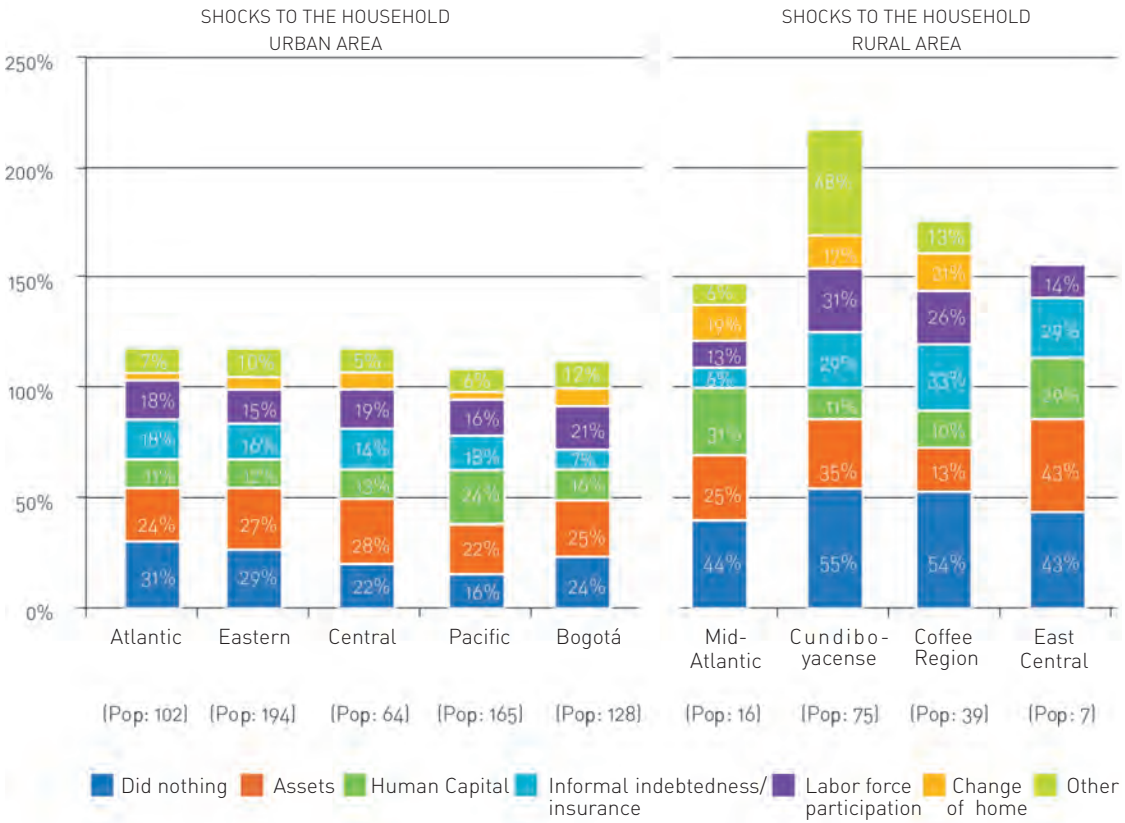
In the rural area, asset related shocks were concentrated in the categories of "Pest or crop loss", as 57.6% of all shocks were of this type, and "Loss or death of animals", with 29.2%, considered as productive assets of the households. For urban areas, the most frequent shock related to assets was "Theft, fire or destruction of household goods", with 39.2%, followed by the "Loss or cut of remittances", with 29.7%.

Graph 3.4 displays the diversity of responses towards this type of shocks. As expected, in the rural area a very frequent response is a change in production decisions, including the use of fungicides or animal medications. In the urban Pacific region the main response was to reduce investment in human capital (34.2%), a reaction of particular concern in light of the economic literature, which indicates that spending less on the children's education and on food is a manner to bear the shock by reducing immediate spending needs and accessing manual labor (the children), but it is a decision that affects the children's future earnings potential and increases the risk of malnutrition (Jalan and Ravallion, 2001; Jensen, 2000). Finally, the nine regions show that informal indebtedness or insurance was more important than formal access to those services, with a response rate between 10% and 20% of those surveyed.

3.3.3. Labor Related Shocks

When faced with a labor related shock, the households' most frequent response involved household assets, except for those in the Coffee Region within the rural area. The East Central, Mid-Atlantic, and Pacific regions show a decrease in investment in human capital for over 20% of responses, as depicted in Graph 3.5. The use of informal indebtedness or insurance mechanisms is a significant response for all regions, particularly in the Coffee Region, Cundiboyacense, and East Central regions. In these cases the households resorted to family or friends. Finally, in the rural area the decision to change housing —not associated with migration— in order to overcome the loss of employment of a household member is quite significant. In this case, 40.6% of the households who decided to change housing went to live with relatives or friends.

Graph 3.5.
Percentage of Households that Had Each Type of Response Towards a Shock Related to Labor



Note : The "Other" category includes responses such as formal indebtedness/ insurance, migration, change in production , security, and others.

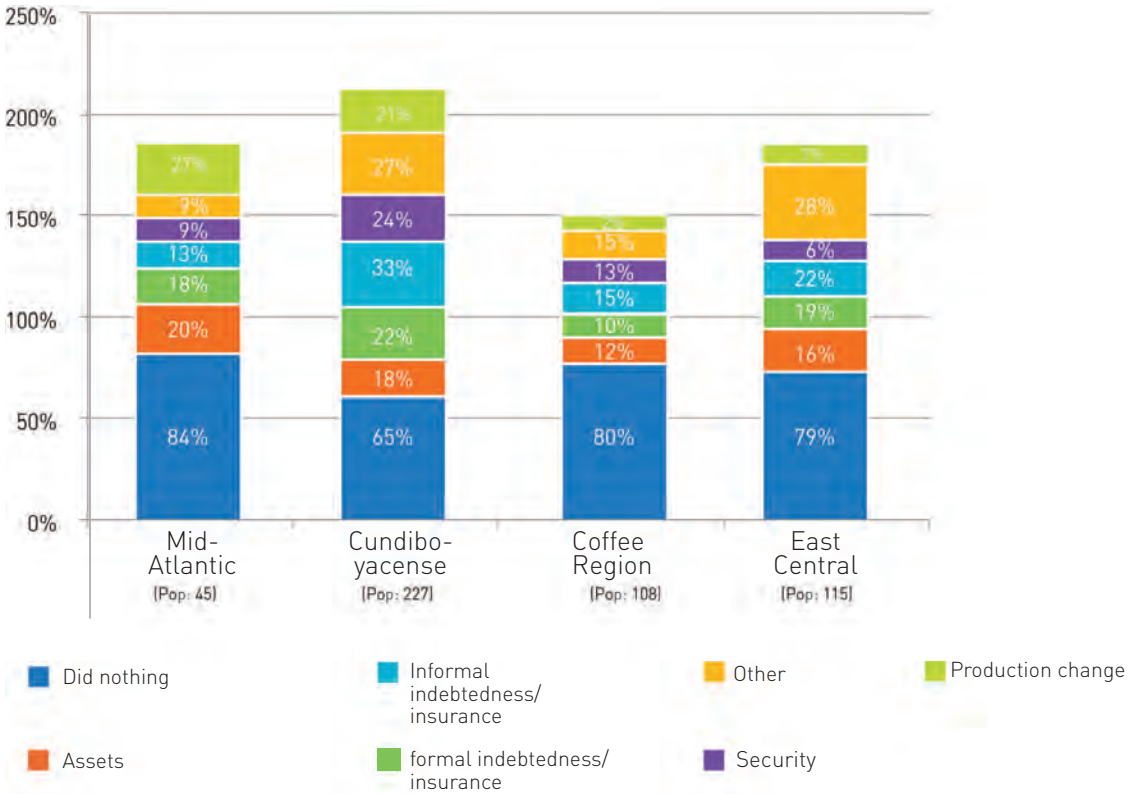
Source: Own calculations based on ELCA.

3.3.4. Shocks Related to General Crime

Those shocks classified as related to general crime were only asked to households in rural areas. Within this category, the most frequent shocks were: problems related to theft of homes (48.1%), followed by livestock theft (28.9%), and robbery (13.3%). As shown in Graph 3.6, over 65% of households in the four regions did nothing when faced with shocks of this kind. With respect to households who decided to resort to formal indebtedness or insurance mechanisms, 80% of them sought help from national and international institutions, while only 20% turned to measures of indebtedness. One question that must be addressed in future studies, and for which ELCA has the relevant information, is whether only this 20% had access to credit markets, or if those who resorted to national and international institutions also had access but decided not to pursue it.

Graph 3.6.

Percentage of Households that Had Each Type of Response towards a Shock Related to General Crime



Source: Own calculations based on ELCA.

A response of great interest, given the type of shock, is the one grouped under the category of security. Within the households that were in this group, 60% decided to join together with other households to defend themselves, 37.5% increased their cooperation with the authorities, and only 2.5% hired private surveillance.

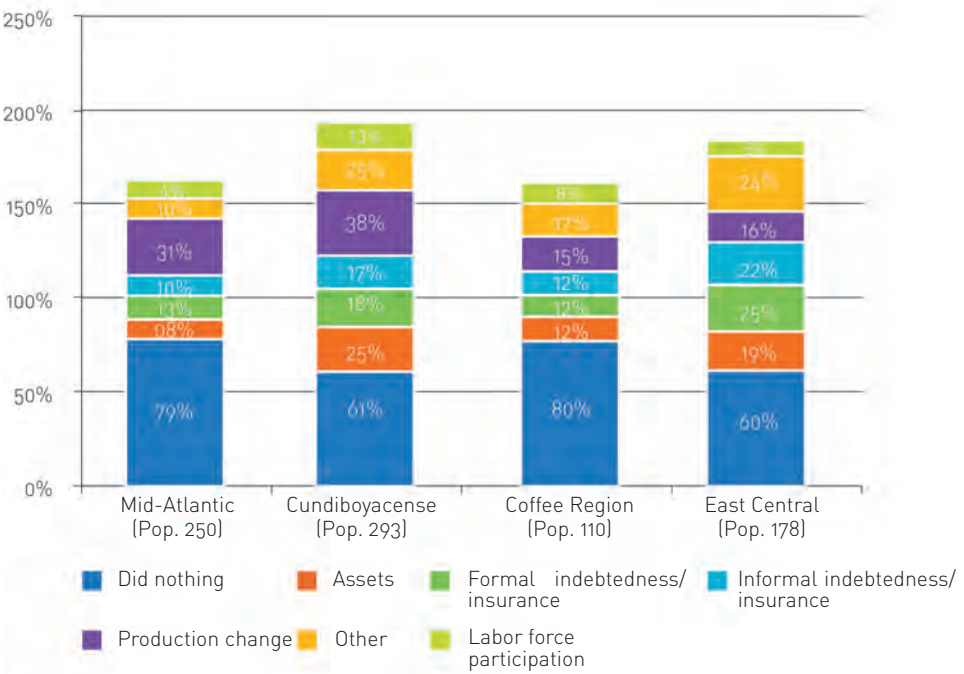
3.3.5. Natural Disasters

The rural areas characterized by their dependence on agriculture are particularly sensitive to natural disasters. This implies a high volatility of returns for this activity, especially due to climatic conditions (Jensen, 2000, p. 399). The main shock within this category for households in the sample was "Pests or crops" (61%), followed by "Epidemics that killed several animals" (14.1%), and "Floods" (13%). Given these conditions, it is to be expected that a high percentage of response refers to decisions in which there is an increase in the use of fungicides or animal medications ("Production Change" in Graph 3.7). This response comprised between 15.5% and 38.2% of decisions taken to cope with natural disasters.

Once again, a high percentage of the households that suffered this type of shock decided to do nothing. In the Cundiboyacense and Coffee regions, there were increases in labor force participation, which is to say that household members who did not work previously went out to look for work, or those who were already working increased their work hours. Finally, the responses of assets and formal and informal indebtedness or insurance followed the same pattern as in previous shocks: households made use of their savings and went to national and international institutions in the credit market. However, in this case the participation of formal mechanisms was greater than or equal to the participation of informal mechanisms such as friends and family.

Graph 3.7.

Percentage of Households that Had Each Type of Response towards a Shock Related to Natural Disasters



Note : The "Other" category includes responses such as human capital, migration, change in housing, security and others.

Source: Own calculations based on ELCA.

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Annex 1. Table of destabilizing events (shocks) asked to households

	Rural Area		Urban Area	
	Shocks to household	Type	Shocks to household	Type
1	Illness of a member of the household which prevented them from preforming their daily activities	Health	Illness of a member of the household which prevented them from preforming their daily activities	Health
2	Accident of a member of the household which prevented them from preforming their daily activities	Health	Accident of a member of the household which prevented them from preforming their daily activities	Health
3	Death of whomever was head of the household or their spouse	Family Related	Death of whomever was head of the household or their spouse	Family Related
4	Death of any other member(s) of the household	Family Related	Death of any other member(s) of the household	Family Related
5	Desertion of whomever was head of the household or their spouse	Family Related	Desertion of whomever was head of the household or their spouse	Family Related
6	Desertion of the household by minor less than 18 year old	Family Related	Desertion of the household by minor less than 18 year old	Family Related
7	Separation of the spouses	Family Related	Separation of the spouses	Family Related
8	The head of the household lost their employment	Labor Related	Arrival or welcome of a member into the household	Family Related
9	The spouse lost their employment	Labor Related	Head of household lost job	Labor Related
10	Another member of the household lost their employment	Labor Related	The spouse lost their employment	Labor Related
11	Had to abandon their habitual place of residence	Assets	Another member of the household lost their employment	Labor Related
12	Bankruptcy and /or closing of the family business(es)	Assets	Had to abandon their habitual place of residence	Assets
13	Theft, fire, or destruction of the household's assets	Assets	Bankruptcy and /or closing of the family business(es)	Assets
14	Loss or cuts to remittances	Assets	Theft, fire, or destruction of the household's assets	Assets
15	Loss of the farms, plots, lands, or pieces of lands	Assets	Loss or cuts to remittances	Assets
16	Pests or loss of crops	Assets	Loss of the home	Assets
17	Loss or death of animals	Assets	Were victims of violence	Violence
18	Were victims of violence	Violence		

	Rural Area	
	Shocks to the community	Type
19	Clashes between armed groups	Armed Conflict
20	Terrorist attempts	Armed Conflict
21	Massacres, clashes, or attacks by armed groups	Armed Conflict
22	Gangs or general crime	Common Criminality
23	Thefts to homes	Common Criminality
24	Assaults	Common Criminality

25	Livestock theft	Common Criminality
26	Extortions	Common Criminality
27	Floods	Natural disasters
28	Landslides	Natural disasters
29	Earthquakes	Natural disasters
30	Other natural disasters	Natural disasters
31	Epidemics that killed various animals	Natural disasters
32	Human epidemics	Natural disasters
33	Pest on crops	Natural disasters
34	Bankruptcy or closing of businesses	Bankruptcy /closing of businesses

Annex 2. Table of reactions /responses towards shocks suffered by households

	Rural Area		Urban Area	
	Household Responses	Type	Household Responses	Type
1	Member of the household who did not work went to find work	Participation in labor force	Member of the household who did not work went to find work	Participation in labor force
2	Members of the household already working increased their work hours	Participation in labor force	Members of the household already working increased their work hours	Participation in labor force
3	One or more members of the household changed their residency	Migration	One or more members of the household changed their residency	Migration
4	One or more members of the household left the country	Migration	One or more members of the household left the country	Migration
5	One or all members of the household went to live with relatives	Changes in housing	One or all members of the household went to live with relatives	Changes in housing
6	They moved to a less expensive home	Changes in housing	They moved to a less expensive home	Changes in housing
7	They relocated	Changes in housing	They relocated	Changes in housing
8	Withdrew the children from school or college	Human capital	Withdrew the children from school or college	Human capital
9	Moved the children to a less expensive school	Human capital	Moved the children to a less expensive school	Human capital
10	Decreased expenditures on food	Human capital	Decreased expenditures on food	Human capital
11	Asked help from family members, friends and other people in the community	Informal indebtedness /insurance	Asked help from family members, friends and other people in the community	Informal indebtedness /insurance

12	They entered into debt with family or friends	Informal indebted-ness /insurance	They entered into debt with family or friends	Informal indebtedness /insurance
13	Spent savings	Assets	Spent savings	Assets
14	Sold belongings or assets	Assets	Sold belongings or assets	Assets
15	Mortgaged an asset (house, car, farm, etc.)	Assets	Mortgaged an asset (house, car, farm, etc.)	Assets
16	Rented an asset (house, car, farm, etc.)	Assets	Rented an asset (house, car, farm, etc.)	Assets
17	Sacrificed animals	Assets	-	-
18	They entered into debt with a bank or a financial institution	Formal indebtedness /insurance	They entered into debt with a bank or a financial institution	Formal indebtedness / insurance
19	Asked national or international institutions for help	Formal indebtedness /insurance	Asked national or international institutions for help	Formal indebtedness / insurance
20	Used some insurance	Formal indebtedness /insurance	Used some insurance	Formal indebtedness / insurance
21	Acquired some insurance	Formal indebtedness /insurance	Acquired some insurance	Formal indebtedness / insurance
22	Increased the use of fungicides or animal medicines	Production changes	Was unnecessary to do something that altered the customs of the household	Did nothing
23	Was unnecessary to do something that altered the customs of the household	Did nothing		

Rural Area		
	Response to shocks to the community	Type
1	Members of the household went out to work, look for work, or increased their work hours	Labor force participation
2	Members of the household changed their residency or went to live with family	Migration
3	Members of the household left the country	Migration
4	They relocated	Change of housing
5	Withdrew the children from school or college	Human Capital
6	Decreased expenditures on food	Human Capital
7	Asked help from family members, friends and other people in the community	Informal indebtedness /insurance
8	They entered into debt with family or friends	Informal indebtedness /insurance
9	Spent savings	Assets
10	Sold belongings or assets	Assets
11	Mortgaged an asset (house, car, farm, etc.)	Assets
12	Rented an asset (house, car, farm, etc.)	Assets
13	Sacrificed animals	Assets
14	They entered into debt	Formal indebtedness /insurance

15	Asked national or international institutions for help	Formal indebtedness /insurance
16	Used some insurance	Formal indebtedness /insurance
17	Acquired some insurance	Formal indebtedness /insurance
18	Increased their cooperation with the authorities	Security
19	Joined together with other households to defend themselves	Security
20	Hired private surveillance	Security
21	Increased the use of fungicides or animal medicines	Production changes
22	Was unnecessary to do something that altered the behaviore of the household	Did nothing

↑ Chiquinquirá (Boyacá).

↑ Luisa Fernanda lives with her family in Barrancabermeja. She shares the house with 27 people

Chapter 4

Access and Use of Health Services and Health Status

Carmen Elisa Flórez
Jorge Luis Castañeda

↑ Natasha Moncayo Quevedo (Córdoba, Quindío).

4.1 Introduction

→The Colombian Longitudinal Survey by Universidad de los Andes (ELCA, acronym for its name in Spanish), in addition to gathering the traditional information on affiliation to the health system and use of health services, also collects information on the perception of the population regarding the state of their health in urban and rural areas. Although the survey includes this information only for heads of the households, spouses, and children under the age of 10, it is the first time that this data, with national coverage, is available for the country, even allowing for regional breakdowns. This chapter presents a descriptive analysis of the current conditions of the health system and overall health state of the Colombian adult population, focusing on the heads of the households and their spouses. First, we describe the indicators used for the analysis; then we describe the access and coverage of the health system, and evaluate the use of offered health services. Secondly, we analyze the three main health perception measures included in the survey, and we compare them with the results of the health valuation measure EQ-5D[1] for urban areas, found by other studies in the international sphere.

1. The EQ-5D indicator, developed by the group EuroQol, is a self-assessment tool of the state of health in five different dimensions. Its name comes from the EuroQol-5 Dimensions.

4.2. Description of the Indicators

The current affiliation and the past year affiliation rates are presented as coverage indicators of the Social Security System in health care. The first one conveys the number of individuals claiming to be beneficiaries or to be affiliated with any entity in the system, as a proportion of total respondents. The rate of enrollment in the last year applies to respondents who report not being currently affiliated, but were at some time during the past twelve months, and is expressed as a proportion of the total surveyed. Healthcare in Colombia comprises two types of regimes: on the one hand, affiliation to the subsidized system on which beneficiaries, mostly among the poor, are granted free access to health services and, on the other hand, affiliation to the contributory or special regimes (Armed Forces, National Police, Ecopetrol, public universities, and public teachers), on which users pay for their health-care plan. For those who are currently affiliated and those who were at some time in the past year, ELCA probes into the time they have or had been in the system. Thus, it is possible to elaborate an indicator of the average affiliation time to the health-care system in number of years.

The indicators of use of health services allow us to evaluate the practices of the population when facing a medical eventuality, and the system's efficiency of response (or availability) to its users, i.e., the access and quality of the health-care services. Medical needs are understood as any emergency or problem that does not require hospitalization, and are caused by sickness or chronic pain, an accident or physical injury, a dental problem, or an outpatient surgery. In response to these eventualities, those affected can either go to a health facility or a health professional (including alternative medicine), or rather resort to unskilled treatment. In this manner, the indicator for the use of services given a necessity is a first approach to the habits of the population regarding the use of the offered health-care services and, additionally, implies possible obstacles in the access to the system (costs, quality, or location). Ultimately, the indicator is defined as the percentage of individuals who access health services among those reporting a medical necessity.

A second indicator of the use of the health services is the hospitalization rate, defined as the percentage of the population surveyed who entered a hospital at least once in the last year. We considered the following causes of hospitalization: childbirth, surgeries, illnesses or accidents, and injuries due to violent attacks. Likewise, it is possible to calculate an indicator for the average hospitalizations, which equals the average number of times that individuals were hospitalized in the last year for any of the reasons mentioned.

In addition to objective measures for the assessment of health, ELCA included a series of questions that inquire about the perceived health condition of the respondents, based on five dimensions related to their quality of life: mobility, personal care, daily activities, pain or discomfort and stress, depression or anxiety. The respondent, according to the affliction which he or she currently believes to suffer from, must determine the severity level for each of the dimensions between high, moderate, or none. With these answers, the EQ-5D[2] indicator is calculated as a synthesizing measure of the subjective assessment of the individual's health state, where a score close to one represents a greater satisfaction with health conditions.

An alternative perception measure arises from the Visual Analogue Scale (VAS). The VAS[3] score ranges from 0 to 100, representing the values for the worst and best possible health state, respectively. The respondent must select a number by pointing on a ruler defined in this range, which he or she considers best describes her or his current health state.

2. It is possible to produce a total of 243 health conditions from the three response options for each of the five domains. The elaboration of the index is based on the weighting of these health conditions by the time trade-off methodology (Szende, Oppe & Devlin, 2007). Each weighting reflects the preferences that a specific population has for each of the possible health conditions. The weights used here correspond to those of the U.S. population, in order to allow for the results to be comparable with those obtained by other sources.
3. The evaluation of the psychometric VAS score, also design by the EuroQol group, is part of the standardized survey of the EQ-5D indicator.

4.3. Coverage and Access to the System

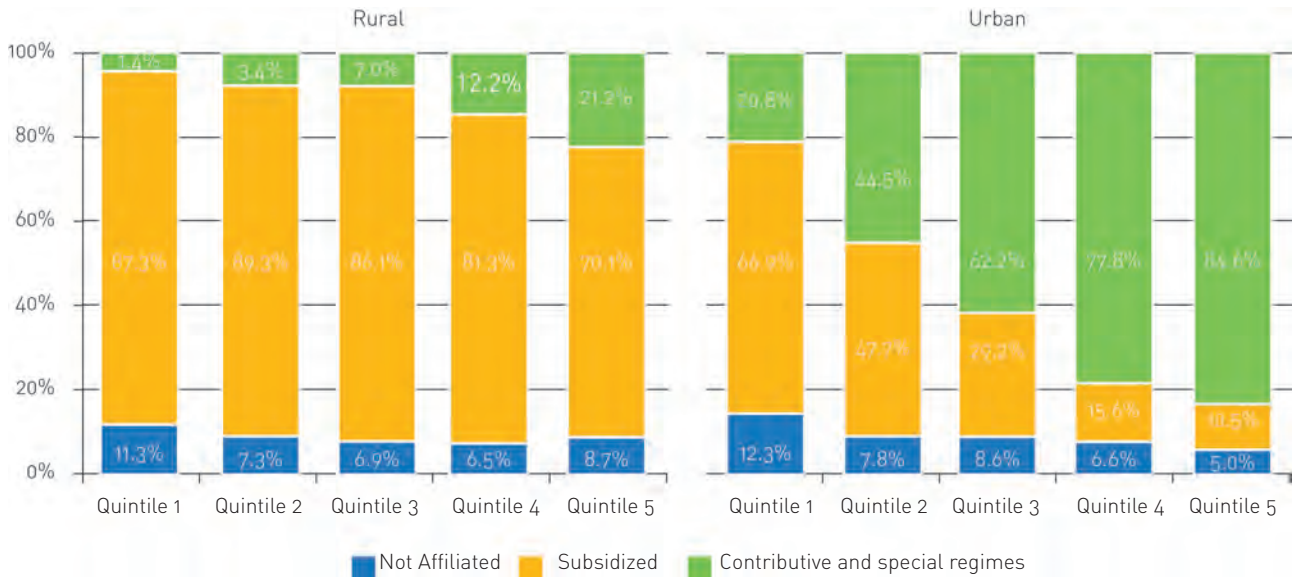
The health-care coverage for heads of the households and their spouses reflects similar levels between urban and rural areas, with an affiliation rate close to 92%. However, when analyzing the composition of the affiliation, it emerges that in rural areas the majority of the population (83%) is in the subsidized regime, while in the cities this proportion decreases to just over a third (35%). These results are consistent with the information available for the same population in the 2008 Quality of Life Survey (ECV, initialism for Encuesta de Calidad de Vida), conducted by the National Administrative Statistics Department (DANE, its Spanish acronym). According to this survey, urban coverage is around 90% of the population, with 31% in the subsidized regime and 59% in the contributory and special regimes, while coverage in rural areas is slightly lower (87%), with 70% affiliated to the subsidized regime and 17% to the contributory and special regimes. The small discrepancy between the rural rates of the two surveys can be explained by the geographical coverage of each survey. While the ECV is nationally representative, the rural ELCA is limited to four micro-regions: Mid-Atlantic, Coffee Region, East Central, and Cundiboyacense. However, both surveys reflect in essence the preponderance of the subsidized regime versus the contributory and special regimes.

Further disaggregation of the data allows to identify particular dynamics in the urban and rural areas. When taking into account socioeconomic conditions[4], it is possible to corroborate the differences in affiliation and in the type of regime according to the household's level of wealth. According to Graph 4.1, especially in urban areas, for lower wealth levels there is greater exclusion from the health system (lower affiliation) and a higher affiliation to the subsidized regime. As one moves up through the quintiles, the affiliation rate increases, especially to the contributory and special regimes.

↑Zoila Rodriguez, Nicolás Restrepo (11 months) and psychologist Melina Mojica Santaella during testing in Bogotá.

4. The wealth quintiles are obtained from the distribution of an index, derived from a principal component analysis of a set of variables related with the household conditions, access to utilities, and ownership of durable assets.

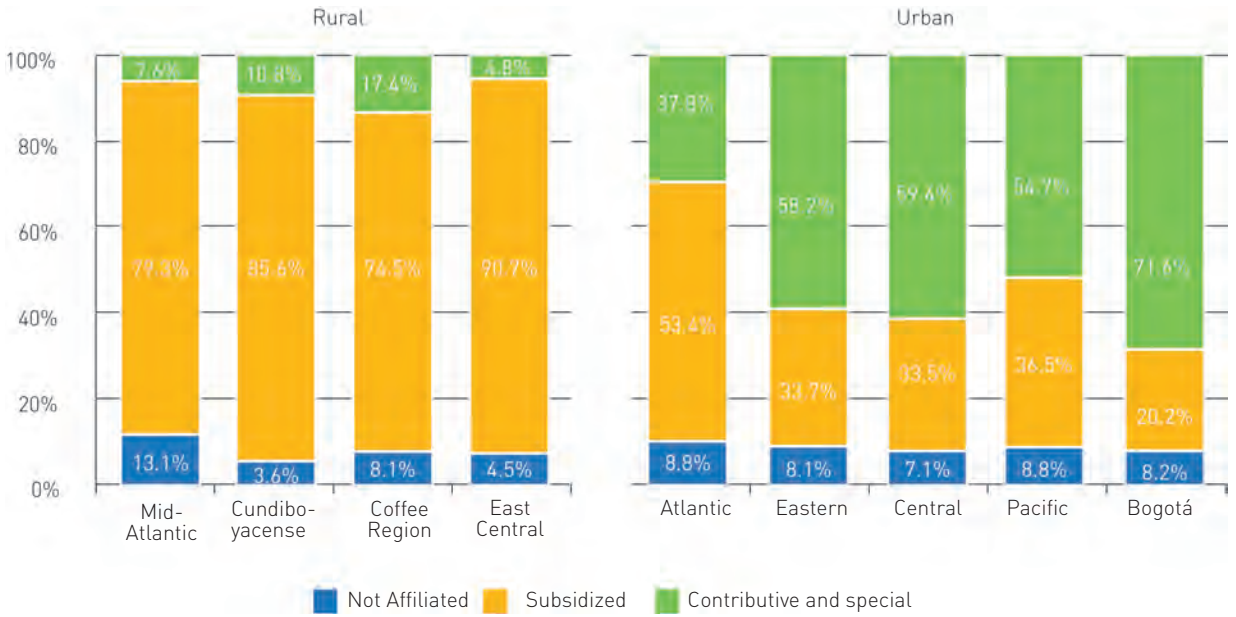
Graph 4.1
Affiliation Rate to the Health System by Area and Wealth Quintile



Source: Own calculations based on ELCA.

Both in urban and rural areas, coverage is very homogeneous across regions, while the type of affiliation shows marked differences (see Graph 4.2). In urban areas, the affiliation rate fluctuates between 91% in the Atlantic region and 93% in the Central region, whereas by type of regime, Bogotá presents the lowest affiliation to the subsidized regime (20%), while the Atlantic region exhibits the highest (53%). In rural areas, the aggregate coverage of the system is slightly more dissimilar: it varies between 96% in the Cundiboyacense region and 87% in the Mid-Atlantic. However, coverage by type of regime does not show such disparate differences as in the urban area. Affiliation to the subsidized regime in the rural area is between 74% in the Coffee Region and 91% in the East Central region. These results indicate that in rural areas, in contrast to the urban area, there is a lower affiliation to the health care system but a greater equity reflected in greater homogeneity among regions, especially in the type of regime, with a preponderance of the subsidized regime. These results are consistent with previous findings by Flórez et al. (2007).

Graph 4.2.
Coverage Rate of the Health System by Area and Region



Source: Own calculations based on ELCA.

ELCA shows that the affiliation to the social security system in health care is on average longer-lasting in the cities than in the farmlands, with a value close to a decade for the former (9 years), while for the latter is clearly lower (7.5 years). There are also marked differences by area in the last year affiliation rate and the type of regime of those not currently affiliated.

The affiliation rate in the last year is 95% for urban areas, while for rural areas is 93%. This implies that when we include affiliated individuals, not currently but during some point in the last year, the coverage in the cities becomes greater in comparison to rural areas. This differential by area is generated by a greater increase in the affiliation to the contributory and special regimes in urban areas, while in rural areas the affiliation to either regime (contributory or subsidized) hardly increases. In other words, in urban areas those who were not currently affiliated, but were affiliated in the previous year, were enrolled by a greater proportion to the contributory or special regimes.

4.4. Use of Health Services

4.4.1. Use of Professional Health Services Given a Necessity

The use of health services among the heads of the households and their spouses, given a necessity that does not require hospitalization, is greater in urban areas (79%) than in rural areas (73%). This is partly explained by the greater supply of public health-care infrastructure in cities. The ECV (2008) also highlights this gap between areas, but establishes greater access in general, with rates of 87% for urban areas and of 81% for rural areas. The urban difference between the ECV and ELCA is that the latter is focused on the lowest socioeconomic levels (1 through 4), while the ECV also includes the highest socioeconomic levels (5 and 6).

In the cities there is a more uniform distribution amongst regions regarding the use of services, although the Eastern region presents a considerably lower rate: nine percentage points below the average of the remaining regions[5]. The wealth distribution does not seem to have a clear relation with the use of health services, although the rate for the highest wealth quintiles is significantly higher than that for the lowest quintile: 81% versus 72%. Finally, it is worthwhile to note that, in general, women account for greater use of ambulatory health services when compared to men: 81% vs. 76%.

Both in rural and urban areas the lowest rate is in the East Central region, although the values across the four rural regions are similar. Unlike the urban case, the wealth quintiles appear to be directly associated to the use of professional health services. Hence, there is an evident increase in the use of the services as the household's wealth increases. In particular, there is a significant difference between the extreme quintiles: 79% for the fifth quintile and 71% for the first. Again, it is found that women are the most common users of the system, with a rate of 78% compared to 67% for men. This gender difference is associated with a greater use of sexual and reproductive health services by female spouses, especially those in reproductive ages, between 15 and 50 years of age.

4.4.2. Hospitalization Rate and Average Number of Hospitalizations

Hospitalizations comprises another indicator of the use of health services. In the aggregate, Colombian household heads or their spouses in the urban area exhibit a hospitalization rate slightly higher than those in the rural area, but a lower average of hospitalizations per year. Thus, 10% of the urban head or spouse population was hospitalized in the year prior to the survey, with an average of 1.42 hospitalizations, while the figures for the rural area correspond to a rate of 9%, with an average of 1.5 hospitalizations.

By regions, the hospitalization rate and the average number of hospitalizations are fairly homogeneous in both the urban and in the rural areas. However, the Mid-Atlantic rural region presents the lowest hospitalization rate (7.6%) compared with the average for the other regions (10%), and in turn, the highest average number of hospitalizations (over two per year) at a regional level.

Women generally exhibit a higher hospitalization rate than men. In urban areas, the rates are 12% for women and 8% for men, while in rural areas the values are 11% for women and 6% for men. However, although women use more hospital services due to their reproductive role, men who do so are hospitalized a greater number of times a year.

5. When excluding the Eastern region, the average for the urban area increases from 79% to 81%.

4.5. Indicators of the Health Status

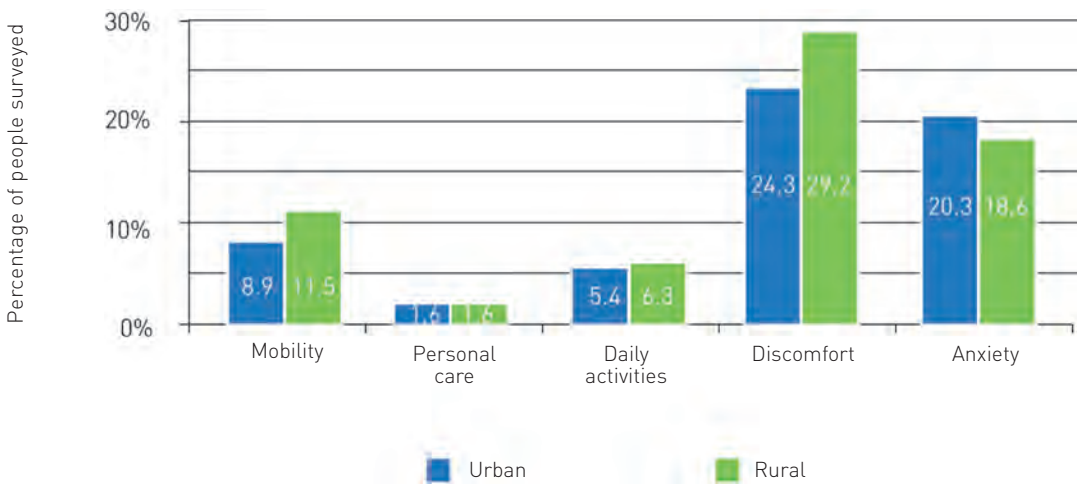
4.5.1. Dimensions of the Health Status

The indicators for perceived health conditions reveal that the surveyed household heads and their spouses are satisfied with the state of their health. For the five dimensions that describe the health status, the response alternatives moderate and severe are chosen by few people to describe their health problems, in comparison with the alternative that establishes that the person does not present any problems.

In their respective order, the dimensions related to personal care, the fulfillment of daily activities, and the mobility capability exhibit the lesser health problems: less than 10% reported moderate or severe problems. On the other hand, in the anxiety dimension, between 15% and 20% suffer some type of stress or depression when surveyed, while for discomfort, the percentage rises to just over one quarter of respondents, being this dimension that of greater incidence. Thus, the surveyed population perceives greater complications related to mental health rather than to physical and motor handicaps. The differentials by area indicate that the urban population shows the highest satisfaction with the state of their health for four of the five dimensions analyzed, as evidenced in Graph 4.3, although the statistically significant differences apply only for mobility and discomfort. For the anxiety dimension, nonetheless, the rural population manifests to be less depressed or anxious than the urban and the difference is statistically significant. This fact takes on greater importance when taking into account that depression is the second most problematic dimension for the population, after pain and discomforts.

↑ Delfina Segura playing in a park in Patio Bonito (Bogotá) with her daughter María Isabel and her grandson Felipe.

Graph 4.3
Moderate or Severe Health Problems in Five Dimensions by Area



Source: Own calculations based on ELCA.

Both in the farmlands as well as in the cities, gender differences are important regarding stress and anxiety dimensions, and mobility to a lesser extent: women perceive more difficulties regarding the state of their health. The dimensions of personal care and daily activities are very similar between men and women. As expected, age exhibits a direct relationship to the proportion of individuals who manifest having problems in all the dimensions analyzed. Consequently, among the younger cohorts there is a lesser report of serious problems, if any. It is worth mentioning that age has a significant impact on discomfort and anxiety dimensions.

Conversely, socioeconomic level does not show a strong relationship with the incidence of problems in the dimensions of personal care and daily activities. Moreover, the dispersion is low among wealth quintiles both in the urban and in rural area. However, for the other dimensions evaluated, the dispersion increases substantially, particularly for the cities and for the dimension related to stress and depression. In this manner, it is the individuals in the lowest quintiles who exhibit greater inconveniences regarding their mobility and the presence of discomfort and anxiety, in comparison with individuals from wealthier households.

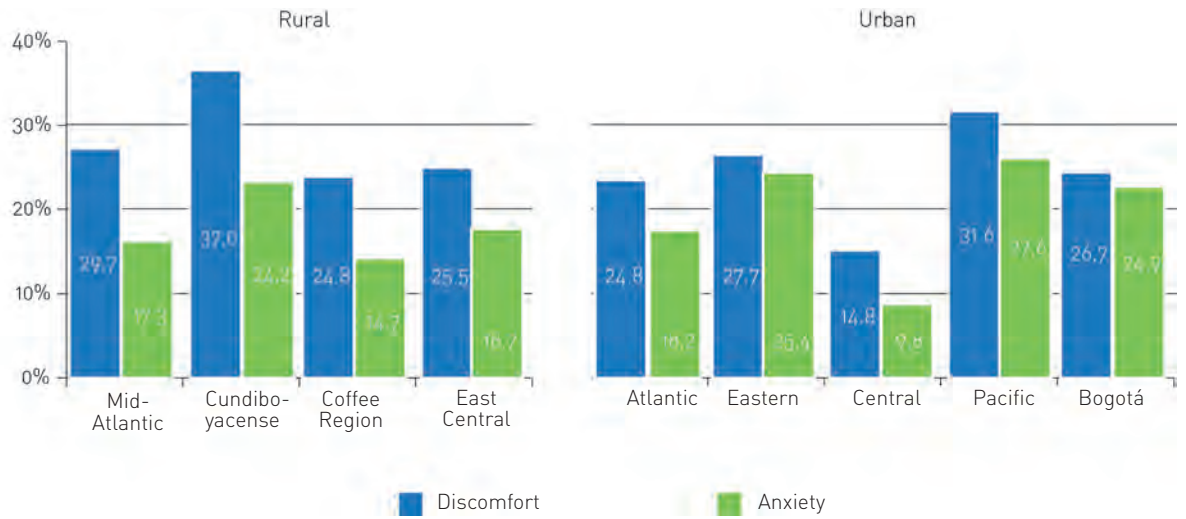
Significant regional differences can be appreciated in each area regarding the incidence of

health problems in some of the dimensions. For the two dimensions in which the population seems to have fewer health problems, the dispersion in both rural and urban areas is slight and the response rate remains consistent with the findings for the aggregate: low values with little incidence. However, as shown in Graph 4.4, the incidence of discomforts and anxiety is dissimilar between regions. In the first place, in the rural area, the Cundiboyacense region has one of the highest levels of incidence of discomfort and depression, while the lowest levels were found in the Coffee and the East Central regions. In the cities, the highest dispersion between regions is confirmed, compared with the rural microregions. The lowest urban levels are found in the central region, while the highest incidences are concentrated in the marginal regions of the Pacific and the East.

↑ José María Alcaraz Borja is 74 and is an electrician, his wife Maria Aseneth Giraldo is 68 and is a housewife. The couple adopted their son Ronal, who is now 17 years old.

Graph 4.4.

Moderate or Severe Perceived State of Health Regarding Discomfort and Anxiety by Area and Region



Source: Own calculations based on ELCA..

4.5.2. Visual Analog Scale (VAS)

In addition to the perception of the state of health in each of the five dimensions, ELCA recorded the score derived from the Visual Analog Scale (VAS), which infers a standard and simple valuation of the state of health of individuals. Consistently with findings for the dimensions of health, the urban area shows a higher satisfaction and a greater perceived well-being than the rural area, with scores of 81 and 74, respectively.

Again, gender differences show men to have a better perception of their state of health than women, although the difference does not exceed four points in any case. However, the differences are statistically significant, so that it can be said that, on average, in rural and urban areas men feel better with their health state than women do.

According to the wealth distribution, a new element of inequality between quintiles in each area is revealed, as shown in Table 4.1. The pattern of VAS scoring demonstrates a positive relationship with the level of household wealth, so that the household heads and their spouses in the highest wealth quintiles have higher scores on the VAS scale. In particular, the differences are more pronounced in urban areas, where the dispersion is greater (2.2 against 0.8 in rural areas) and the difference in scores between extreme quintiles is more noticeable (5.4 against 1.7 in rural areas). However, in absolute terms, the dispersion observed for both areas is not particularly high regarding the scale of reference, so it is therefore concluded that, in magnitude, the wealth-driven differences between areas, although significant, are not substantially relevant.

Table 4.1.
VAS Score by Area and Wealth Quintile

(Average Score)

Area	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Standard deviation	Q5 - Q1
Rural	73.31	73.57	74.97	74.9	75.05	0.85	1.74
Urban	77.6	78.97	80.6	82.16	83.03	2.23	5.43

Source: Own calculations based on ELCA.

By region, rural micro-regions appear to be more heterogeneous in their VAS scores than urban regions. Despite this, people in the urban Eastern and Pacific regions maintain the poorest perceptions of their health state (78.6 and 78.8 respectively), while in rural areas it is those in the Cundiboyacense region (70.9). By contrast, Bogotá (82.6) and the Atlantic region (81.2) for the urban area, and the Coffee (77.2) and Central (75.6) regions for the rural area, present the highest VAS scores, a similar case to the results of the dimensions analysis.

4.5.3. EQ-5D Index

Given that rural and urban areas exhibit similar satisfaction levels in the different health dimensions, the EQ-5D index, which is based on a synthesis of the scores of those dimensions, shows the same pattern. Thus, the average index for urban areas is 0.925, while for rural areas it is 0.919. Despite this similarity, in statistical terms the difference is significant at the highest level of confidence, allowing to infer that there is a higher perceived well-being in health in cities than in farmlands. Similarly, the breakdown of results by gender replicates the results of the dimensions and the VAS score. Hence, men perceive a lower average level of morbidity than women, with index scores of 0.94 in urban areas and 0.93 in rural areas, while the index value for women is of 0.91 in both areas.

As for regional differences, there is a greater differentiation of the index between urban regions than among rural micro-regions. Thus, for the cities, the Central region has the highest index (0.95) and the Pacific the lowest value (0.90). In rural areas, the Coffee Region has the highest index (0.93), while the Cundiboyacense has the lowest value (0.90). It is worth noting that the highest rural value is significantly lower than the maximum urban, while the minimums are equal in both areas: evidence of a greater dispersion of the index in the urban area.

Table 4.2 presents the EQ-5D index by area and wealth level. As in the VAS score, both areas show a positive relationship between the perceived state of health and the socioeconomic status of households. In this manner, the lowest quintiles in both geographical areas have a value of 0.91, while in the highest quintiles it is of 0.93 for the rural area and of 0.94 for the urban one. In turn, the differences between quintiles are relatively similar between areas, as evidenced by the distance between extreme quintiles. It can be said, then, that despite the unequal values between different levels of wealth, the population appears to be equally satisfied, refuting the so-called aspirations paradox, according to which the poorest have a greater tolerance for unstable and inefficient health systems. (Deaton, 2008: 12, Graham, Higuera & Lora, 2009: 10).

↑In urban and rural areas there are similar levels of health satisfaction.

Table 4.2.
EQ-5D Index by Area and Wealth Quintiles

(Average Value)

Area	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Average	Standard deviation	Quintile 5 – Quintile 1
Urban	0.91	0.92	0.93	0.93	0.94	0.92	0.01	0.03
Rural	0.91	0.91	0.92	0.92	0.93	0.92	0.01	0.02

Source: Own calculations based on ELCA.

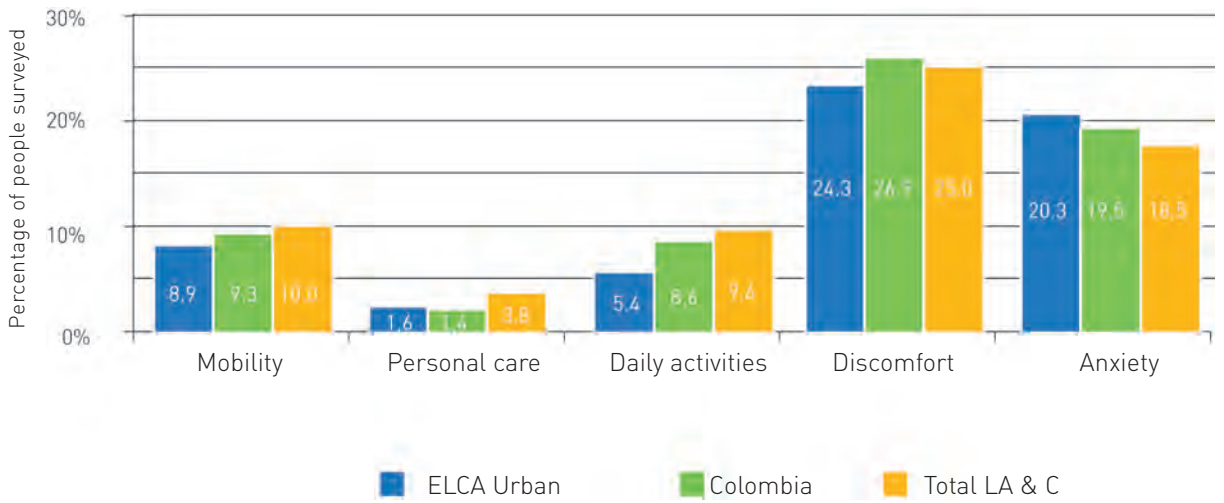
4.6. A Comparison of Results: EQ-5D in the International Context

The results of ELCA summarized in the previous section are particularly relevant for two reasons. First, the information necessary for the calculation of the index has until now been collected from opinion surveys conducted in urban areas (Deaton, 2008, Gallup, 2006 and 2007, IDB, 2008). The estimates for Colombia have until now omitted the rural population, which constitutes a relevant fraction of the national population and, as shown at the beginning of the chapter, is closely linked to the subsidized health system and, therefore, in a special state of dependency and vulnerability. A wide geographical coverage and recurrent gathering of data about the perception of the state of health among the population allow for a more integral evaluation of the system.

Secondly, the adoption of an international methodology of standard valuation offers the possibility to compare the performance of the index among different countries. A first comparative exercise is presented below between the urban data of ELCA and the estimates calculated by Lora (2010), based on data from the Gallup survey conducted in 2006 and 2007 for an urban sample of twenty Latin American and Caribbean countries.

Graph 4.5 shows the percentage of individuals, living in Colombian urban areas, who report some problem of moderate or extreme severity for the five dimensions of health derived from ELCA and Lora's study (2010), as well as the aggregate for Latin America and the Caribbean (LAC). It should be highlighted, in the first place, that the estimates for urban Colombia show the same pattern in both studies. The dimensions of personal care, daily activities, and mobility, in their respective order, show low response rates, while for anxiety and discomfort there is greater prevalence among the population. However, in three of the dimensions, Lora's (2010) results establish a higher proportion of affected than that found in ELCA for mobility, daily activities, and discomfort; while the remaining dimensions, personal care and anxiety, show values slightly lower but very close. Thus, the results from Lora (2010) on the perception of the state of health appear to be slightly more pessimistic, even though they are in line with those presented here.

Graph 4.5.
Moderate or Severe Perceived Health Problems in Five Dimensions, Colombia and Total



Source: Lora (2010) based on Gallup World Poll (2007) and own calculations based on ELCA.

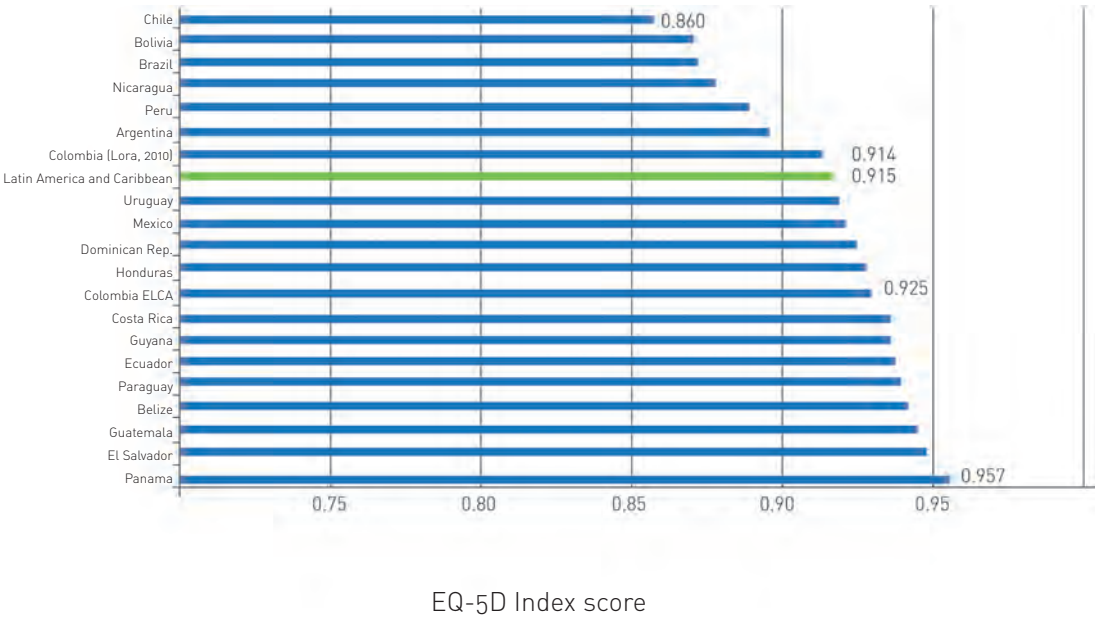
Secondly, in contrast to the average of the nineteen countries in Lora's (2010) study, a peculiarity is evident in the results for Colombia from both sources. In the three dimensions of lowest incidence of health problems (mobility, personal care, and daily activities), the results of the country are below the LAC regional average. However, regarding discomfort and anxiety, both estimates are above the LAC regional mean, except in the case of discomfort calculated using data from ELCA, which is below but very close to the LAC average. Thus, the dimensions in which health problems are perceived by the Colombian population as moderate or severe show, in turn, levels above the LAC regional average. In other words, the mental well-being of the country's population, as a fundamental dimension of health, is a palpable concern among individuals.

Based upon the five dimensions of health, the EQ-5D indexes are constructed and exhibited in Graph 4.6. The indexes oscillate from a minimum of 0.860 for Chile and a maximum of 0.957 for Panama. The mean for the LAC region is 0.915, with an average dispersion of 0.03, suggesting a high concentration around values that reflect a positive perception of the health state. The values estimated for Colombia by the two available sources, those being Lora (2010) and ELCA, are similar; the latter (0.925) being a little higher than the former (0.914). These findings render the value for urban Colombia estimated by Lora (2010) to be found close to the aggregate of the

LAC region (0.001 points below), while that for the ELCA survey is 0.01 points above the LAC regional average and above the estimated indexes for countries such as Uruguay, Mexico, Dominican Republic, and Honduras. Again, Lora's estimate is slightly more pessimistic than that of ELCA.

A comparison with some neighboring countries allows to distinguish the influence of cultural traits in this type of subjective measures. Thus, for example, Ecuador exhibits a higher index than the two calculated for Colombia, while Peru is in the group of the five lowest values. Similarly, Panama, as noted previously, has the highest value of the sample, while Costa Rica is in a position very similar to that of Colombia.

Graph 4.6
EQ-5D Index Score by Country



Source: Lora (2010) based on Gallup World Poll (2007) and own calculations based on ELCA.

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↑ Henry Merchán, 44, works days and nights making charcoal next to the railway, in Cerrito (Valle del Cauca)


Solla
Criacerdos
Solla

↑ John Jaiber Núñez works as a welder in Armenia (Quindío).

Chapter 5
Labor Markets in Colombia

Liliana Olarte
Ximena Peña

↑ Jose Fernando Mejía Mejía works as plant operator at Fabricato in Medellín (Antioquia).

5.1. Introduction

→A high percentage of a household's income is generated through their involvement in labor markets. Thus, studying labor market dynamics is crucial for understanding household welfare, particularly in a developing country such as Colombia. Traditionally, labor markets in Colombia have been studied based on the information collected systematically by the Household Survey applied during the last three decades by the National Administrative Statistics Department (DANE for its acronym in Spanish). This survey serves as the source for official labor market statistics, such as employment, unemployment and informality rates, among others.

The Colombian Longitudinal Survey by Universidad de los Andes (ELCA, acronym for its name in Spanish) is a complementary source to the Household Survey. ELCA's labor market module contains two interesting innovations. First, although ELCA's urban sample covers only part of the information contained in the Household Survey, it includes a series of new questions that had never been applied in Colombia; they will

help us to understand other aspects that, until now, had remained unexplored in the Colombian labor market. Some of these new questions are: reservation wages, an approach to actual work experience and several questions on the first job, including wage and employment type. Even with the baseline data, before having repeated observations of the same individual over time, these questions improve our understanding of a person's employment history from the beginning, allowing us to track transitions and individual decisions.

Second, ELCA's new approach to the rural labor markets is probably the most important innovation in terms of labor markets. Given that rural markets behave in a very different way than urban ones, a module on the use of time of the adults in the household was included. This helps to understand that a great part of labor in rural areas is related to on-farm work as well as self-consumption activities, which are impossible to measure using the standard questions on labor markets applied by traditional surveys. Questions regarding the process of job search and off-farm jobs are also included which, together with the information regarding the use of time, will help us better understand how the labor market works as well as the situation of workers in rural areas. This information supplements the more traditional analyses on rural labor markets and offers a wider perspective on these types of markets.

This chapter offers an initial overview of urban and rural labor markets based on ELCA's baseline results. According to the type of indicator, the analysis will be carried out separately by gender, level of education, wealth quintile, and, in urban areas, by socioeconomic level. Two characteristics of ELCA's sample design affect the interpretation of results. First, the labor market module is only applied to the heads of the households and their spouses, both in urban and rural areas, and therefore results refer only to this population. Second, the survey is only applied to the population belonging to socioeconomic levels 1 through 4, and excludes the population belonging to socioeconomic levels 5 and 6.

5.2. Urban Labor Market

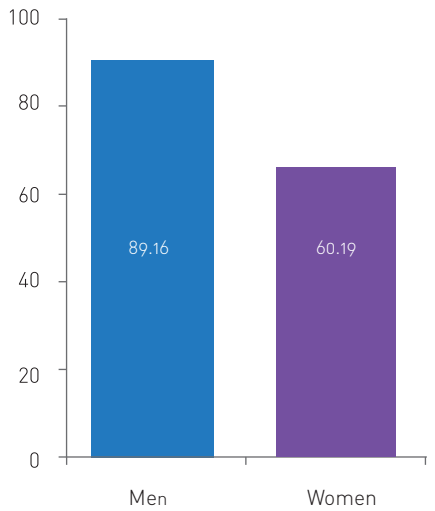
ELCA's urban module holds information on 27,758 people who belong to 5,448 urban households. We have a full set of information on the variables of interest for the heads of the households and their spouses for 8,575 people. Of this sample, 27% of the population belongs to socioeconomic level 1, 41% to socioeconomic level 2, 27% to socioeconomic level 3, and 5% to socioeconomic level 4. In terms of the education level, 23% reports having no education or just a few years of primary school, 20% having finished primary school, 21% having finished high school, 19% holds a technical degree, and 17% has a college degree. Finally, 56% of the heads of the households and their spouses are women.

Urban labor indicators detailed below indicate that there is an important gap in the labor status between men and women, between people with high and low education levels, and individuals who belong to the highest and the lowest income quintiles.

5.2.1. Basic Labor Market Indicators: Participation Rate, Unemployment, Average Wage and Employment Type

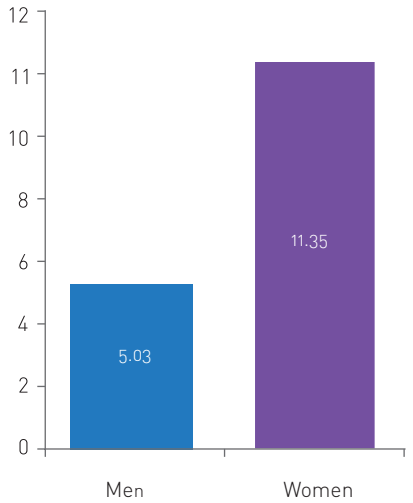
Although it is perceived that there are equal labor opportunities for men and women in Colombia, there are still substantial differences regarding labor indicators by gender. ELCA's baseline results indicate that, although female participation has increased in the last few decades, men still have a significantly higher participation rate than women, (see Graph 5.1) and face an unemployment rate that is 6 percentage points lower than that of women (see Graph 5.2).

Graph 5.1.
Participation Rate by Gender (%)



Differences are significant to 99%

Graph 5.2.
Unemployment Rate by Gender (%)



Differences are significant to 99%

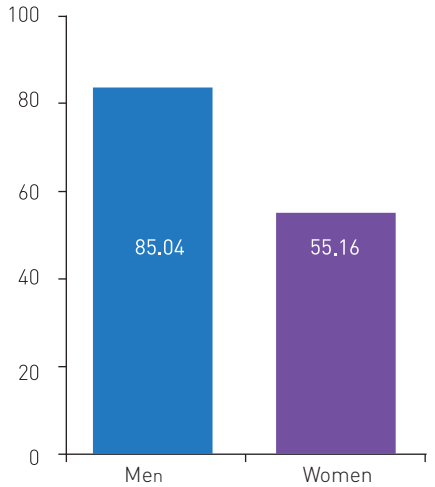
Source: Own calculations based on ELCA.

5.2.2. Comparison between the DANE's Household Survey and the ELCA

As in the case of the DANE's Household Survey (GEIH for its acronym in Spanish), the information contained in ELCA allows us to portray the country's labor situation; ELCA includes information on people's employment: whether they are employed, what they do, how much they earn, whether they are covered by Social Security and whether they are looking for a job, among other issues. One of the differences between the Household Survey and ELCA is that some of the identification questions posed to the employed population are not exactly alike: the GEIH requires three or four questions in order to identify the employed population, while ELCA compiles this information into one single question. In addition, ELCA's labor module is only applied to the heads of the households and their spouses, while the GEIH labor modules are applied to all household members over the age of 12 in urban areas. Therefore, ELCA results are not directly and completely comparable to the labor market statistics published by the DANE. However, they are comparable when the Household Survey's universe is reduced to the heads of households and their spouses.

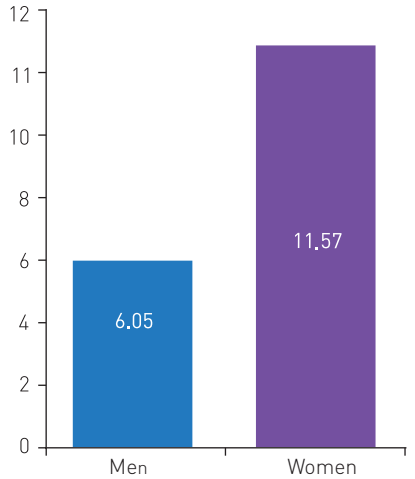
Graphs 5.3 and 5.4 depict labor participation and unemployment by gender based on the information obtained from the second quarter of the 2008 Household Survey, for a sample containing the heads of the households and their spouses, who belong to socioeconomic levels 1 through 4, in Colombia's 10 main cities.

Graph 5.3.
Participation Rate by Gender (%)



Differences are significant to 99%

Graph 5.4.
Unemployment Rate by Gender (%)



Differences are significant to 99%

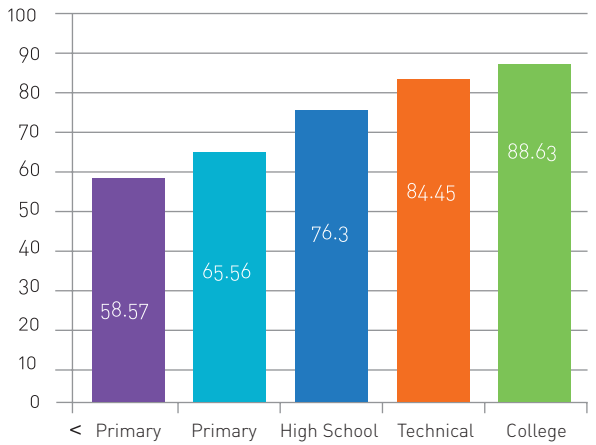
Source: DANE..

Qualitatively, the results obtained from both surveys are similar. Even though the participation rate calculated based on the information from ELCA is around five percentage points higher, the 30 percentage point difference between men and women remains. The unemployment rate of men reported by GEIH is one percentage point higher, while that of women is very similar.

In terms of job characteristics, men receive a considerably higher wage; while the monthly average income for males is COP$828,207 (around US$460), the average income for females is COP$575,383 (around US$320); that is, a (raw) wage gap of almost 44%. The calculated wage gap does not take into account that men and women could have different labor market characteristics that determine salary, for example, education and experience. In the sample, women are as educated as men (there are no statistically significant differences regarding men and women's education), making this high wage gap by gender a surprising issue. Other studies have indicated that, after including all the characteristics that may impact an individual's salary and correcting the selection bias (generated because the group of working women is systematically different from the group of all women), the wage gap by gender remains high and is statistically significant (see for example Badel and Peña, 2010).

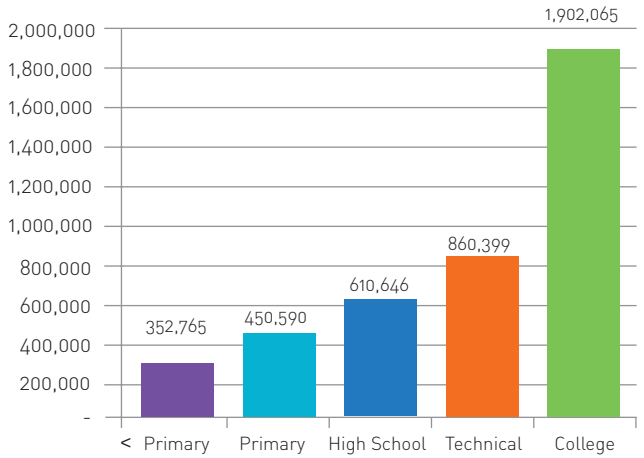
The gender gaps in terms of participation and unemployment rates, as well as income, are substantial. However, the situation is even more dramatic when analyzed by education level. Both the participation rate and income levels increase with education, and there are big differences in these variables between educational groups. For example, people with an education level of less than primary, participate approximately 30 percentage points less than people who have a college degree (see Graph 5.5).

Graph 5.5.
Participation Rate by Level of Education (%)



Differences are significant to 95% at least

Graph 5.6.
Income by Level of Education (COP $)



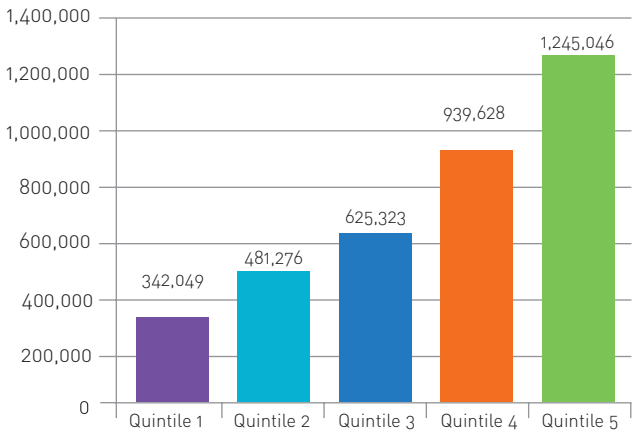
Differences are significant to 95% at least

Source: Own calculations based on ELCA

Graph 5.6 depicts the average income by education level. For comparison purposes, the minimum wage in Colombia for 2010 was COP$515,000 (roughly US$286) per month. The average wage of a person who had not finished primary was approximately COP$352,000 (US$196); this is nearly 68% of the minimum wage. Agents with primary education earned COP$450,000 (US$250), which is 87% of the minimum wage. Only those people with high school education or above earned more than the minimum wage. On the other hand, a college degree has extremely high returns. People with a college degree earn twice the income of those who have a technical or technological degree, and five times the income of those with less than primary education.

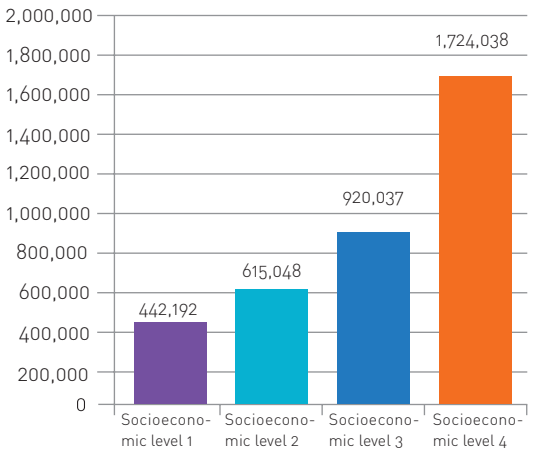
Despite the differences by education level, the gender gaps in the participation rates between the higher and lower income quintiles, and the higher and lower socioeconomic status level are smaller: the maximum difference is only 4 percentage points. However, the wage gap is significant between wealth quintiles. We observe a similar issue when analyzing differences across socioeconomic levels. Even though the Survey only includes observations from socioeconomic levels 1 through 4, there is a considerable income gap: the average wage for socioeconomic level 4 is four times that of socioeconomic level 1 (see Graphs 5.7 and 5.8).

Graph 5.7.
Average Salary by Welath Quintile (COP $)



Differences are significant to 95% at lest

Graph 5.8.
Average Salary by Socioeconomic Status Level (COP $)



Differences are significant to 95% at lest

Source: Own calculations based on ELCA.

Table 5.1 depicts the workforce composition by gender and type of employment. The great majority of workers are either self-employed or private sector employees: two out of every five workers are self-employed and another two are private sector wage earners. Both men and women work in similar proportions for the public sector or in self employment. However, a higher proportion of men work in the private sector as compared to women; these men work either as business-owners/employers in their own business, day laborers or in their farms. On the other hand, there is a higher proportion of women working as domestic workers or as unpaid workers in the family business.

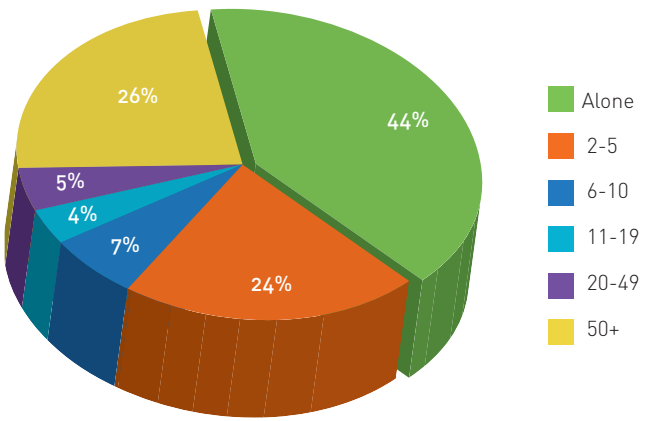
Table 5.1.
Type of Employment by Gender

Type of Employment	Total	Men	Women	Significance
Domestic worker	3.40%	0.12%	7.96%	***
Self-employed	40.98%	41.15%	40.73%	
Goverment employee	4.83%	4.91%	4.71%	
Private sector employee	40.95%	43.09%	37.97%	***
Business owner	2.91%	3.56%	2.00%	***
Farm worker	0.43%	0.67%	0.11%	***
Day laborer	2.41%	3.64%	0.70%	***
Unpaid worker in the family business	1.67%	0.66%	3.08%	***
Other	2.43%	2.20%	2.74%	

Significant to 99% (***), significant to 95% (**), significant to 90% (*)

Source: Own calculations based on ELCA.

Graph 5.9.
Number of Co-Workers



Source: Own calculations based on ELCA.

When studying the occupational distribution by quintiles (not reported), there is a higher proportion of people who belong to the lowest quintiles working as domestic workers, day laborers, farm workers or are self employed. On the contrary, there is a higher proportion of people who belong to the highest quintiles working as public servants or business owners or employers.

Regarding business size, 44% of the people interviewed reported working alone, 31% reported working in businesses that employ between two and ten people, while the remainder work in businesses that employ more than 20 people (Graph 5.9). By analyzing this data by gender, we find that a higher proportion of women are self-employed.

5.2.3. First job

The data reported and analyzed up until now has also been gathered in the traditional labor market surveys. The following section will focus on the new questions included in ELCA.

ELCA gathers information on a person's first job: salary, type of employment, average working hours, and length of time in the position. Clearly these results are heterogeneous: people with different ages and backgrounds get their first jobs at different times. However, we analyze the averages looking forward to describe the broader trends. The average wage earned by workers in their first job was COP$177,225 (US$98)[1]. The wage in the first job affects future earnings since it provides a starting point from which the wage will increase; it could be hard for a worker who is already in a specific income trend to deviate from it.

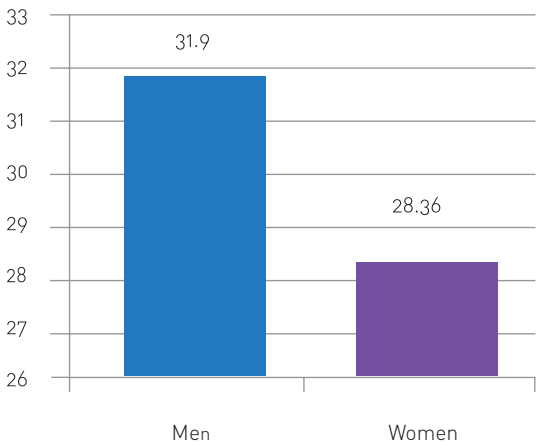
Whether the gender wage gap initiates at the beginning of a person's working life or is the result of work decisions and women's fertility throughout their life is an empirical question. Wage information on the first job helps us answer this question for Colombia: there is a large gap in average earnings between men and women's first jobs. Men report having earned COP$202,291 (US$112) in their first job, while women report earning COP$162,057 (US$90), which corresponds to a 25% wage gap. The wage gap estimated with current salaries is around 44% which means that more than half of the gap is generated at the beginning of working life, and it later deepens until it reaches a point where it is almost double its initial value.

The information on the first job also helps us understand if that initial job determines the type of employment a person will have in the future. This is studied through occupational transitions by comparing the current job with the first one. While 32% of men remain in the same type of employment they had at the beginning of their working life, 28% of women remain in the same occupation type (Graph 5.10). Men, more than women, tend to remain in similar jobs to those in which they started.

1. Only 500 people of the total sample report their first salary. Therefore, this statistic is less robust than other results presented. Of these 500 observations, only 476 were used for calculation purposes, given that they offered complete information on the variables used for the analysis in this chapter.

Graph 5.10.

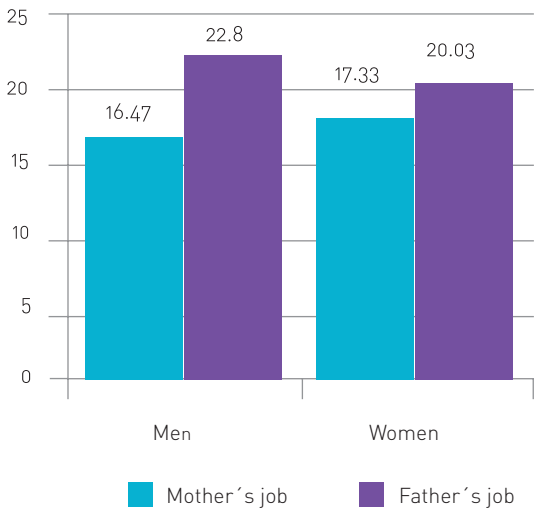
Percentage of people who remain in the same occupation they had in their first job



Differences are significant to 99%

Graph 5.11.

Percentage of people whose job is the same as their parents'



Differences are significant to 99%

Source: Own calculations based on ELCA.

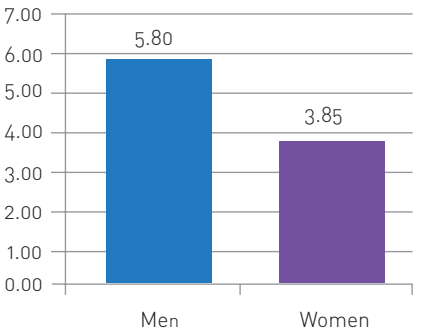
The literature has identified the type of job held by the parents as a strong predictor of the type of employment chosen by an individual. Given that this information is also collected in ELCA, it is possible to determine how parent's occupations affect an individual's current choice of employment. The results shown in Graph 5.11 suggest that the father's job is a better predictor of current employment than the mother's job (for both men and women). Finally, when the results shown in Graphs 5.10 and 5.11 are compared, we see that although both the first job and the parents' occupation affect the type of job currently held by an individual, the former has a higher impact than the latter.

Women report working 2.26 hours per week more than men in their firs job.

↑The Mateus Simijaca family consists of eleven people living in the same house in the Brasil neighborhood in Bosa (Bogotá). In the photo, Ingrid Lorena Mateus, the youngest daughter.

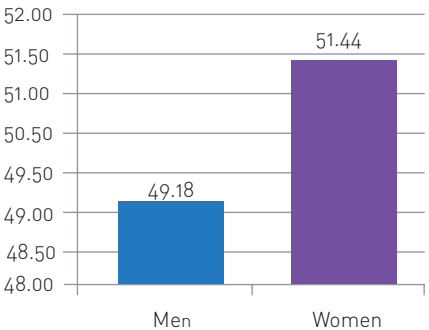
ELCA also gathers some additional information about the first job. For example, a first job for people in our survey lasts five years on average. Graph 5.12 shows that there are substantial differences between men and women. Men accumulate on average two more years of experience in their first job than women; the average length for men is 5.8 years, while for women it is 3.9 years. This gender gap is reversed when we study the hours worked. Workers report working an average of 50.26 hours per week in their first job. However, women report working 2.26 hours per week more than men (see Graph 5.13). This is surprising given that women report working an average of 8.14 hours less than men in their current job; on average, men work 53.89 hours per week while women work 45.75 hours per week.

Graph 5.12.
Average Years of Experience in the First Job



Differences are significant to 99%

Graph 5.13.
Average Hours Worked in the First Job



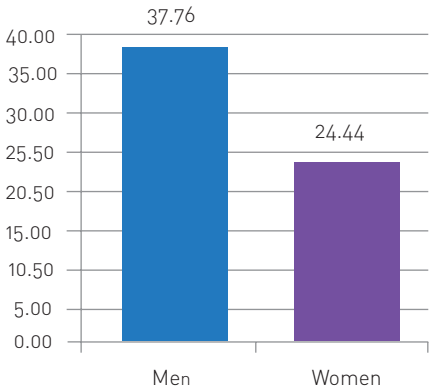
Differences are significant to 99%

Source: Own calculations based on ELCA.

5.2.4. Effective/real work experience

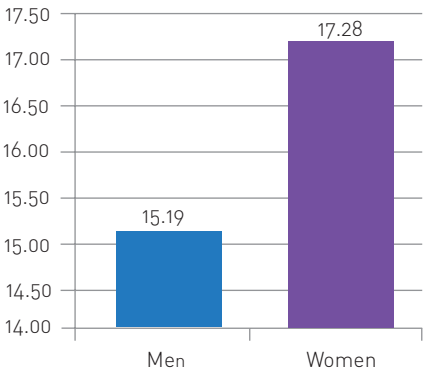
Work experience is also identified in the literature as one of the reasons behind the existence of a gender wage gap. The Household Survey is a cross sectional survey, and therefore it gathers information on the population at one point in time and does not allow us to obtain information on the accumulated work experience of each individual. In order to calculate an individual's real work experience one must try to build an approximation such as "potential experience". ELCA presents a new approach on this subject, and due to its longitudinal nature, when the follow-up surveys are conducted each individual's real work experience will be recorded. However, in the baseline, each interviewee was asked about their accumulated work experience. Results suggest that there are substantial differences in the accumulated work experience of men and women. Graph 5.14 shows that, on average, men 50 years and older report having worked 13.3 years more than women of the same age. Men also start working two years before women (see Graph 5.15). This difference can in part be attributed to the role played by women in child rearing. This preliminary result suggests that there are substantial differences in the accumulated work experience between men and women, providing a potential candidate to partially explain the gender wage gap that still exists in Colombia.

Graph 5.14.
Accumulated experience for people older than 49 (years)



Differences are significant to 99%

Graph 5.15.
Average age at time of first job (years)



Differences are significant to 99%

Source: Own calculations based on ELCA.

5.3. Rural Labor Markets

Rural labor markets have a different logic and behave differently as compared to urban labor markets. ELCA includes, in addition to questions on job search and wage-earning jobs, a module on the use of time by household adults to adequately measure the labor market decisions within a household. The results show that gender differences in the use of time and in the labor market attachment are even more pronounced in rural than in urban markets.

ELCA has information on 4,720 rural households that correspond to a total of 21,507 people. The sample was reduced to 7,909 adults, the heads of the households and their spouses, for whom there was complete information on the variables of interest. Women constitute 51% of the sample, 14% have no primary education, 64% have completed primary, and 22% have completed high school or more[2].

2. In the rural sample only 1% of individuals report having technical or technological education and 1% have a college degree. Therefore, we collapsed those two educational categories: individuals with a high school education or more.

5.3.1. Day Labor, Wage Earning Job and Job Search

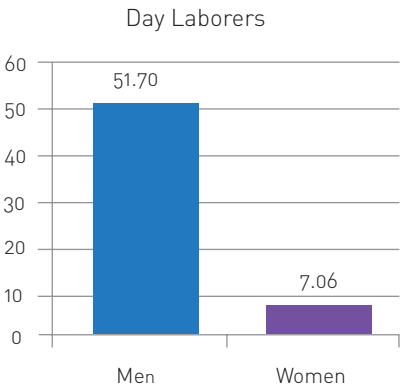
Participation in rural labor markets is predominantly male. Women work in labor markets significantly less than men, both as day laborers and wage earners (See Graph 5.16). While a third of men work in wage-earning jobs, only 11% of women occupy these types of jobs. The situation is even more unbalanced in the case of day laborers: more than half of men work as day laborers, while only 7% of women do. The same pattern is apparent when analyzing the percentage of people looking for jobs during the last 12 months: 24% of men report having looked for a job, while only 6% of women report having done so (Graph 5.17).

This lower labor market attachment of rural women may be due to the fact that gender roles are more deeply rooted in rural areas. While men are the primary bread winners and frequently work outside home, the responsibilities of women focus on housework and child rearing.

The percentage of individuals working in wage-earning jobs increases with the level of education, while the percentage of individuals working as day laborers decreases with the education level. This may reflect the fact that wage-earning jobs require a higher qualification level than day labor jobs. Graph 5.18 depicts how the more educated indi-

Graph 5.16.
Percentage of Individuals Working as Day Laborers or Wage Earners

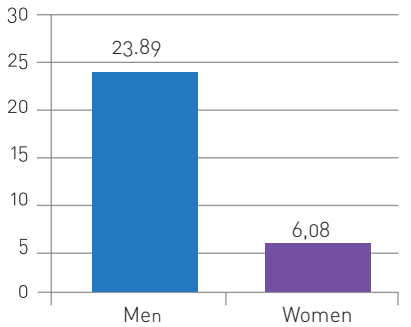
Differences are significant to 99%



Differences are significant to 99%

Source: Own calculations based on ELCA.

Graph 5.17.
Percentage of Individuals Who Looked for a Job



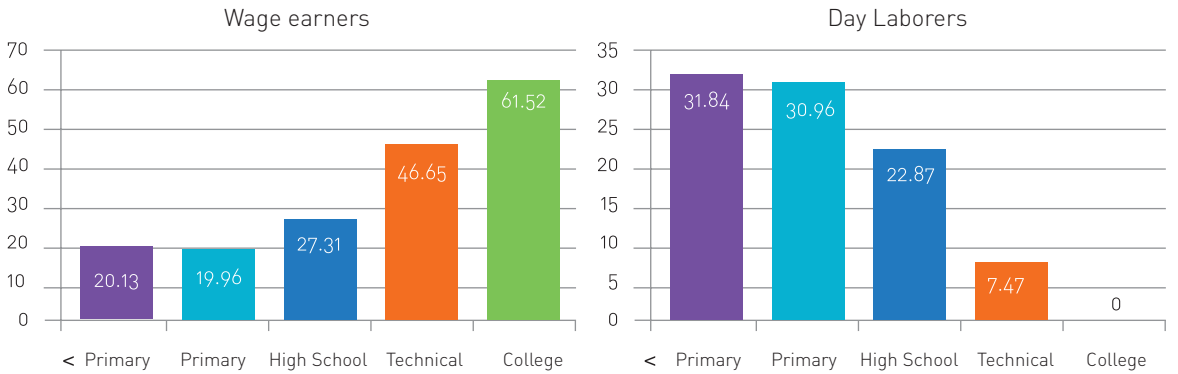
Differences are significant to 99%

Source: Own calculations based on ELCA.

↑ Anuar Joaquín Varilla is the head of the Varilla Pinto family consisting of six people. They earn their living from agriculture, in Ciénaga de Oro (Córdoba).

Graph 5.18.

Percentage of Wage Earners and Day Laborers by Level of Education



Source Owncalculations based on ELCA.

viduals work in wage-earning jobs, while the less educated individuals mainly work as day laborers. In addition, the percentage of individuals with a college degree working in wage-earning jobs is three times higher than the percentage of wage earners with a primary education. However, there are no significant differences between educational groups in terms of job search. This may be explained because rural areas do not offer a wide variety or better quality of jobs for the more educated population.

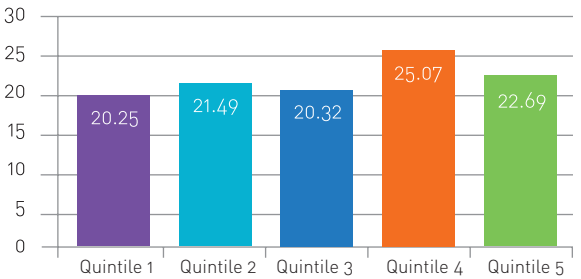
Graph 5.19 shows that individuals in the higher wealth quintiles tend to work more frequently as wage earners and less frequently as day laborers than individuals in lower income quintiles. However, individuals in higher wealth quintiles work in similar proportions as wage earners and as day laborers, which suggests that the opportunities offered by both types of jobs are similar. On the other hand, individuals in lower quintiles tend to work more frequently as day laborers than as wage earners.

Although there are no statistically significant differences by education level in terms of job search, individuals in the lower quintiles proportionally searched more than individuals in higher quintiles (Graph 5.20). Twice as many people in quintile 1 reported having searched for a job in the last 12 months than individuals in the highest wealth quintile; 20.5% of individuals in quintile 1 reported having searched for a job in the last 12 months, in comparison to 10.2% of individuals in quintile 5.

Graph 5.21 shows the seasonality patterns for job search in rural areas. It displays the month in which individuals searched for jobs. There is a seasonal variation that could be related to the agricultural production cycle. There is a higher proportion of individuals searching for jobs during the months of January, February and March than at any other time of the year.

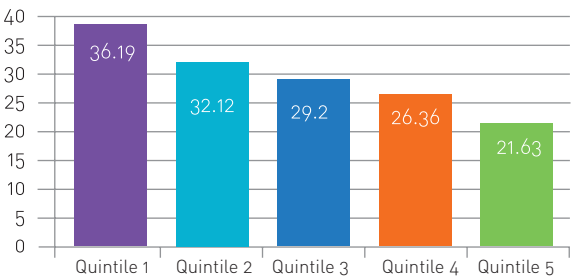
Graph 5.19.
Percentage of Individuals Working as Wage Earners and Day Laborers by Income Quintile

Wage earners



Differences between quintiles 4 and 5 at 99%

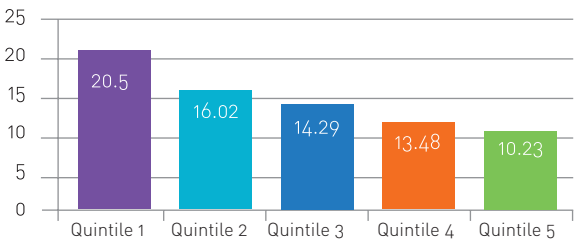
Day Laborers



Differences between all quintiles are significant

Source: Own calculations based on ELCA.

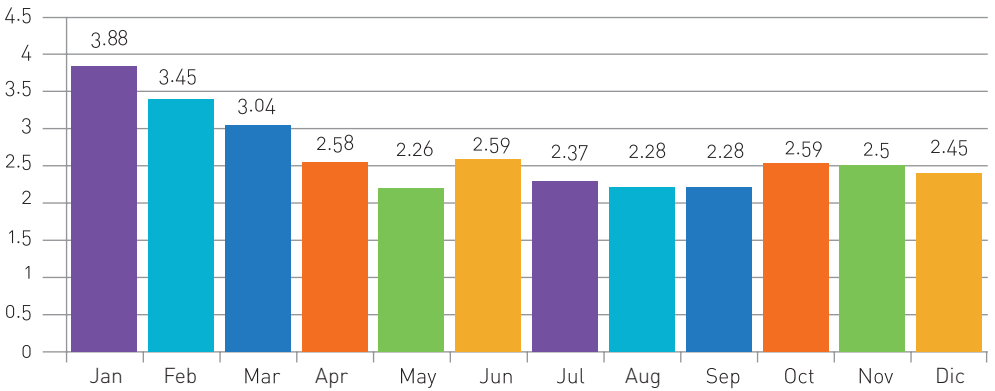
Graph 5.20.
Percentage of Individuals Searching for Jobs by Income Quintile



Differences between quintiles 1 and 2
quintiles 4 and 5 are significant at 99%

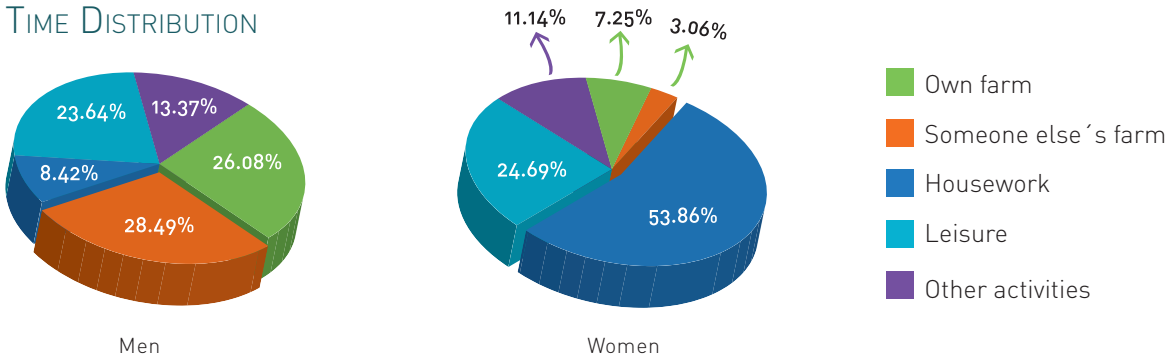
Source: Own calculations based on ELCA.

Graph 5.21.
Percentage of individuals searching for jobs by month



Source: Own calculations based on ELCA.

Graph 5.21.
Time Distribution



Source: Own calculations based on ELCA.

5.3.2. Time Use

In order to describe the time use of adults in rural areas, individuals were presented with several alternatives, that we later classified into four groups of activities: 1) work inside their own farm: agricultural or otherwise; 2) work in other farms: agricultural or otherwise, 3) housework, child or elderly care; and 4) leisure and recreation[3].

Results by gender are depicted in Graph 5.22. In rural areas, women have a predominantly domestic role, which is reflected on the fact that 54% of their time is spent doing housework or caring for the children and the elderly. On the other hand, men spend the same 54% working on farms: 26% working on their own and 28% working on someone else's farm. Men devote more time to leisure and recreation activities than women do; although the difference is not large (it is equivalent to one percentage point), it is statistically significant.

References

Badel, A. and Peña, X. (2010). "Decomposing the Gender Wage Gap with Sample Selection Adjustment: Evidence from Colombia", **Revista de Análisis Económico**, Vol. 25 No. 2: 169-191, December.

3. Watching television exclusively, listening to the radio, exercising, spending time with family and friends, attending cultural events, praying, meditating, participating in religious ceremonies, surfing the internet, playing an instrument, reading, or doing nothing.

↑ View of Medellín (Antioquia) from the Vistahermosa neighborhood

Chapter 6
The Situation of Children in Colombia[1]

Raquel Bernal
Cynthia van der Werf

↑ Miguel Angel and Isabela Tobón are the youngest of a family of five children in Armenia (Quindío)

6.1. Introduction

→ One of the most important innovations in the Colombian Longitudinal Survey by Universidad de los Andes, (ELCA, acronym for its name in Spanish) is the collection of evaluation instruments for children in a nationally representative sample. In particular, the survey includes anthropometric measurements (weight and height) for children between the ages of 0 and 5, and measures of cognitive ability based on the Peabody Picture Vocabulary Test (PPVT) for children between the ages of 3 and 9. Children who are part of this sample are all children under 10 living in surveyed households, except for children of domestic servants, caretakers and their relatives, and the children of pensioners and their relatives. In total, ELCA has anthropometric data for 4,050 children under the age of 5, and cognitive development measurements for 5,965 children between the ages of 3 and 9.

In addition, the survey includes an extensive chapter regarding childcare arrangements of children below 5 years of age, which inquires about the care provided to children and some characteristics of the primary caregiver. Together, these data allow for a diagnosis of children up to the age of 9 in Colombia. The Natio-

1. We thank Camila Fernández and Carmen Elisa Flórez for their valuable comments.

nal Demographic and Health Survey (ENDS, acronym for its name in Spanish) includes information on the nutritional status of children, though not for a representative sample of households at a national level, but rather for a sample of women of childbearing age. However, until now there has been no nationally representative sample with child development indicators such as the PPVT. The availability of these data allows us to make a diagnosis of early childhood concerning their achievements and the needs for comprehensive childcare in the country, which constitutes valuable information for the design of public policy in Colombia.

In order to evaluate the nutritional status of children between the ages of 0 and 5, height and weight measures were collected. Based on these, we calculated Z-scores for height and weight according to the child's age and sex. The Z-score corresponds to height (weight) of the child *standardized* in accordance with the means and variances of the population, according to age and sex groups. The Z-score for height (weight) results of subtracting from the child's height (weight) the population mean for height (weight) given their age and sex group, and dividing this difference by the standard deviation of height (weight) for their age and sex groups in the population[2]. The result indicates the number of standard deviations that the child is above or below the population mean.

Based on the Z-scores, malnutrition, overweight and obesity levels can be calculated, according to the details presented in Table 6.1. The height for age index allows us to identify chronic malnutrition or stunting in the linear growth resulting from the cumulative effects of nutritional deprivation over time, both generational and in the early development stages of the child. The weight for age and weight for height indicators allow us to identify malnutrition generated from deficiencies (undernourishment) or excesses (overweight and obesity), the indicators are sensitive to eating habits and intake, and the presence of recent illness. The incidence of chronic malnutrition, for example, is measured as the percentage of children whose Z-score of height for age is below -2.

Table 6.1.
Definitions of Malnutrition, Overweight, and Obesity

Malnutrition		
Type	**Z-Score**	**Description**
Chronic (stunting)	Height for age	Less than 2 standard deviations
Underweight	Weight for age	Less than 2 standard deviations
Acute (wasting)	Weight for height	Less than 2 standard deviations
Obesity		
Type	**Z-Score**	**Description**
Height-Age	Height for age	More than 2 standard deviations
Weight-Age	Weight for age	More than 2 standard deviations
Weight-Height	Weight for height	More than 2 standard deviations
Overweight		
Type	**Z-Score**	**Description**
Height-Age	Height for age	Between 1 and 2 standard deviations
Weight-Age	Weight for age	Between 1 and 2 standard deviations
Weight-Height	Weight for height	Between 1 and 2 standard deviations

2. These population standards are calculated based on recent data of the World Health Organization (2006).

The PPVT (Dunn et al., 1986) is a standardized instrument for the individual's receptive (hearing) vocabulary and provides a quick estimate of their verbal ability or scholastic aptitude. The instrument is also highly correlated with individualized intelligence tests (correlation of 0.62 with the Stanford-Binet Intelligence Scale). The PPVT is based on the original Peabody Picture Vocabulary Test - Revised (PPVT-R) and uses 125 items to assess receptive vocabulary in Spanish. It is used as a screening test for verbal ability or verbal intelligence when Spanish is the language of the household and the community where the child was born. The test basically consists of associating the word heard with the corresponding image in the testing materials.

The PPVT has been widely used when studying preschoolers (see, for example, Bernal et al., 2009) because it does not require reading or writing, thus it is easy to administer. The PPVT's standardized scores (by age group) range from 55 to 145 points, with a population mean of 100 and standard deviation of 15. The standardized scores are adjusted according to child's age. The interpretation criteria[3] are summarized in Table 6.2.

Table 6.2.
Interpretation of PPVT Scores

Standardized score	Interpretation
> 130	Extremely high
115-130	Moderately high
105-114	Average high
95-104	Average
85-94	Average low
70-84	Moderately low
55-69	Extremely low

Source: Dunn et al. (1986).

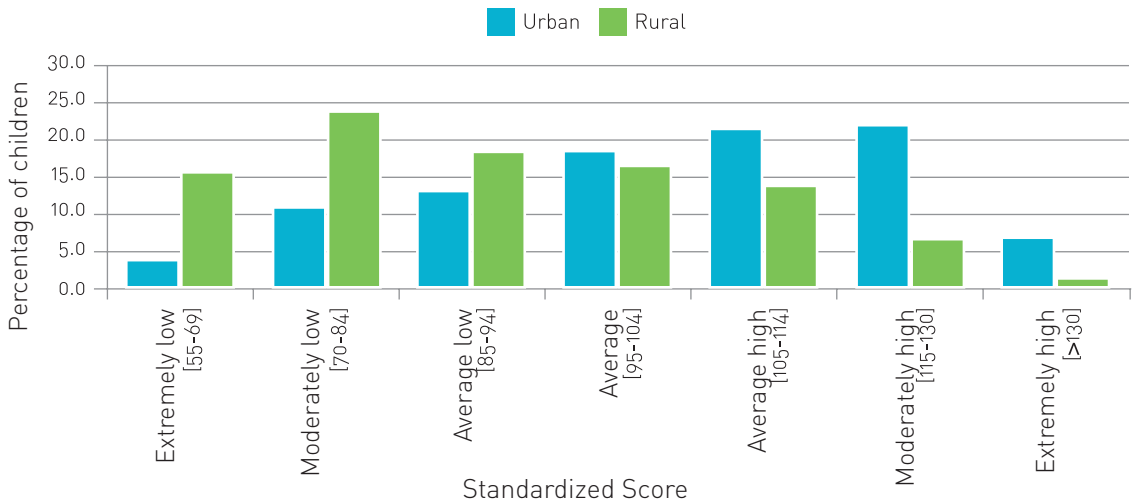
In this chapter we show some general results regarding the situation of children in Colombia according to their nutritional status and their cognitive development. Due to the nature of the ELCA sample, all results are reported separately for urban and rural areas. The socioeconomic status of households in the Survey is summarized by a wealth indicator constructed based on a variety of questions on housing characteristics and the socio-demographic characteristics of household members, based on the methodology of principal components. Based on this wealth index, the households were classified into wealth quintiles.

6.2. Cognitive Development of Children in Colombia

This section includes some results regarding cognitive development of children between the ages of 3 and 9, based on the PPVT test. Graph 6.1 shows the distribution of PPVT standardized scores by area (urban vs. rural). These results indicate large differences by area, with children in rural areas (green bars) at a distinct disadvantage in terms of cognitive development compared with children living in urban areas. In the case of urban areas, the mean score is 104 (average), while the mean score in rural areas is only about 89 (average low).

3. The PPVT scores were standardized according to international scales. In particular, the Mexican norms were used here.

Graph 6.1.
PPVT score by area of residence



Source: Own calculations based on ELCA.

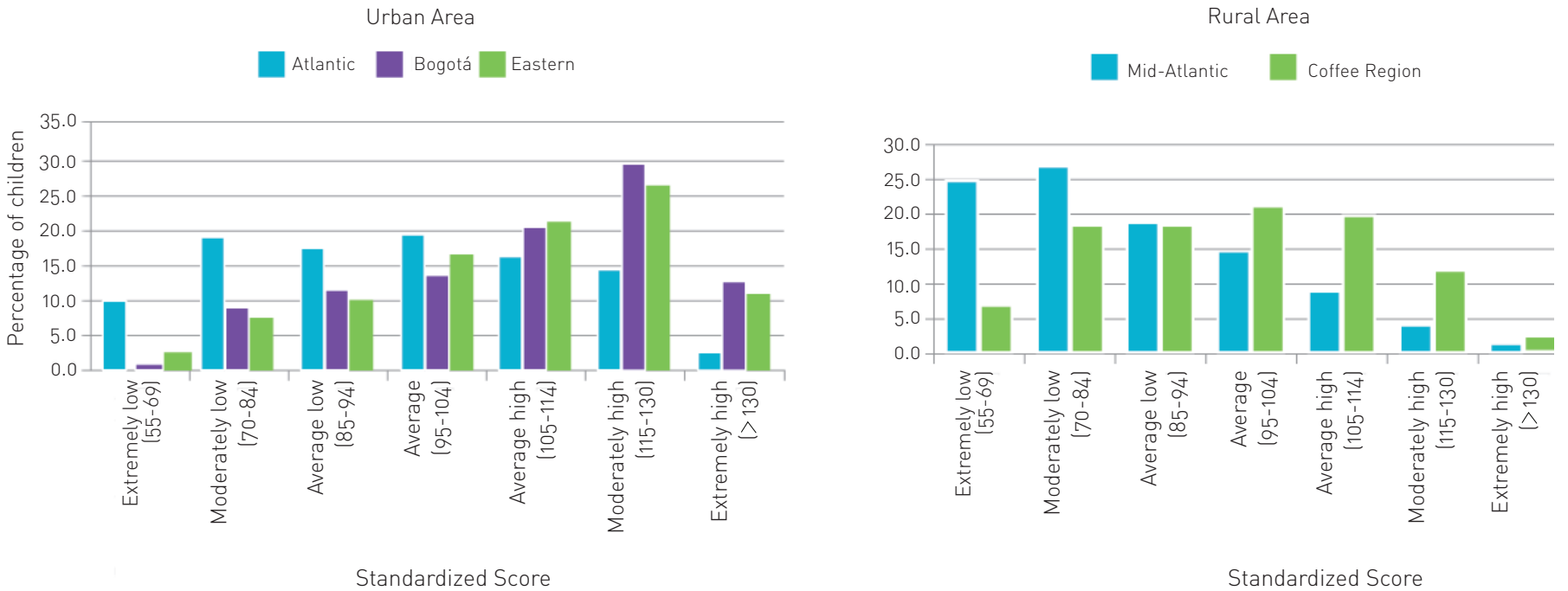
↑ In Santander, the Peña Rodriguez children: Kelly Johana, Andres Felipe Oviedo Peña and Luisa Fernanda.

Furthermore, large gaps between specific regions are evident in each area. In graph 6.2 we show PPVT scores for selected regions by area (urban in the left panel and rural in the right panel). Note that the rural Mid-Atlantic region has a distribution of child cognitive development scores to the left of the distribution of scores in the Coffee Region. That is to say, the scores in the Atlantic region are significantly lower than scores in the Coffee Region. Particularly, the average PPVT score in the first region is 83 (moderately low score), while the average in the second is 97 (average range). Something similar happens in urban areas, for which we show three regions: Atlantic, Bogotá, and Eastern. Note that the distribution of Bogotá is strictly to the right of the distribution of the Atlantic region, indicating much better outcomes for children in the former than in the latter.

In addition, it can be observed that the distribution of scores in the Atlantic region is to the left of the distribution of scores in the Eastern and Bogotá regions. That implies that children in the Atlantic region have significantly lower scores compared to other areas of the country, with an average of 95, compared with 110 in Bogotá and 109 in the Eastern region. In sum, there are significant disparities by area and by regions across the country.

In graph 6.3 we show standardized PPVT scores (Y axis) by child's age in months (X axis), and by area (rural in the left panel and urban in the right panel). In each panel, the three groups are split by household wealth, with the bottom line representing the poorest third and the top line representing the wealthiest third. Looking at the left panel of rural households, we can observe that scores at the age of 3 (36-months-old) for all three groups according to wealth (poorest, medium, and wealthiest) are almost identical at the level of 90, equivalent to an average low score.

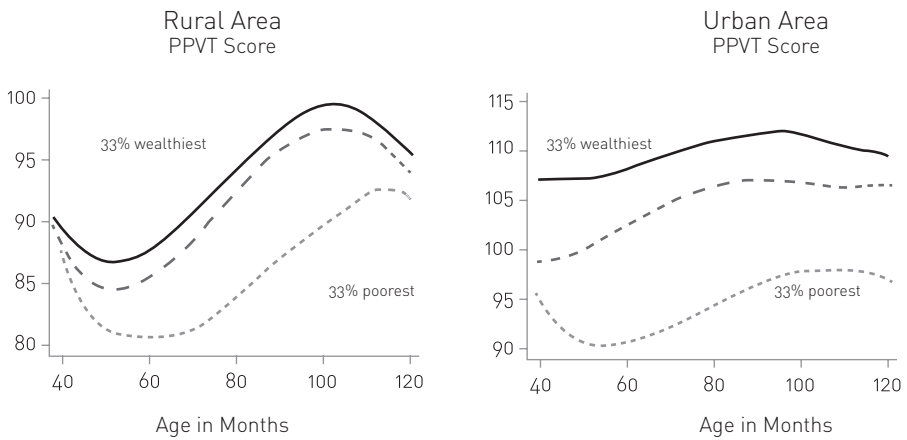
Graph 6.2.
PPVT Scores by Region



Source: Own calculations based on ELCA.

However, at the age of 5 (60-months-old), when children begin their formal primary education, a large dispersion in scores has already emerged between the poorest and the wealthiest. Just two years later, the children coming from the poorest households attain an average score of 80 (moderately low score), while the children in the wealthiest households reach levels close to 88 (average low scores). This implies that what happened in the course of two years between the ages of 3 and 5 was fundamental and generated a dramatic difference between the poorest and the wealthiest, a difference with which they begin their formal education process. As observed in the left panel of Graph 6.3, this gap is not closed during the observation period, even though it is mitigated when comparing the situation of 9-year-old children with 5-year-old children.

Graph 6.3.
PPVT Test by Level of Household Wealth



Source: Own calculations based on ELCA.

The diagnosis is even more critical when analyzing the situation of households in urban areas (right panel in Graph 6.3). In this case, the gap between the poorest and the wealthiest has already emerged as early as three years of age. By this time, children in the poorest third of Colombian households attain, on average, a score of 94 (low average), while the children in the wealthiest third score, on average, close to 108 (high average). Two years later, at the age of 5, this gap has widened, placing the poorest children on average scores of 90 and the wealthiest on average scores of 109. One possible explanation for this result is that formal childcare is more generalized in urban than rural areas. However, the quality of the different modalities of childcare for early childhood (before the age of 5) varies significantly across socioeconomic levels. The quality of childcare available to the lower socioeconomic levels may be significantly inferior than the quality of childcare available to the higher ones.

These results can be compared with the data reported by Schady (2010), which indicates that at the age of 5 the average PPVT score for the poorest quarter in Ecuador is 73.3, and the wealthiest is 94. Similarly, in Nicaragua, these scores correspond to 60 and 65, and in Peru to 66 and 105, respectively. Finally, in Mexico, the data for 4-year-old children indicates that the poorest third is placed at scores of 84, and the wealthiest at 93. Although not all country samples are nationally representative, and thus are not perfectly comparable, we observe worse performance of children in Nicaragua, while Colombia is similar to Ecuador and Peru. In addition, all countries show the same gradient with respect to the distribution of wealth.

In Colombia there is no other nationally representative survey with children's cognitive ability measures. Nevertheless, the results of ELCA can be compared with similar data available in the survey for the evaluation of early childhood program Hogares Comunitarios de Bienestar Familiar (see Bernal et al., 2009). This survey contains data representative of Hogares Comunitarios at the national level. In the same neighborhoods in the sample, information was collected for eligible children who were not beneficiaries of the Hogares Comunitiarios program. This means that the sample is not representative of any particular population (because it is representative of Hogares Comunitarios and not of children or households), but includes only children from SISBEN 1 and 2 households (SISBEN is the Spanish acronym for System for the Identification of Potential Beneficiaries of Social Programs, a system used to target social program in Colombia to the poorest households), because these are the neighborhoods where Hogares Comunitarios is located. Therefore, they are comparable only to households in the poorest quintile of ELCA.

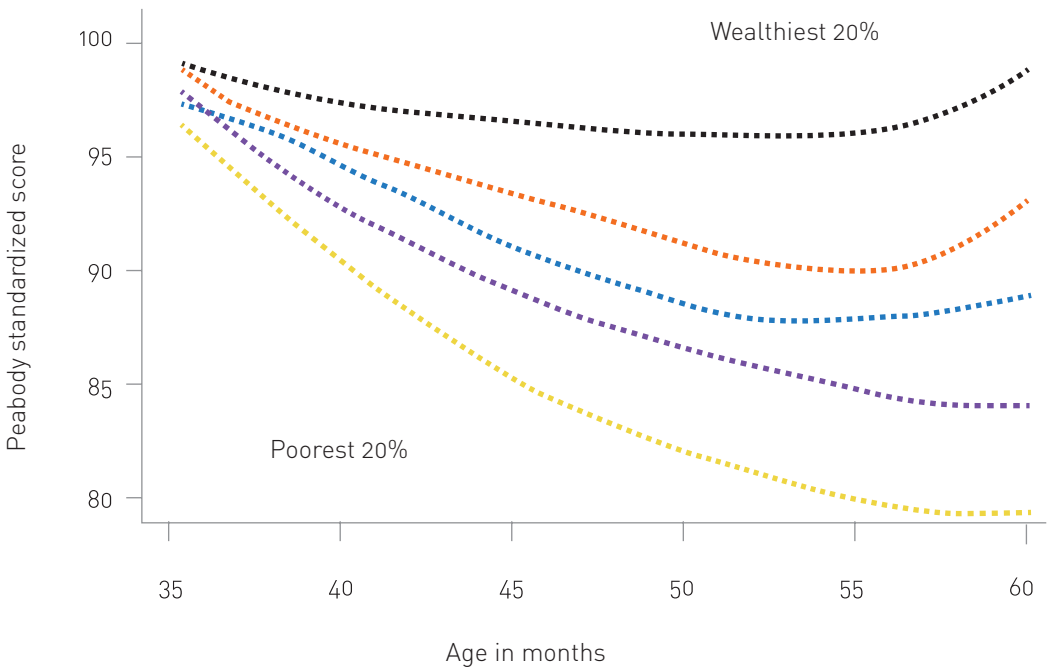
Table 6.3 and Graph 6.4 show this comparison. When contrasting standardized scores from both surveys (in the table), it becomes apparent that, on average, results are similar for the children in the evaluation of Hogares Comunitarios survey and children in the poorest quintile of ELCA. In addition, Graph 6.4 clearly replicates the observation that 3-year-old children preform equally, regardless of their income level, but the gap increases between the ages of 3 to 5.

Finally, Graph 6.5 shows the distributions of PPVT scores, by area, given mothers' educational level, which we classified as "High" if mother's schooling attainment is equal or greater than 9 years (sample mean), and "Low" if maternal schooling attainment is below this threshold. The left panel displays urban areas, while the right panel displays rural areas.

Table 6.3.
Comparison of Scores

	Hogares Comunitarios Sample	ELCA Poorest Quintile
PPVT Score	90,56	
Standard deviation	(15.56)	
Rural	88.27	83.73
Urban	91.37	92.18
Atlantic	87.61	87,32
Eastern	90.72	99,02
Bogotá	91.35	94,75
Central	89.62	94,24
Pacific	96.18	96,91

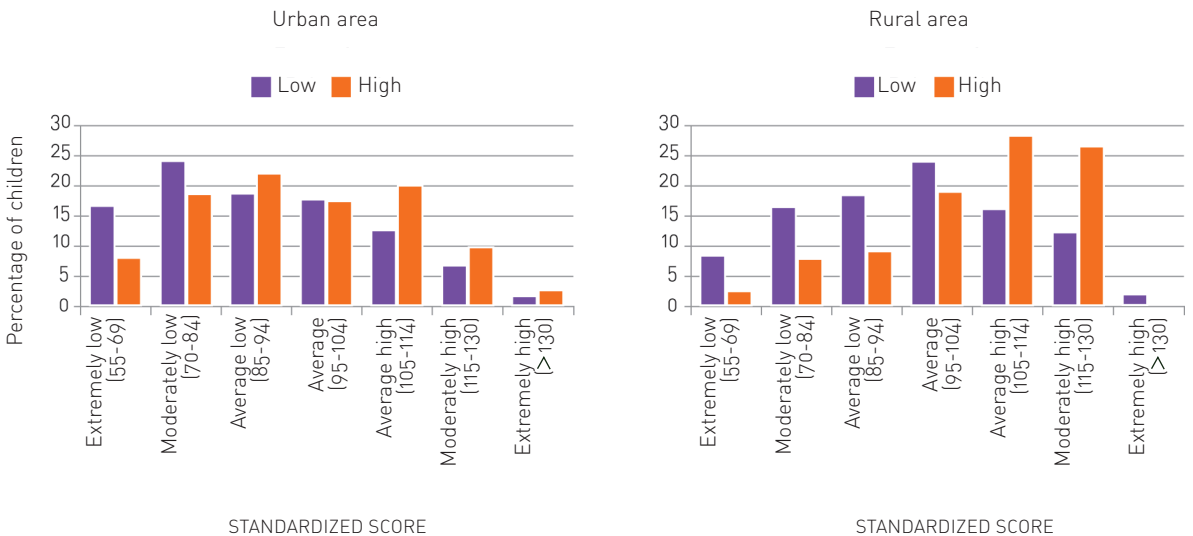
Graph 6.4.
PPVT Score in the Survey for the Evaluation of Hogares Comunitarios



Source: Own calculations based on ELCA and evaluation survey of Hogares Comunitarios early childhood program.

As expected, the mothers' educational attainment is highly correlated with the children's cognitive outcomes. In urban areas (left panel) the distribution of PPVT scores for children whose mothers have high schooling attainment is clearly to the right of the distribution of scores for children whose mothers have low education levels. In particular, the average score for children of more educated mothers is 107 (high average), compared to 96 (average) in the case of children with less educated mothers. In rural areas (right panel) the difference is less dramatic, but in the same direction, with scores of 95 (average) and 88 (low average), respectively. It is important to highlight that there are no observable differences between girls and boys in either of the areas.

Graph 6.5.
PPVT Score according by Maternal Schooling Attainment

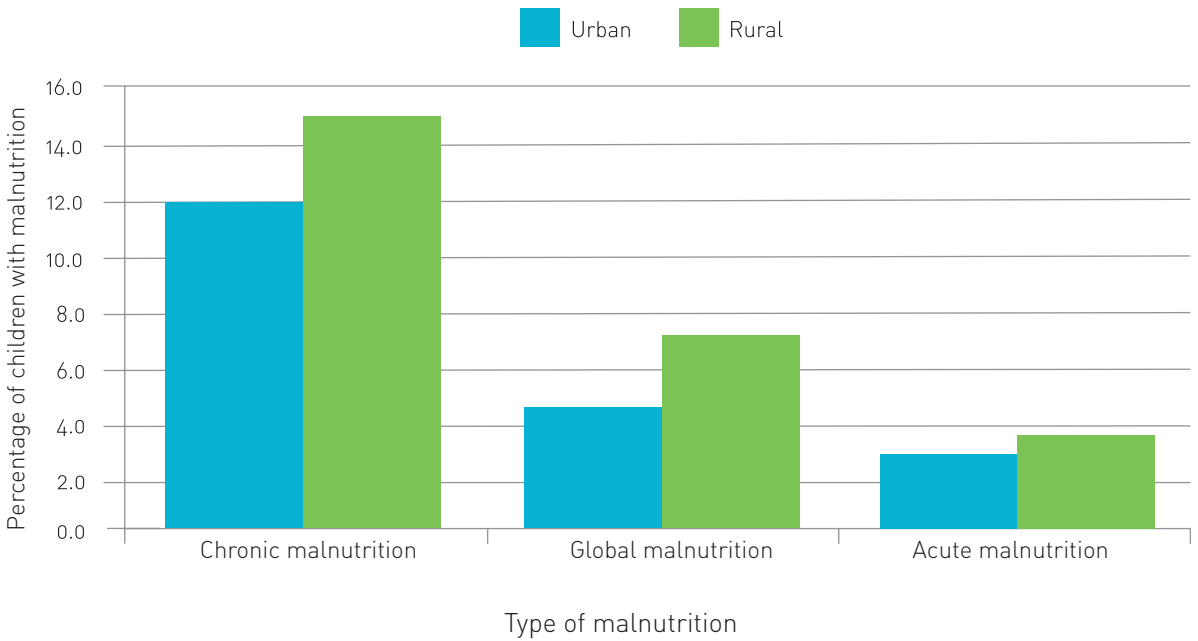


Source: Own calculations based on ELCA.

6.3 Children's Nutritional Status

Graph 6.6 displays malnutrition (chronic, global, and acute) levels for the group of children between the ages of 0 and 5 by area, according to the definitions presented in Table 6.1. The results indicate that the levels of malnutrition are higher in rural areas than in urban areas. In particular, urban areas show levels of chronic malnutrition of 12%, global malnutrition of 4.6%, and acute malnutrition of 3.2%, while in rural area these figures are 15%, 7.5% and 3.6 %, respectively.

Graph 6.6.
Malnutrition by Type and Area



Source: Own calculations based on ELCA.

Large differences are also observed by regions within each area. For example, the prevalence of chronic malnutrition in urban areas is 13% in the Atlantic region and 9.6% in the Pacific. It is interesting that Bogotá has the highest rates by region, with 15.3% incidence. As for acute malnutrition, the Central region exhibits the highest levels, close to 5.4%. In this case, Bogotá and the Eastern region have the lowest rates, close to 2%. In rural areas, the highest levels of prevalence of chronic malnutrition are found in the Cundiboyacense (20%) region, and the lowest in the Coffee and the Mid-Atlantic regions (13%). Something similar happens in the case of acute malnutrition.

For comparative purposes, Table 6.4 includes the levels of malnutrition by type, both rural and urban according to ELCA, in the left panel, and the national total[4], according to the National Demographic and Health Survey (DHS) in the right panel.

4. It is worth remembering that the ENDS (2005) is not representative of the Colombian households on a national level, but rather of the women of fertile age on a national level. This can explain some of the differences observed between the results of the two samples.

Table 6.4.
Comparison by source of the level of malnutrition

	ELCA		ENDS 2005
Malnutrition	Urban	Rural	Total
Chronic	12,1%	15,2%	12%
Global	4,6%	7,5%	5%
Acute	3,2%	3,6%	1%

Source: Own calculations based on ELCA and DHS (2005).

The results indicate that the prevalence of chronic and global malnutrition is similar in both data sources. The first is close to 12% and the second is around 5% (national total). However, the incidence of acute malnutrition is lower in the DHS (2005) compared to ELCA. Events with such low frequency are difficult to measure with precision: note, for example, that in urban areas the average of acute malnutrition, according to the ELCA, is 0.032 (children between the ages of 0 and 5) with a very high standard deviation of 0.17. This implies that data reported by ELCA and DHS (2005) are identical in statistical terms.

According to the data from the World Development Indicators (WDI), the average prevalence of chronic malnutrition in children between the ages of 0 and 5 in Latin America and the Caribbean was 15.94% in 2008. Meanwhile, the average prevalence of global malnutrition in the same year was 4.5%. This means that Colombia is below the regional average in terms of the measurements of height for age, but only below in rural areas, if malnutrition is considered in terms of weight for age. Furthermore, the same WDI data indicates that the prevalence of chronic malnutrition in children in the same age range in 2008 was only about 4%.

In Graph 6.7 we show the prevalence of chronic malnutrition (left panel) and acute (right panel), by area and household wealth quintile. In urban areas, the prevalence of chronic malnutrition is significantly higher among households in the lowest quintile of income, 16.3%, compared with 9.7% in the fourth quintile and 11% in the richest quintile. An interesting result suggested by this graph is that the prevalence of chronic malnutrition does not necessarily decrease monotonically along the income distribution. Note for example, that the levels for chronic malnutrition are higher in the richest quintile households than in households in the fourth quintile.

Acute malnutrition (right panel), does not monotonically decrease with household wealth in urban areas (for example, the third quintile exhibits high prevalence levels of acute malnutrition close to 4.2 %), but it is clear that the poorest quintile exhibits much higher levels (of 3.9%) than the wealthiest quintile (1.4%).

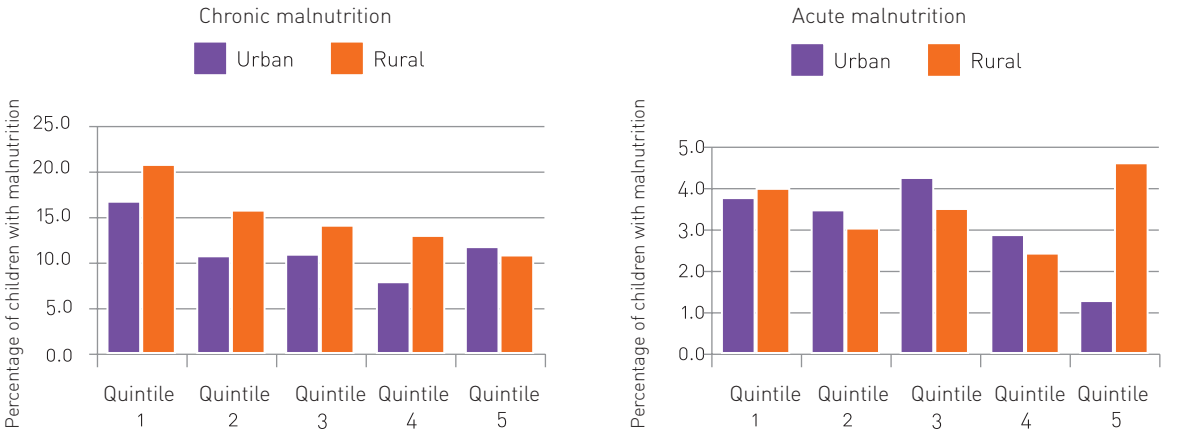
In rural areas, we can observe a downward trend in the prevalence of chronic malnutrition throughout the income distribution. While in the poorest quintile the fraction of children with chronic malnutrition exceeds 21%, in the wealthiest quintile it reaches 11.5%. The right panel shows that the trend for global malnutrition throughout the income distribution does not follow the expected decreasing pattern. In this case, households in the highest income quintile exhibit the highest prevalence levels of acute malnutrition, reaching 4.6% (again, it is important to remember that, since it is an event of very low prevalence in the population, it is difficult to detect levels accurately, being the standard deviation in this case close to 0.18). Finally, it is worth mentioning that similar patterns are observed regarding global malnutrition both in urban and rural areas.

↑ María del Rosario Causil with Santiago Franco, her grandson at her home in Ciénaga de Oro (Córdoba).

Graph 6.8 illustrates chronic (left) and acute (right) malnutrition by age groups. Children are divided into three age groups: children under the age of 1, children between the ages of 1 and 2, and finally, children between the ages of 2 and 5. The results indicate that the prevalence of chronic malnutrition in both urban and rural areas increases with the age of the child. In urban areas stunting reaches 10% in the case of children under the age of 1 and 12.4% in the case of children over the age of 2. Something similar happens in the case of rural areas. This is not surprising, given that height-for-age identifies lags in linear growth resulting from the cumulative effects of nutritional deprivation over time.

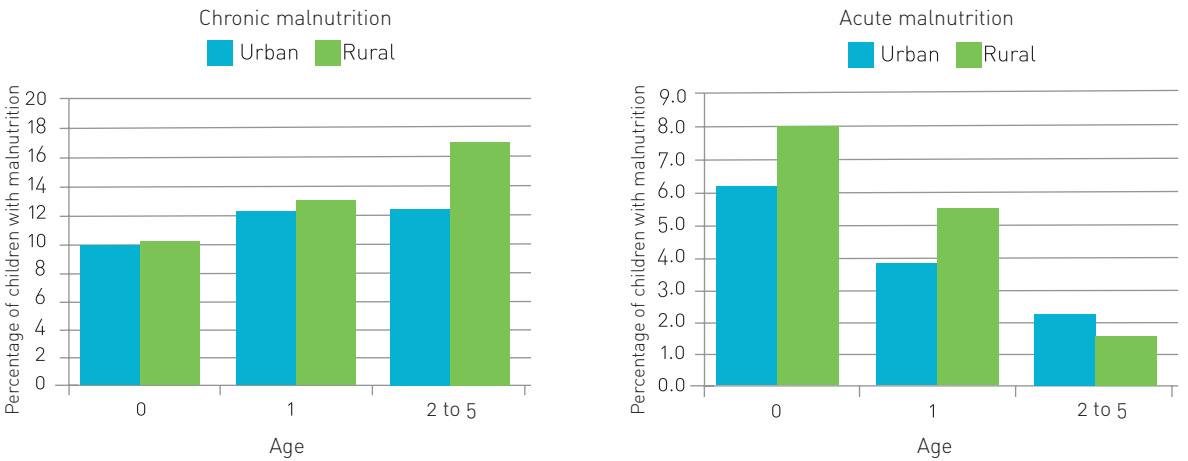
The inverse happens in the case of acute malnutrition. Weight-for-height identifies malnutrition due to deficiencies and is a significantly more sensitive indicator of habits, food intake, and recent illnesses. This reduction with child's age occurs in urban areas as well as in rural areas. The prevalence of acute malnutrition is close to 6% in urban areas among children under the age of 1, and decreases to 2.2% in the group of children between the ages of 2 and 5. In rural areas, this decline is of 8% in the first group, to 1.7% in the second. Something similar happens with the prevalence of global malnutrition, which decreases with the age of the child.

Graph 6.7.
Chronic Malnutrition and Acute Malnutrition by Area and Wealth Quintile



Source: Own calculations based on ELCA.

Graph 6.8.
Chronic and Acute Malnutrition by Area and Age

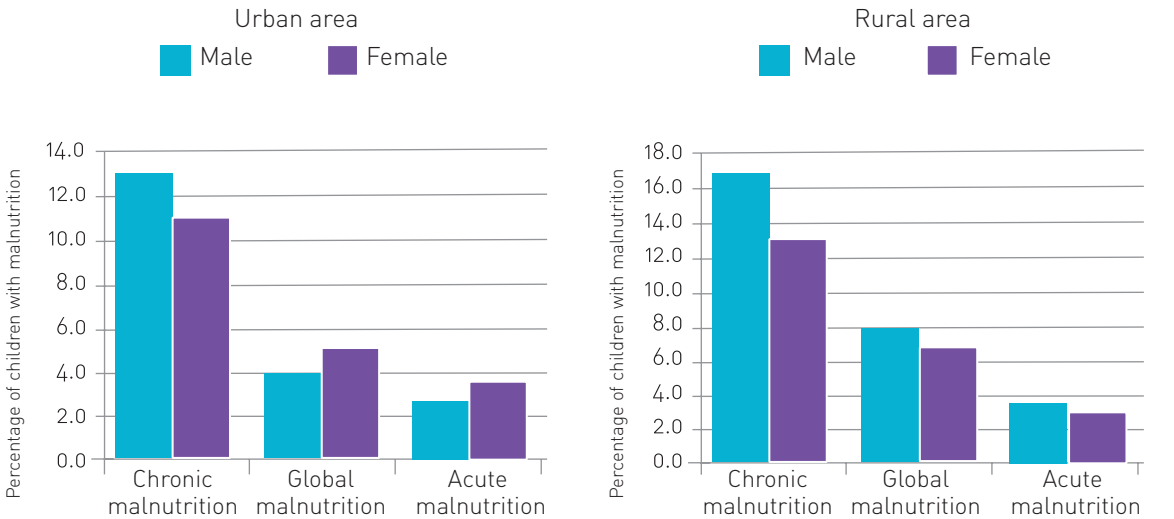


Source: Own calculations based on ELCA.

Finally, in Graph 6.9 we show the prevalence of the three types of malnutrition, according to child's sex and area of residence (urban to the left and rural to the right). In rural areas, the prevalence of the three types of malnutrition is higher among boys than girls. For example, the prevalence of chronic malnutrition is 17% for boys, while it is 13% for girls. Furthermore, in urban areas, the prevalence of chronic malnutrition is also higher among boys than girls (13% vs. 11%), but the reverse is true in the case of global malnutrition and acute malnutrition. Nevertheless, the differences in both indicators are quantitatively small.

↑ On this visit in Suba (Bogotá), psychologist Melina Santaella takes the measurements of Juan Pablo Restrepo (2 years, 8 months) in March 2010

Graph 6.9.
Malnutrition by area and gender of the child



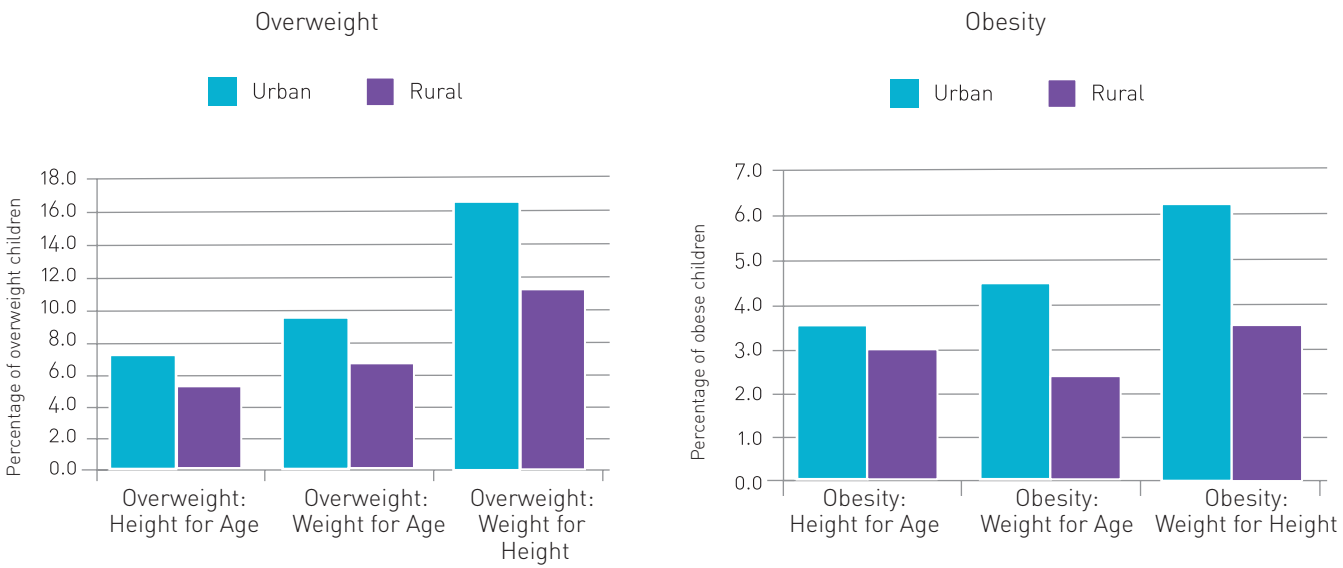
Source: Own calculations based on ELCA.

Overall there is a wide disparity between urban areas and rural areas in terms of children's nutritional status, with the prevalence rates of malnutrition being much higher in the latter. There is also a wide variation by region and an important correlation with socioeconomic status of households.

Graph 6.10 depicts overweight and obesity results according to different indicators of weight and height available in ELCA. The rates of overweight children under the age 5[5] in urban areas is between 6.7% and 15.5%, according to the height for age, weight for age, or weight for height indicator. In rural areas, the incidence of obesity is lower, being 11% the highest level according to the weight for height indicator.

5. Includes children up till 4-years and 11-months of age because this is the age range for which WHO standards exist.

Graph 6.10.
Overweight and obesity by area

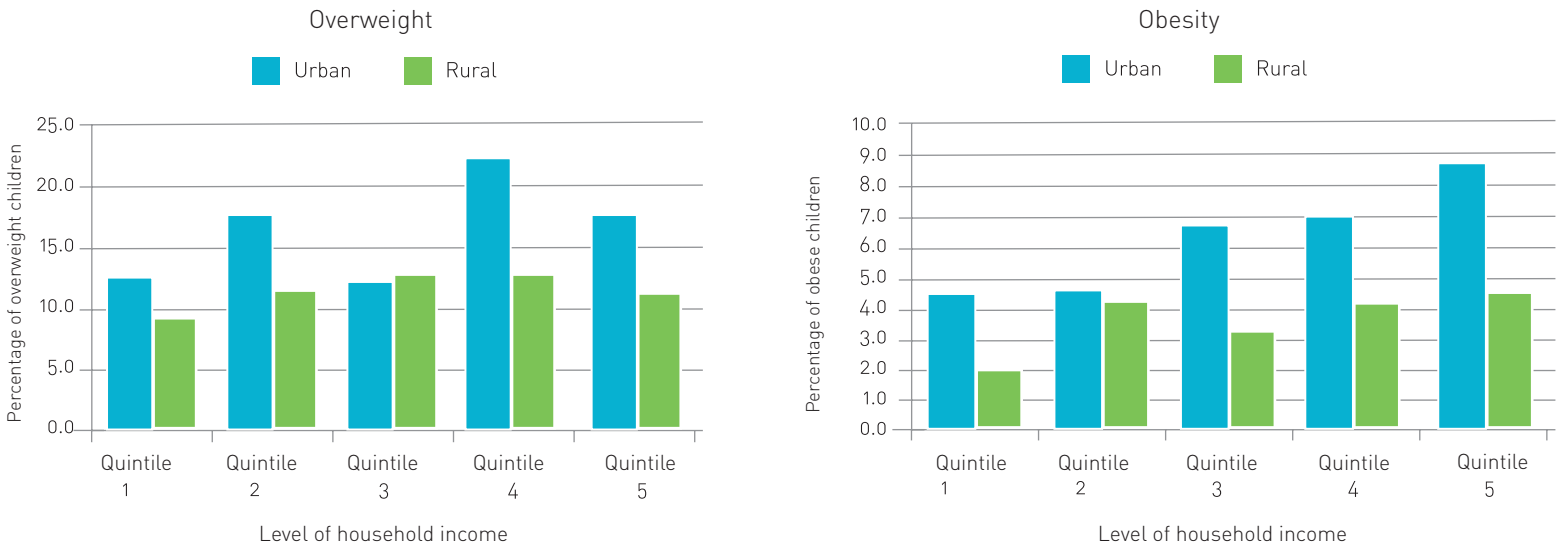


Source: Own calculations based on ELCA.

The prevalence levels of obesity are displayed in the right panel. The results indicate that obesity is more prevalent in urban than in rural areas. Obesity does not exceed 3.5% in the latter, while it reaches 6% in the former.

An interesting result shown in Graph 6.11 is the prevalence of overweight and obesity by household wealth. The prevalence of overweight is presented in the left panel, and in the right panel, the prevalence of obesity. In both cases the indicator of weight for height is used. Note that the fraction of obese children tends to increase with household wealth in urban areas. In particular, in urban areas the prevalence of obesity among the wealthiest is 8.6% and 4.5% in the case of the poorest households. That is, practically twice as much among the wealthiest. In rural areas something similar happens, although the pattern is less clear, it is also observed that the prevalence of obesity among the richest quintile is greater (4.2%) than among the poorest quintile (2.1%). In the case of the prevalence of overweight, the relation with the level of household wealth is less clear. However, it is observed that in urban areas the prevalence of overweight according to weight for height is higher in the top two quintiles of the wealth distribution, with respect to households in the three lowest wealth quintiles. For example, the incidence of overweight in the lowest quintile is 13%, whereas it is 21% in the fourth quintile and 19% in the highest quintile.

Graph 6.11.
Overweight and Obesity by Level of Household Wealth



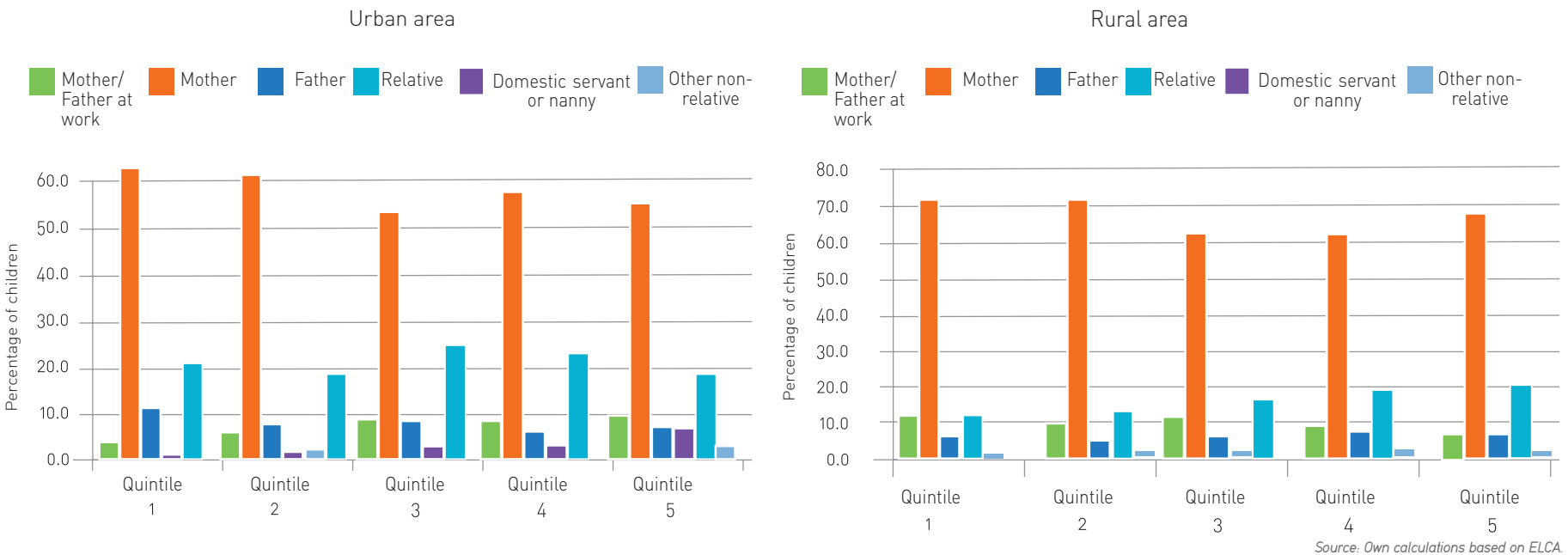
Source: Own calculations based on ELCA.

This might be attributed to children's diets being less balanced in households that have more resources for sweets, chocolates, snacks, and other foods that are not as nutritious, and that many children from the wealthiest households have working mothers and, consequently, other people who do not necessarily have the same education level as the mother or the same concern for the child's nutritional status are in the charge of their diets.

6.4. Childcare in Colombia

In Graph 6.12 we show the distribution of children under the age of 5, according to their primary caregiver, by household wealth. The left panel shows urban areas and the right panel shows rural areas. Possible caregivers included in the question are: mother, aunt/uncle, grandmother/grandfather, another non-relative, and a domestic employee (which in urban areas includes a nanny).

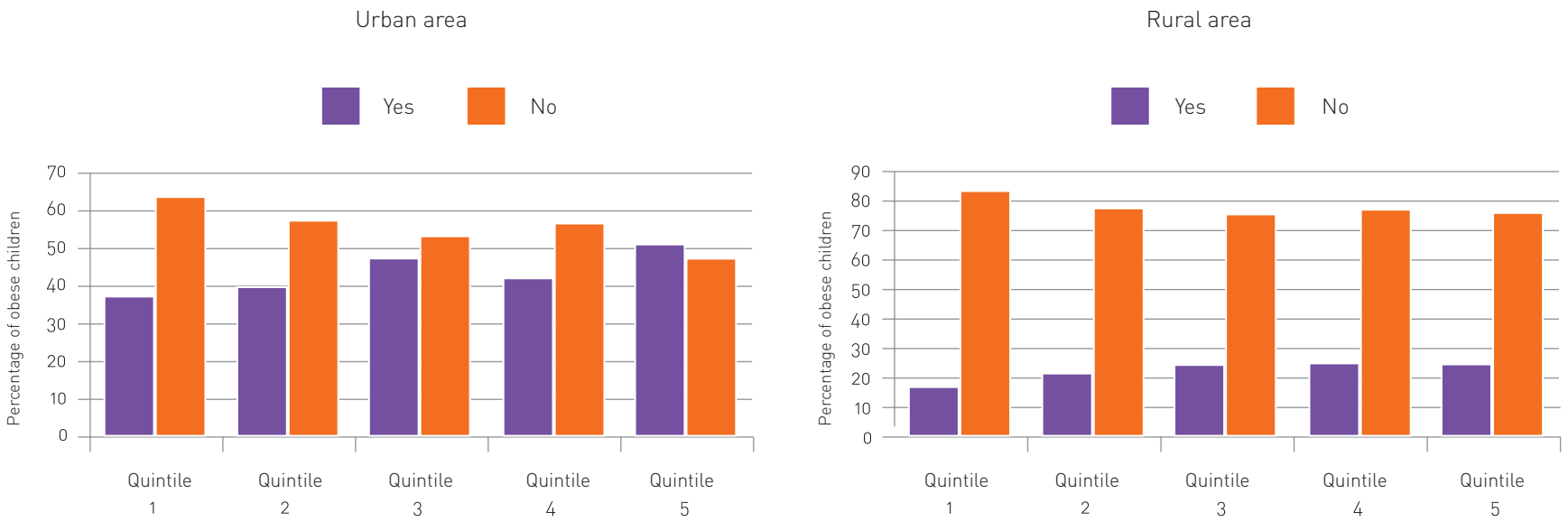
Graph 6.12.
Childcare during Early Childhood by Wealth Quintile



Source: Own calculations based on ELCA.

The first aspect that is important to highlight is that mothers appear to be the most frequent primary caregiver in both urban and rural areas. However, this fraction decreases with household income, and this is probably due to the fact that women with higher schooling attainment are more likely to work in the labor market. In addition, as household wealth increases, we observe an increase in the fraction of children being taken care of by other relatives. In the case of the wealthiest quintile, other relatives are a smaller proportion of caregivers and there is a significantly higher fraction of domestic employees and nannies taking care of children with respect to poorer households. For example, 1% of children in the second wealth quintile are taken care of by nannies or domestic employees, while 7% are among the wealthiest households.

Graph 6.13.
Attendance to Childcare Facility by Area



Source: Own calculations based on ELCA..

Finally, in Graph 6.13 we show the fraction of children under the age of 5 that attend a childcare center during weekdays. (Included options are: Hogares Comunitarios de Bienestar, daycare, or preschool)

We observe that in urban areas child care use is significantly more prevalent in urban areas than in rural areas (43% vs. 21%). This could, in turn, explain the differences in cognitive development according to income level observed at the age of 3 in urban areas (see Graph 6.3). Most children who report attending some childcare center are taken care of by a family member in their own home after school.

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↑ José Cidelio Quevedo lives in the village of La Española (Quindío), where he grows blackberries and breeds chickens

↑ Octavio Ballesteros lives in Susa (Boyacá) where he grows corn. His eldest son, Rodrigo, works in nearby farms.

Chapter 7
Land Markets and Land Tenure in Rural Areas

Juliana Helo
Ana María Ibáñez

↑ Carlos Garcia and Delfina Segura selling fruit in the wholesale market Corabastos in Bogotá. They live in the Patio Bonito neighborhood.

7.1. Introduction

→Access to land, the main productive asset for the rural population, is an important determinant of households' income and welfare. Rural land concentration and informality of property rights played a dominant role in conflicts at the beginning of the 20th century, and much of the current violence has been triggered by illegal land seizure. Although high land concentration, informality of property rights, and the role of land in Colombia's conflict have been recurrently mentioned in academic research, available statistical information is scarce. The Colombian Longitudinal Survey by Universidad de los Andes, (ELCA, acronym for its name in Spanish) collects information on land tenure, land markets and agricultural and livestock production. The purpose of collecting this information is to offer rigorous empirical evidence that will contribute to public policy debates, which will contribute to design sound public policies. This chapter explores the main results from the ELCA baseline for land markets and property rights of rural land.

This chapter analyzes the dynamics of rural land markets and land tenure in rural areas. A dynamic rural land market is essential for increasing agricultural efficiency. Dynamic land markets with low transactional costs are necessary for transferring lands from owners with few agricultural skills, or no interest in exploiting the land, to more efficient people. However, market imperfections prevent land from being effectively allocated to more efficient producers. Specifically, the price of land is higher than its production value, given that its value reflects more than the return of agricultural production. Tax evasion, protection against inflation and speculation, and its use as collateral in credit applications are some of the additional roles played by land. Given that the price of land is higher than its production value, access to the land is difficult for the low-income rural population.

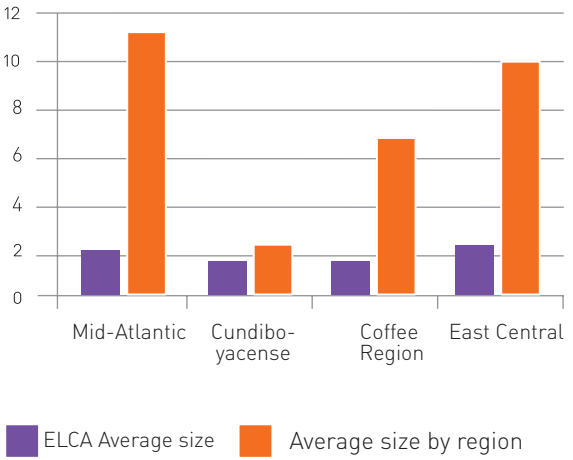
The chapter also explores the magnitude of informal property of rural land and its possible economic consequences. Informal property rights may generate inefficiencies since they may imply future land expropriation or seizure. First, informality generates uncertainty on whether households will reap up the returns over their investments. Therefore, households reduce investment in productive activities or invest in lower-risk activities that generate a lower return. Second, households may redirect productive investments towards the protection of their property rights, expecting to avoid future land seizure. Third, insecure property rights, and the ensuing lack of collateral, limits the access to formal financial markets (Besley and Ghatak, 2010). Finally, insecure property rights increase land disputes and facilitate land seizure by armed groups.

7.2. Land Markets and the Productive Use of Land

Before examining land markets and land tenure in the rural ELCA regions, we provide a short description of the national context. In 2010, the number of hectares under private property and dedicated for agricultural production in Colombia reached 39.2 million hectares, which represents 31% of the national territory. Property structure is concentrated in large and mid-size properties: 42% of this area corresponds to properties of more than 200 hectares, 40% to mid-size properties ranging between 20 and 200 hectares, while 18% corresponds to properties under 20 hectares. Regardless of the fact that land distribution is concentrated in large and mid-size properties, the bulk of landowners are small landowners. The mean land plot in Colombia is 16.11 hectares, and in 2009 the Gini index of land concentration reached 0.863. The high concentration of land adds to property right uncertainty in some regions of the country. An approximate measure of informality of rural property rights, based on cadastral data, indicates that 18.3% of rural plots seem to be under informal property agreements[1].

ELCA is applied to small rural landowners who live on their land plot. Graph 7.1 compares the mean size of land plots for ELCA households with the mean size for ELCA regions. In the Mid-Atlantic, Coffee and East Central regions, both small and large properties exist. The mean size of plots belonging to ELCA households ranges between 1.84 (Cundiboyacense) and 2.13 hectares (Mid-Atlantic), while the mean size for those regions ranges between 11.1 (Mid-Atlantic) and 7.1 hectares (Coffee Region). The coincidence in average size for the ELCA properties and the Cundiboyacense region indicates a predominance of small farmers in this region.

Graph 7.1.
Average Plot Size by Region and ELCA



Source: Own calculations based on the Great Rural Property Atlas (2011) and ELCA.

1. Property informality is calculated based on property value information from the Agustín Codazzi Geographic Institute (IGAC, for its acronym in Spanish). The IGAC collects information from the land title registration number for each plot. It is assumed that any plot without a land title registration number has informal property rights.

Table 7.1 depicts concentration and informal land tenure. Although land concentration in the four regions is lower than in the rest of the country, Gini indexes are high except for the Cundiboyacense region, which exhibits a relatively equal distribution in contrast with the rest of the country. Informal property percentages are below the national level for three of the regions, and above in the East Central region, where it reaches 19.2%.

↑ María Abigail Solano and grandaughter Mayerli. Simijaca (Cundinamarca).

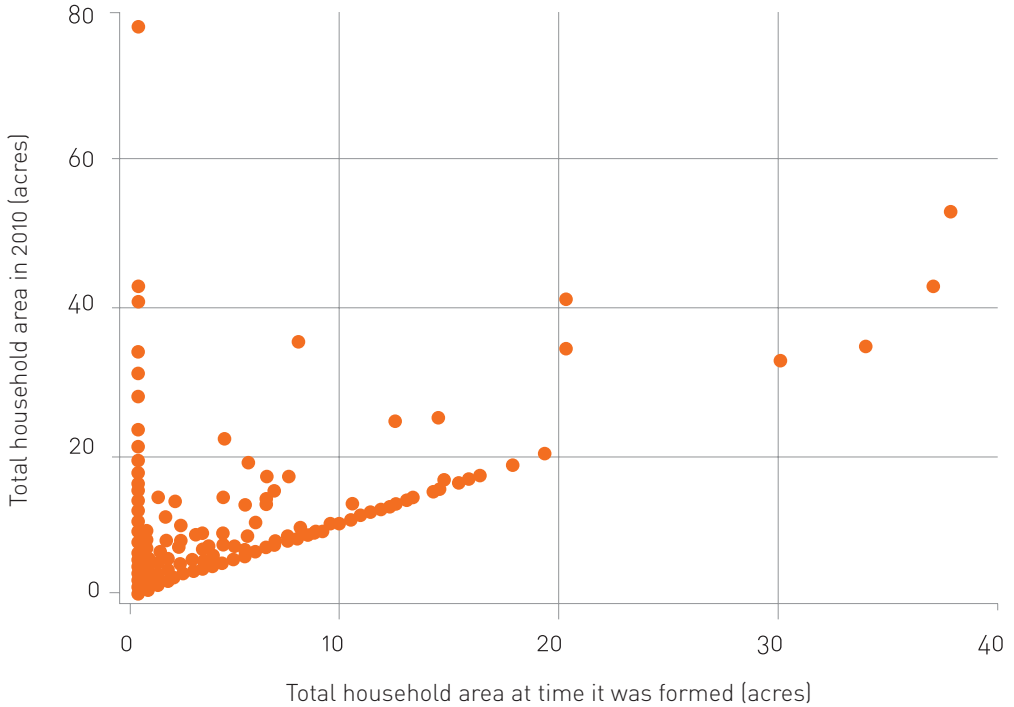
Table 7.1.
Plot Size, Concentration and Informality

Variable	Mid-Atlantic	Cundiboyacense	Coffee Region	East-Central
Mean plot size (hectares)	11.1	2.49	7.09	10.1
Gini Index	0.72	0.55	0.67	0.74
Informality index - % of rural plots	7.9%	4.3%	6.1%	19.2%

Source: Own calculations based on the Rural Property Atlas (2011).

High concentration and informality of land tenure does not appear to be a large obstacle for dynamic land markets in ELCA regions. In order to measure household mobility and access to land markets, the survey collects information on land tenure of the household at the time of its formation and in the year 2010. The acquisition and expansion of plots is depicted in Graph 7.2. The graph illustrates the dynamics of land markets in rural areas: 72.1% of households acquired lands after their formation, while 27.9% already had land at the time the household was formed. Of the latter, 77.8% increased their amount of land after the household was formed, 22% remained with the same amount of land, and none reduced their amount of land. However, very few households gained access to mid-size properties, those between 20 and 200 hectares. The acquisition of land mostly refers to plots of less than 20 hectares. Other households with mid-size properties already had them by the time the household was formed.

Graph 7.2.
Evolution of Household Plot Size



Source: Own calculations based on ELCA

Land was mainly acquired through a direct sale (46.3%) or through inheritance (45.3%). Agrarian reform programs or other land allocation programs in ELCA regions are limited: only 3.4% of households had access to land through these mechanisms. The dynamics of land markets vary from one region to another. Direct sales are more frequent in the Cundiboyacense region, where 61.2% of the households bought their land directly, while the Mid-Atlantic region is less dynamic, with one of every two households acquiring their land through an inheritance.

Table 7.2 shows land market dynamics for the ELCA rural districts (veredas). In all four ELCA regions, we observe that land is becoming smaller due to divisions and inheritance processes. In slightly more than 56.1% of the districts, the plot size is smaller compared to the situation ten years ago. This reduction is more frequently reported in districts in the Coffee Region (68.8%).

As in the case of household data, responses to the community survey indicate that rural land markets are dynamic. More than half of the districts report that the sale of lands is equal to or greater than what it was ten years ago. The Coffee Region is particularly dynamic: 43.9% of rural districts report a higher level of sales than ten years ago. The East Central region exhibits a relatively static land market structure: 15.9% of districts consider that more lands are sold today than ten years ago. Although markets are dynamic, they seem to be segmented; that is, transactions are performed between small landowners or large landowners, but few transactions are carried out between both groups. Close to 65% of the sales are carried out between small landowners, either between residents of the same district or from other places. However, this pattern is not perceived in the Mid-Atlantic region, where large landowners from other districts are the main buyers in 75% of rural districts.

Table 7.2.
District Land Market Dynamics

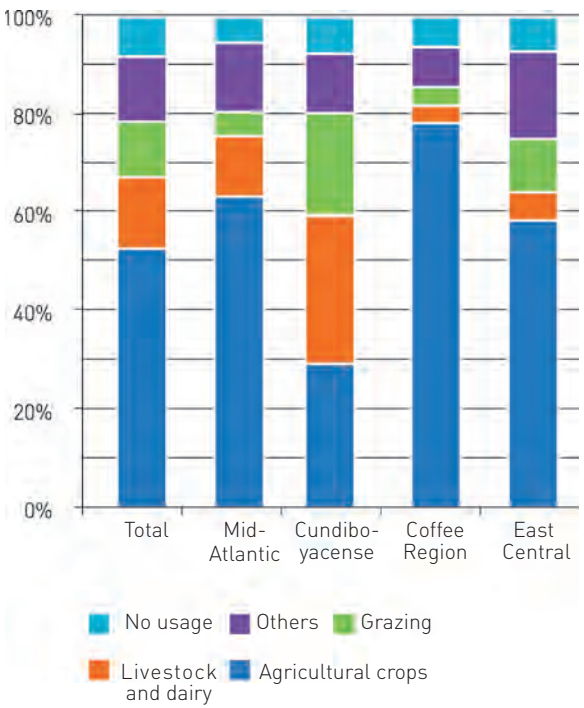
Variable	Total	Mid-Atlantic	Cundiboyacense	Coffee Region	East-Central
Land plot size today and 10 years ago					
Larger today	9.8%	16.1%	4.2%	10.5%	6.8%
Smaller today	56.1%	48.2%	68.8%	50.9%	59.1%
Same as today	34.2%	35.7%	27.1%	38.6%	34.1%
Land sale today and 10 years ago					
More sales	26.8%	26.8%	16.7%	43.9%	15.9%
Same	27.8%	16.1%	31.3%	14.0%	56.8%
Less sales	45.4%	57.1%	52.1%	42.1%	27.3%
Land buyers					
Small landowners – District	31.7%	5.4%	37.5%	14.0%	81.8%
Large landowners – District	6.8%	3.6%	2.1%	15.8%	4.6%
Small landowners – other districts	32.7%	16.1%	37.5%	59.7%	13.6%
Large landowners – other districts	28.8%	75.0%	22.9%	10.5%	0.0%

Source: Own calculations based on ELCA

↑ Wholesale Market Armenia (Quindío)

The different uses of land in productive activities are depicted in Graph 7.3. Producers from the ELCA regions mainly dedicate land to agricultural and livestock production, 53.7% of the plot is assigned to agricultural activities, 13.1% to livestock or dairy production, 10.7% to grazing and 7% remains unexploited. Livestock or dairy production is more common in the Cundiboyacense region due to the recent transition of producers from agricultural activities to that sort of production. Price variations of agricultural products, declining land quality, and the high cost of agricultural inputs have reduced returns from agricultural production in the region, while the option of receiving a daily and steady income increased the attractiveness of livestock and dairy production (Arias et al, 2010).

Graph 7.3.
Use of the Land according to Productive Activities



Source: Own calculations based on ELCA

7.3. Land Tenure: Ownership Structure

The informality of property rights in Colombia has been widely discussed, yet statistical evidence has been scarce. ELCA designed a new module with the objective of measuring informality of property rights, understanding some of its causes and identifying its economic impact. The module also collects information on rent contracts. This section describes baseline results and explores some possible economic consequences.

We can construct two informality measures from the survey. First, one measure uses information on informality elicited directly from landowners. Second, a detailed set of questions is included that allows us to identify if in fact landowners are governed by formal agreements. In order to do this, we inquire if households comply with the necessary requirements to hold a formal property title: 1) a document of public record, a court decision on land allocation or a state resolution in case the individual is a beneficiary of an allocation of lands public program; and 2) a certificate issued by the Public Instruments Record Office.

Results indicate that a large percentage of households ignore the fact that informal property rights govern their lands (Table 7.3). Close to 65.8% of the households identify themselves as the formal owners of their land, while only 39.9% are indeed formal owners. This implies that one fourth of the households hold informal property rights over their lands and ignore this fact. Total informality ascends to 32.8%. Slightly more than one fourth of the households are tenants[2], of which half are beneficial owners or hold the land under pawn, antichresis or loan of use, and 28.2% are renters or sharecroppers. Informality is not limited to ownership. Since 92.8% of households renting land lack a formal contract, returns and investments for renters and sharecroppers is highly uncertain.

Access to land is heterogeneous across regions. The Mid-Atlantic region reports the higher informality measures, while in the Cundiboyacense region formal ownership is very common (64.4%). There is a high degree of unaware informality in the Mid-Atlantic and East-Central regions: 30.6 and 37.8% respectively. Although a large percentage of households are unaware of being governed by informal property rights, the survey explores, from households aware of their informality, the reasons for not formalizing property rights. Lack of resources (40.7%), perception that formal property rights are not relevant (21.5%) and lack of knowledge or information (10.3%) are the main reasons mentioned. The reasons for informality vary across regions. In the Mid-Atlantic region owning formal property rights is not perceived as important. This is surprising given the region's violent past and its history of illegal land seizures. On the other hand, in the East-Central region, one of every two households mentions lack of resources needed for the formalization of property titles.

2. Tenants include households with access to the land but without an informal or formal property right that proves ownership; for example lessees, sharecroppers, beneficial owners, etcetera.

Table 7.3.
Access to Land and Property Rights

Variable	Total	Mid-Atlantic	Cundiboya-cense	Coffee Region	East-Central
Type of possession					
Formal ownership	39.9%	27.0%	64.4%	48.0%	32.0%
Informal ownership (unaware)	25.9%	30.6%	8.7%	14.8%	37.8%
Informal ownership (self-reported)	6.9%	6.6%	7.9%	5.0%	7.0%
Landholders	27.3%	35.8%	19.0%	32.1%	23.2%
Type of access for landholders					
Rent	20.9%	16.4%	26.5%	12.6%	27.2%
Sharecrop	7.2%	8.2%	4.2%	10.2%	6.7%
Beneficial owners, pawn, anthicresis or loan of use	51.7%	59.8%	39.9%	63.7%	42.8%
Possession/Occupation	1.5%	1.2%	1.3%	0.9%	2.4%
Non legalized inheritance	15.5%	10.8%	26.3%	6.0%	19.0%
Others	3.1%	3.6%	1.8%	6.7%	1.9%
Type of contract for landholders					
Formal	7.2%	3.3%	14.0%	9.3%	8.1%
Informal	92.8%	96.7%	86.0%	90.7%	91.9%

Source: Own calculations based on ELCA.

↑ Agricultural production in rural Colombia

Institutional weakness, historical dynamics, armed conflict and high transaction costs are local and national factors that determine high informality of property rights. Nonetheless, budget constraints, preferences and asset ownership may also influ ence a household's decision to remain with infor-mal property rights.

An initial approach to understanding the characteristics of formal landowners is depicted in Graph 7.4, which illustrates the percentage of formal owners by wealth quintile. As expected, formal ownership increases in the higher quintiles. The percentage of households with formal ownership is slightly less than 30% in the first quintile, while for the fifth quintile this percentage increases to 46.4%. A word of caution is important. This graph does not pretend to establish a causal relationship between wealth and formality. It might well be the case that wealthier households formalize property rights more frequently or that the formalization of property could contribute to an increase in wealth.

Graph 7.4.
Land Formality and Wealth Quintiles

Source: Own calculations based on ELCA

7.4. Possible Consequences of Informality: Credit, Investment, Land Production, and Disputes

This section explores the differences in the amount of time dedicated to agricultural and livestock production, access to financial markets and investment for formal and informal owners. This first exploration allows us to understand the potential impact of informality on households' agricultural production. The analysis concentrates on aware informal owners, since a high percentage of households ignore the fact that they are informal owners and do not modify their behavior in order to reduce the risks associated with informality of property rights.

Time use and access to formal labor market of household heads are presented in Table 7.4. Household heads that formally own their land, invest more time cultivating their lands than informal owners or landholders. For example, household heads that formally own their land spend 26.1% of their time carrying out farming activities, while informal owners and tenants dedicate 18.3% and 18.4% respectively. Furthermore, tenants and informal owners spend a greater portion of their time working other people's lands. Informal owners and tenants tend to work outside the household as day laborers for other farmers in the region. Close to one third of informal owners and tenants are formally employed.

Table 7.4.
Time Use and Formal Labor Markets: Formal Owners, Informal Self-Reported Owners and Landholders

Variables	Legal owners	Informal self-reported owners	Tenants
% Of time spent by head of household in			
Agricultural on-farm activities	26.1% (26.2%)	18.3% (23.3%)	18.4% (24.1%)
Non agricultural on-farm activities	3.0% (11.0%)	3.5% (11.8%)	2.6% (10.6%)
Agricultural off-farm activitiess	9.1% (19.3%)	16.5% (23.7%)	21.6% (26.1%)
Non agricultural off-farm activities	3.2% (12.5%)	3.7% (13.2%)	3.7% (13.5%)
Formal labor markets			
Wage-earning job in the last 12 months	19.9%	34.8%	33.6%
Worked as a day laborer in the last 12 months	34.3%	51.4%	51.9%
Searched for a job in the last 12 months	15.9%	19.6%	21.5%

Source: Own calculations based on ELCA.

Aside from allocating more time to working their lands, formal owners have better access to formal credits markets and invest more in their land plots. ELCA data indicates that potential and real access to credit for productive activities differs between the three groups of households. Formal owners frequently apply for loans (23.9%), and their approval rate is relatively high (92.9%). Credit applications for informal owners and tenants are 14% and 11% respectively, while the approval rate is 74.1% and 82%.

Investment in land plots is low for rural households in the ELCA regions. In addition, investment is even lower for households with informal property rights. Table 7.5 shows investment levels and the reasons for not investing for all three groups of households. Slightly less than 30% of the households that formally own their land invest in their plots of land, while the percentage ranges between 15% and 20% for tenants and informal owners. Because informality of property rights increases the uncertainty on the short and long-term returns on investment, informal owners and tenants may invest less. However, it seems paradoxical that formal owners are more unsatisfied with the amount invested in their

lands. Therefore, regardless of the fact that there is a greater proportion of investment by formal owners, the budget constraints, the lack of resources, and the limited access to credit prevent them from investing the optimum amount. The lack of resources is also the main cause why informal owners and tenants invest less, yet the second cause is the uncertainty on property rights (7.8%) for informal owners, and for tenants, the restrictions imposed by landowners.

Table 7.5.

Investment in Land: Legal Owners, Self-Reported Informal Owners and Landholders

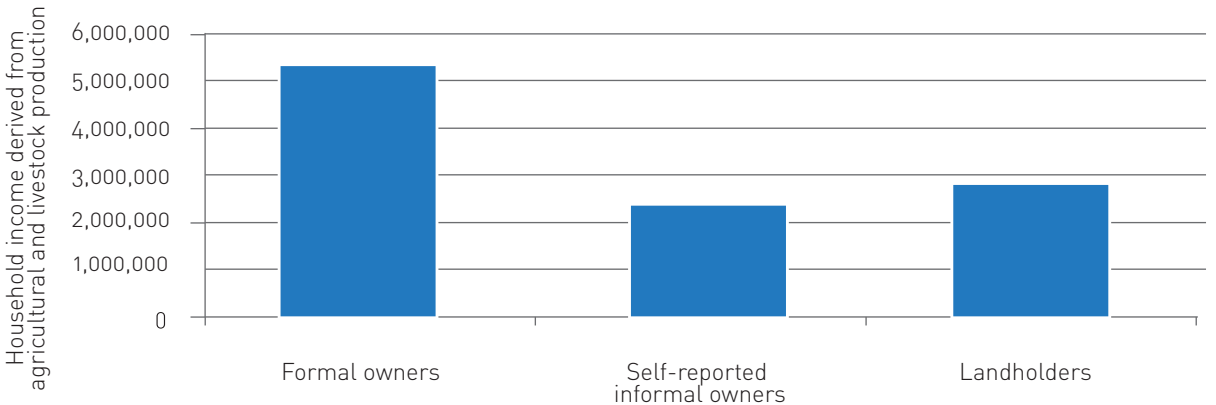
Variables	Legal owners	Self-reported informal owners	Tenants
Did not invest	71.6%	81.4%	85.2%
Considers investment to be enough	59.9%	68.2%	80.4%
Reasons not to invest more			
Lack of resources	96.9%	93.8%	92.2%
Uncertainty about land property	0.4%	7.8%	4.9%
Bad land quality and/or water shortages	3.3%	0.0%	2.5%
Restricted access to credits	9.4%	6.9%	1.2%
Investments are restricted by the owners	0.2%	3.2%	5.8%
Other reasons	2.5%	1.6%	2.2%

Source: Own calculations based on ELCA

The results presented above indicate that, in contrast with informal owners and landholders, formal owners dedicate more time to working their land, applying for and receiving more credit, and proportionately investing more in their land. This may imply that formal owners earn a higher agricultural and livestock income, and therefore have a slightly higher level of consumption. Graph 7.5 and Graph 7.6 compare annual agricultural and livestock incomes for the three types of households. Formal owners earn income from agricultural and livestock production at a rate of 2.1 and 1.9 times more than that of informal owners or tenants respectively. Higher income translates into higher household consumption. Graph 7.6 shows that annual consumption of formal landowners is 1.2 times greater than that of informal or tenant households. However, we cannot infer from these graphs a causal relation. ELCA data suggests a correlation between formal property rights and a better economic performance, but this is not sufficient to determine if formal land ownership is the source of higher incomes or if higher incomes are source of formal land ownership.

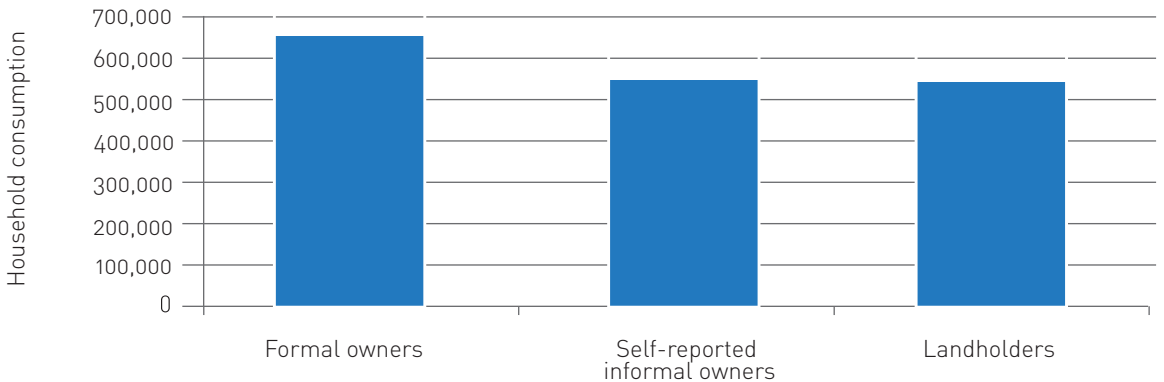
Graph 7.5.

Agricultural and Livestock Income: Legal Owners, Self-Reported Informal Owners and Tenants (COP$)



Source: Own calculations based on ELCA.

Graph 7.6.
Household Consumption: Legal Owners, Self-Reported Informal Owners and Tenants (COP$)



Source: Own calculations based on ELCA.

The incidence of disputes and conflicts regarding land ownership is also a consequence of informal property rights. With the objective of exploring the incidence of land disputes and the resolution mechanisms adopted by communities, ELCA includes a land dispute module on the community and household questionnaires.

Table 7.6 presents the type, duration, and resolution of land disputes. Land disputes in ELCA communities are not frequent: on average 1.23 disputes occurred in the last five years. The main causes for these disputes were uncertainty over property rights and debt defaults. This pattern is repeated in all four regions covered by the survey, however two interesting issues arise. First, issues related to land leases in the Coffee and the East-Central regions frequently caused land disputes. Second, illegal land seizure is frequently reported in the Coffee Region, while the Mid-Atlantic and East Central regions do not report any incidents of land seizure. This result is surprising, as during the last two decades both regions have suffered from forced displacement and illegal land seizure. It is however possible that in the last few years no incidents of land seizure have occurred, or that the population is afraid to report these types of incidents.

The duration of land disputes and the type of solution adopted seem to be directly related to state's presence in the region. Although a high percentage of disputes are not resolved, more than a third was settled in less than a year. In slightly more than half of the cases, the affected households relied on state authorities to solve these disputes, either through the judicial or the executive branches of power. This behavior is replicated in the Mid-Atlantic, Cundiboyacense, and Coffee regions. However, solution of land disputes in the East-Central region take years, and this solution is predominantly reached through the mediation of state institutions, more than through judicial mechanisms. This may be related to the fact that the disputes reported in this region mainly correspond to the uncertainty of property rights. Solving these disputes generally tends to last several years while property titles are requested and cleared, or land ownership can be demonstrated.

Table 7.6.
Incidence of Disputes, Type, Duration and Resolution of Disputes in the Districts

Variable	Total	Mid-Atlantic	Cundiboya-cense	Coffee Region	East-Central
Number of disputes in the last five years	1.23 (1.21)	0.71 (0.99)	1.73 (1.30)	1.55 (1.20)	0.94 (1.06)
Type of dispute					
Lease: return of lands or lease payments	7.6%	5.4%	2.1%	12.1%	10.4%
Uncertainty over property rights	26.2%	17.9%	35.4%	19.0%	35.4%
Use of land: natural resources and boundaries	3.8%	1.8%	6.3%	3.5%	4.2%
Land seizure	4.3%	0.0%	4.2%	12.1%	0.0%
Failure to pay off credit	17.1%	12.5%	29.2%	20.7%	6.3%
Other	1.9%	0.0%	2.1%	3.5%	2.7%
Duration of disputes - percentage of disputes that					
Were resolved in less than a year	39.1%	47.5%	41.0%	45.6%	15.6%
Were resolved over the course of several years	17.1%	2.5%	25.3%	8.9%	31.1%
Were not resolved	43.8%	50.0%	33.7%	45.6%	53.3%
Disputes resolution – percentage of disputes that					
Were resolved with the help of community leaders or committees	7.6%	10.0%	1.8%	6.1%	23.8%
Were settled in court	22.8%	35.0%	21.8%	24.5%	9.5%
Resolved with the help of institutions attached to the executive power	31.7%	25.0%	47.3%	12.2%	42.9%
Resolved by means of informal mechanisms	6.2%	0.0%	9.1%	8.2%	0.0%
Directly resolved between the parties	31.7%	30.0%	20.0%	49.0%	23.8%

Source: Own calculations based on ELCA.

Although there is a low incidence of land disputes among the community, the number of affected households is still significant. Table 7.7 shows that the percentage of households that have been affected by land conflict is close to 12.5%, and in the Cundiboyacence region it reaches 19.8%. The main causes for the disputes are estate and inheritance issues, and problems with property titles. As in the case of communities, the causes of land disputes reported by households offer a similar pattern in each region. Problems regarding property titles are the main reason for conflict in the Mid-Atlantic region, while estate and inheritance issues are particularly troublesome in the Cundiboyacense region.

Table 7.7.
Incidence of Disputes and Type of Disputes

Variable	Total	Mid-Atlantic	Cundiboyacense	Coffee Region	East-Central
Some type of conflict exists	12.5%	5.3%	19.8%	8.8%	15.6%
Type of conflict					
Estate and inheritance issues	62.1%	58.1%	72.9%	67.9%	51.9%
Problems with property titles	27.9%	35.1%	18.2%	17.9%	36.6%
Someone is claiming the land	5.8%	2.5%	4.6%	7.3%	7.8%
Boundaries and easments	5.6%	1.1%	5.1%	10.2%	6.8%
Other	7.5%	9.6%	10.6%	10.7%	3.1%

Source: Own calculations based on ELCA.

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