

# Chapter 7

## The Boom of Cohabitation in Colombia and in the Andean Region: Social and Spatial Patterns

Albert Esteve, A. Carolina Saavedra, Julián López-Colás,  
Antonio López-Gay, and Ron J. Lesthaeghe

### 1 Introduction

Colombia exemplifies the boom of unmarried cohabitation more than any other country in the Americas. Between 1973 and 2005, the percentage of 25–29-year-old cohabiting women increased from 20% to 66%. Within that period, Colombia advanced from being among the Latin American countries with low to medium levels of cohabitation (similar to those of Costa Rica and Mexico) to achieving the first positions in the mid-2000s, with percentages similar to those of the Dominican Republic in 2000 (68%) or Panama in 2000 (62%). Pending the results of the next Colombian census, scheduled for 2016, the Demographic Health Survey (DHS) conducted in 2010 confirms that cohabitation has continued to expand well beyond 2005 levels. According to DHS data, cohabitation in 2010 was approximately 73.6%.

Despite the increase in cohabitation, the social profile and spatial distribution of cohabiting women (and men) has remained unchanged over the last four decades. Cohabitation is highest among women with low educational levels, with an ethnic background and living in the Caribbean, Pacific, Orinoquia and Amazonian regions. By contrast, cohabitation is lowest among women with high educational levels, no ethnic background and residing in the Andean region. These patterns have

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A. Esteve (✉) • A.C. Saavedra • J. López-Colás • A. López-Gay  
Centre d'Estudis Demogràfics (CED), Universitat Autònoma de Barcelona (UAB),  
Bellaterra, Spain  
e-mail: [aesteve@ced.uab.cat](mailto:aesteve@ced.uab.cat); [csaavedra@ced.uab.cat](mailto:csaavedra@ced.uab.cat);  
[jlopez@ced.uab.cat](mailto:jlopez@ced.uab.cat); [alopez@ced.uab.cat](mailto:alopez@ced.uab.cat)

R.J. Lesthaeghe  
Free University of Brussels and Royal Flemish Academy of Arts and Sciences of Belgium,  
Brussels, Belgium  
e-mail: [RLesthaeghe@yahoo.com](mailto:RLesthaeghe@yahoo.com)

persisted to the present but at much higher levels than in the early 1970s (Saavedra et al. 2013).

Colombia shares with its neighboring countries the social and regional patterning of cohabitation. These countries compose the Andean region and include Ecuador, Peru, Bolivia and, to a lesser extent, Venezuela. In all of these countries, cohabitation has increased in recent decades. In Ecuador, cohabitation increased from 27 % in 1974 to 47 % in 2010. In Peru, cohabitation levels increased from 29 % to 70 % between 1981 and 2007. And in Venezuela, cohabitation increased from 31 % to 52 % between 1971 and 2001. In Bolivia in 2001, cohabitation among 25–29-year-old partnered women was at 35 %.

Because of the similarities among the Andean countries, we decided to study these countries together in this chapter although we focus particularly on Colombia. First, we document in detail the increase in cohabitation in Colombia and investigate the historical, social and legal contexts in which the expansion of Colombian cohabitation occurred. Based on 2005 Colombian microdata, we implement a multilevel model to examine the individual and contextual level determinants of cohabitation. In the final section of the chapter, we reproduce identical models for Ecuador, Bolivia and Peru.

## **2 The Increase in Cohabitation and the Social and Ethnic Profile of Cohabiting Women in Colombia, 1973–2005**

### ***2.1 A Brief Note on the History of Cohabitation***

The history of cohabitation in Colombia is not particularly different from the history of cohabitation in Latin America. Cohabitation and marriage have coexisted in Latin America since colonial times. The European colonization of America implied interaction between culturally and ethnically heterogeneous groups that yielded a complex system of family structures (Castro-Martín 2001). Within that context, cohabitation emerged as a strategy employed to escape the strong social control of the church, the state and families (Rodríguez Vignoli 2004; Quilodrán 2001). In pre-Hispanic America, the indigenous populations had marriage systems quite different from the systems present in Europe. Cohabitation was a widespread practice among certain indigenous groups (Castro-Martín 2001; Quilodrán 1999; Vera Estrada and Robichaux 2008). The *sirvanakuy* in the Peruvian and Bolivian Andes or the *amaño* in Colombia were two clear examples of informal unions. In both cases, cohabitation functioned as a marriage trial to test whether the partners could live together (Gutiérrez de Pineda 1968; Pribilsky 2007; Rojas 2009).

After the conquest of the Americas and during the peak of colonialism, the Catholic Church established and spread its catechism and the sacramental rites,

particularly the marriage rite (Ghirardi and Irigoyen López 2009; Quilodrán 1999). The Church condemned all behaviors regarded as heresy such as polygamy, polyandry, bigamy and adultery (Dueñas 1978; Rodríguez 2004). The activities of the missionaries saw results in the long run and changed the lives of indigenous populations. Marriage was also further strengthened by institutions such as the *economienda*. The influence of the Church in addition to the role of the *encomendero* fostered marriage among the indigenous populations as a strategy to ensure a supply of workers, maintain stability within the community and guarantee the payment of tributes.

Despite the Church-fostered ethnic endogamous marriages, the ethnic and racial diversity of colonial Latin America and the interaction among indigenous, black and Hispanic populations resulted in an intense *mestizaje*. Given that the influence of the Church on the black and *mestizo* population was rather weak and less intense than among the indigenous populations, cohabitation emerged (Rodríguez 2004; Vera Estrada and Robichaux 2008). Consequently, the vast majority of unions among black and *mestizo* populations were formed without the marriage bond (Dueñas 1997; Rodríguez 2004). The *mestizaje* thrived through the *amancebamiento* and *concubinato*. The former was a stable union, most common among single populations. The latter had a less stable nature than the *amancebamiento* and, in most cases, assumed the form of adultery. Compared with marriage, the *amancebamiento* and the *concubinato* were weaker and less stable types of unions (Rodríguez 2004). Marriage reigned at the very top of the social hierarchy although the ability of the state and the Church to impose marriage was quite unequal. Marriage was rare among the *mestizo* and slave populations and in those isolated areas in which the lack of administration hindered its implementation.

At the end of the colonial period, which was at the beginning of the nineteenth century, cohabitation, in the form of *amancebamiento* and *concubinato*, remained strongly rooted among the lowest social classes, and its geographic distribution within Colombia clearly followed the ethnic and religious contours of the country.

During the twentieth century, the evolution of cohabitation occurred in two different stages. During the first half of the century, the formation of both formal and informal unions generally intensified. Marriage reached its highest levels near mid-century and among women born between 1910 and 1914 (Zamudio and Rubiano 1991). For the next generations, marriage began to decline. In the 1960s, cohabitation began a strong expansion that persists today. Such expansion occurred in a context of strong structural and cultural change. Females' education and participation in the labor market began to expand as fertility declined. Access to contraception increased, and attitudes toward marriage changed (Zamudio and Rubiano 1991). Cohabitation increased at the expenses of marriage. Before the law of divorce in 1976, cohabitation was the only option for second unions among married populations. In addition to the increase in cohabitation, separation and divorce had also increased, as did the number of female-headed households (Pachón 2007).

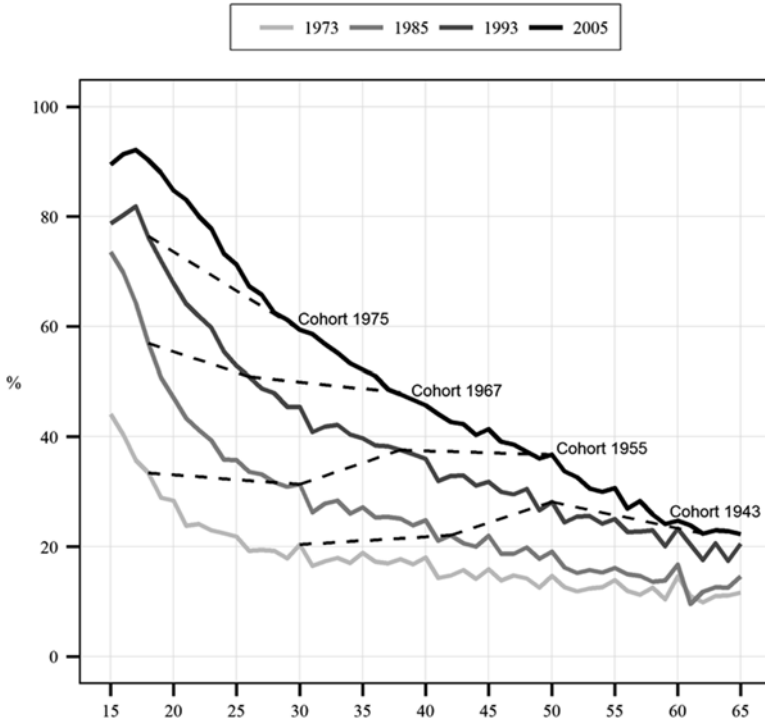
## 2.2 *The Legal Institutionalization of Civil Marriage and Cohabitation*

The expansion of cohabitation and the deinstitutionalization of marriage have paralleled changes in legislation. Before the institutionalization of civil marriage, the Church had the exclusive power to marry. The institutionalization of civil marriage in Latin America dates back to the end of the nineteenth century (Quilodrán 2003). In Colombia, the Law of Marriage of 1853 exclusively recognized civil marriage and waived the legal status of canonical marriage. However, 3 years later, canonical marriage regained its legality, but only until 1862. These back-and-forth changes in marriage legislation illustrate the tensions between the liberal and conservative movements during the second half of the nineteenth century. In 1887, Law 57/1887 legalized Catholic marriage (Guzman Álvarez 2006; Aristizábal 2007). No further legal changes concerning marriage occurred until 1974. In that year, Law 20/1974 finalized the adoption of civil marriage and recognized the civil nature of Catholic marriages without requiring apostasy. Two years later, the Law of Divorce for civil marriages was adopted.

The primary legal developments regarding cohabitation occurred between 1968 and 2005, when several laws were adopted to legally increase the security of cohabiting unions and the offspring of those unions. Cecilia's Law in 1968 was the first to regulate cohabitation. This law established paternal legal recognition of children born out of wedlock, offered legal protection to those children and established paternal responsibility for their children. Law 29/1987 equalized the inheritance rights of "legitimate" and "illegitimate" children (Echeverry de Ferrufino 1984). Law 54/1990 established the legal definition of a consensual union as a "union between a man and a woman that, without being married, constitute a unique and permanent community of life." In addition, this law regulated the property governance between permanent partners: a property society is established when the *de facto* marital union exceeds a period of no less than 2 years of co-residence between a man and a woman with or without the legal impediment of marrying. In 1991, the Colombian Constitution established the family as the center of society and simultaneously recognized the legal validity of consensual unions. The Constitution equalized the rights of and obligations toward children regardless of the union status of their parents. Finally, Law 979/2005, which partially modified Law 54/1990, established more efficient procedures to verify the existence of *de facto* marital unions (Castro-Martín et al. 2011).

## 2.3 *The Growth of Cohabitation and Its Age Profile*

Figure 7.1 documents the increase in cohabitation in Colombia since 1973. This figure shows the percentage of partnered women in cohabitation according to age in the last four Colombian population censuses. The respective census microdata are



**Fig. 7.1** Percentage of partnered Colombian women currently cohabiting by age and selected birth cohorts in the censuses from 1973 to 2005 (Source: Authors' elaboration based on census samples from IPUMS-International)

available through the IPUMS-International project (Minnesota Population Center 2014). The percentage of cohabitating women among women in union decreases with age. Cohabitation is much more frequent among young women than among older women although cohabitation rates increased across all ages between 1973 and 2005. The percentage of cohabitating 20-year-old partnered women increased from 22% to 82% between 1973 and 2005, and for 30-year-old women, the rate increased from 20% to 60%. For older women, the increase in cohabitation during this period is less noticeable.

The age profile of cohabitation may be the result of either an age effect or a cohort effect. An age effect would indicate that as people age, the transition from cohabitation to marriage becomes more likely. A cohort effect indicates that with every new generation entering the marriage market, cohabitation is more widespread and not does necessarily disappear as women age. Without appropriate longitudinal data, it is difficult to provide a definitive answer regarding which effect is stronger. However, as an indirect measurement, we can follow cohorts over time using different censuses. The dotted lines in Fig. 7.1 represent several cohorts of women by year of birth. The results indicate an extremely stable/flat age pattern but at different levels depending on the year of birth. Cohabitation is much higher

**Table 7.1** Distribution of women aged 25–29 by years of schooling and union characteristics. Colombia, 1973–2005

Years of schooling	1973	1985	1993	2005	1973	1985	1993	2005	1973	1985	1993	2005
	% Population				% in union				% partnered women in cohabitation			
0	17.0	6.8	4.7	5.5	67.4	70.9	67.1	61.3	40.5	61.1	72.3	83.5
1–5	57.8	41.7	34.7	33.0	69.9	72.2	71.6	72.9	18.8	39.8	58.3	74.8
6–9	16.5	23.2	26.3	17.5	63.1	67.9	69.0	69.2	6.4	29.6	49.9	75.3
10–11	5.9	17.9	19.7	24.6	58.5	58.8	60.2	58.5	2.3	17.1	35.3	62.7
12 years +	2.9	10.4	14.6	19.4	50.2	43.8	42.3	41.6	1.4	7.0	21.7	43.9
Total	100	100	100	100	67.1	65.7	64.2	59.0	19.4	33.0	48.8	65.6

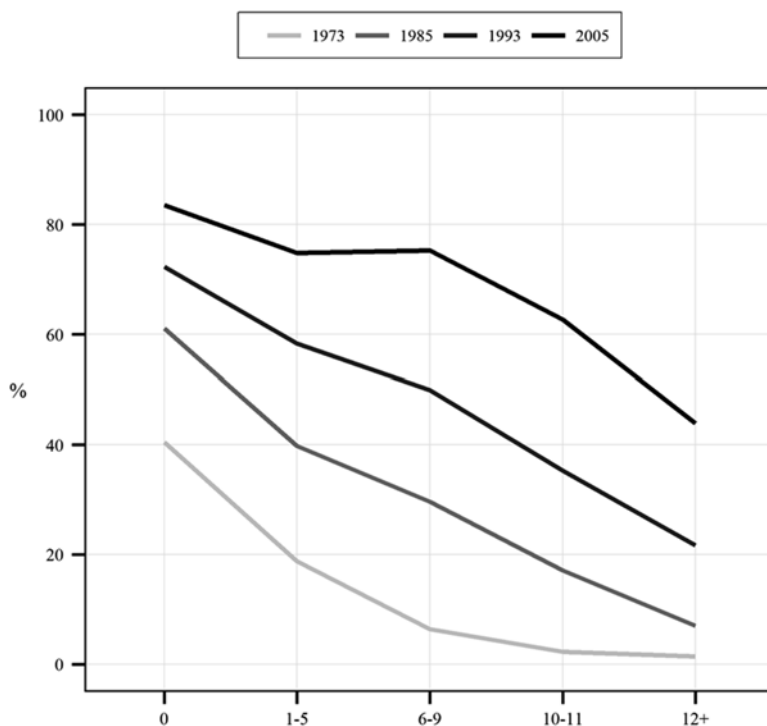
Source: Authors' tabulations based on census samples from IPUMS-International

among younger cohorts than among older ones. Cohabitation among partnered women born in 1955 has remained between 31 and 33 % between age 18 and age 30. Of women born in 1967, 56 % were cohabiting at age 26 and 48 % at age 38. These results provide clear support for the cohort effect: once the majority of women of a given cohort have entered into a union (at approximately age 30), cohabitation remains stable at older ages. This suggests that the age pattern that we observe in the cross-sectional view is merely the result of the importance of cohabitation when these women were young and entering into unions.

## 2.4 The Educational Gradient in Cohabitation

Table 7.1 presents the distribution of women 25–29 years old by years of schooling. This table also shows the percentage of women in unions among all women and the percentage of cohabiting women among all women in unions. Overall, the figures in Table 7.1 show that the expansion of cohabitation has occurred in a context of educational expansion and of relative stability of the age at union formation. The percentage of women with 12 years of schooling or more increased from 2.9 % to 19.4 % between 1973 and 2005. The percentage of women without schooling correspondingly decreased from 17 % to 5.5 %.

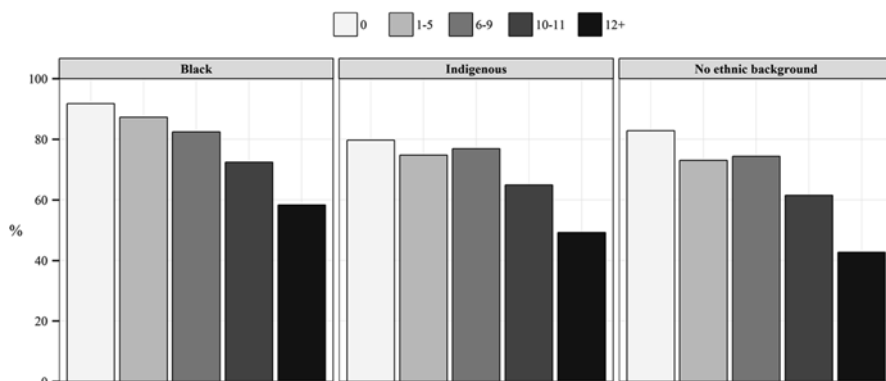
The expansion of education has had a modest effect on a woman's age at union formation because the percentage of women in unions only declined from 67 % to 59 % during this period. Whereas it may appear that there is a slight postponement in union formation, it is important to note that the percentage of women in union does not include all women who are ever in union. Some women at the time of the census were not in a union because of separation, divorce or, to a much lesser extent, widowhood. If we consider all women ever in union, the percentage of women ever in union is quite stable over time (Rodríguez Vignoli 2011; Esteve et al. 2013). Current trends over time in women in union show different patterns according to



**Fig. 7.2** Percentage cohabiting among partnered women aged 25–29 by years of schooling. Colombia, 1973–2005 (*Source:* Authors' elaboration based on census samples from IPUMS-International)

years of schooling. The percentage of women in union declines among women with no schooling and among women with 12 or more years of education at both ends of the educational hierarchy, although not necessarily for identical reasons. However, the percentage of women in union increases among women with 1–9 years of education and remains stable among women with 10–11 years of education.

Regarding cohabitation, the observed trends unambiguously indicate higher levels of cohabitation over time across all educational groups (see also Fig. 7.2). There is a clear educational gradient by which women with fewer years of schooling are more prone to cohabitation than women with more years of schooling. The educational gradient persists across all census years but at much higher levels. Slightly over 40% of partnered women without schooling were cohabiting in 1973, compared with 83.5% in 2005. In relative numbers, the jump in cohabitation among the highly educated, 12 years or more, is even more spectacular: from 1.4% in 1973 to 43.9% in 2005. Throughout Latin America, the expansion of cohabitation has occurred in a context of dramatic educational expansion. Given the negative relation between education and cohabitation observed at the micro level, less cohabitation should be expected with the expansion of education; however, the opposite occurred (Esteve et al. 2012).



**Fig. 7.3** Percentage cohabiting among partnered women aged 25–29 by ethnic background. Colombia, 2005 (Source: Authors' elaboration based on census samples from IPUMS-International)

## 2.5 The Ethnic Dimension of Cohabitation

Finally, we examine cohabitation by ethnic background and years of schooling. Figure 7.3 shows the percentage of cohabiting women among 25–29-year-old partnered women by ethnic background and years of schooling. The first Colombian census to register ethnicity for the entire population was the 1993 census (DANE 2007b). The 1993 census form included a question regarding ethnic background based on self-reporting. Persons had to respond 'yes' or 'no' to the question regarding whether they belonged to any ethnic or indigenous group or black community. If the answer was positive, the name of the ethnic, indigenous or black community had to be reported. This approach led to a significant underestimation of some groups, particularly black communities. To address such bias, the 2005 census modified the original question and asked the following: 'According to your culture, group or physical characteristics, the respondent is known as *Indigenous*; *Rom*; *Raizal of the archipileago of San Andres and Providence*; *Palenquero of San Basilio*; *Black, mulatto, African-Colombian or of African ancestry*; *None of the above*' (DANE 2007a).

The 2005 ethnic question increased the statistical visibility of the black population compared with the 1993 census. Because of the lack of comparability between the 1993 and 2005 censuses, we focus exclusively on the latter. The educational gradient in cohabitation is present in the three ethnic groups: more years of schooling, less cohabitation (Fig. 7.3). At all educational levels, black women show the highest levels of cohabitation, followed by indigenous women and then women with no ethnic background, who compose the majority of the population.



### 3 The Geography of Cohabitation in Colombia

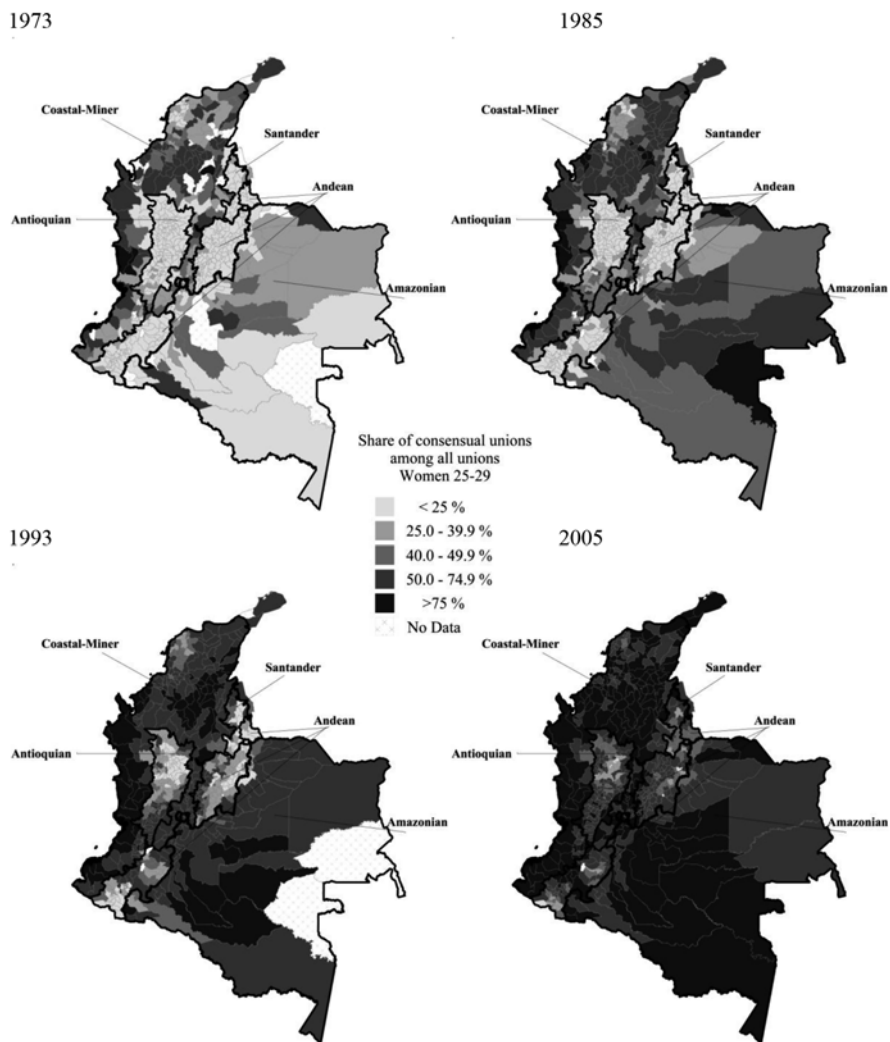
#### 3.1 *The Physical and Social Geography of Colombia Based on the Work of Gutierrez Pineda*

The geography of cohabitation in Colombia is extremely diverse and full of contrasts. As we have shown in Chap. 1, cohabitation in Colombia 2005 may range from values as low as 8.7% to values as high as 95.4% across different municipalities. Despite the recent increase in cohabitation, its spatial distribution has remained unchanged. To understand the geography of cohabitation in Colombia, some background knowledge of its physical and cultural geography is necessary. Colombia is divided into five natural regions: Caribbean, Pacific, Andean, Orinoquia and Amazonia; each region has its own physical character regarding the environment, the climate, and the orography. The boundaries of these regions are strongly determined by the presence of the Andes Mountains and its three primary ranges, *Cordillera Oriental*, *Occidental* and *Central*. The presence of these ranges has caused some regions of Colombia to remain relatively isolated. Colombia's heterogeneous geography in addition to its cultural and ethnic diversity results in an extremely diverse country, which has contributed to its family heterogeneity.

From a social and cultural point of view, the best manner in which to approach the social and family geography of Colombia is reading the work of Colombian anthropologist Virginia Gutierrez Pineda. In the 1950s, Gutierrez Pineda conducted one of the most complete studies on family systems in Latin America. The work was published in 1968 under the title *Familia y Cultura en Colombia* (Family and Culture in Colombia). It was an exhaustive study of Colombian families in the three most populated regions of the country: the Caribbean, the Pacific and the Andean regions. Within these regions, Pineda identified four cultural complexes: the *Andean*, the *Santander*, the *Antioquian*, and the *Coastal-Mining* complex. In Map 7.1, we show the geographic boundaries of the four complexes.

The *Andean* complex primarily comprised descendants of indigenous populations with a small white population. The *Andean* complex was characterized by strong patriarchal norms and great religious assimilation. Therefore, marriage was strongly present in this area. In the *Santander* complex, the Hispanic presence was greater than in the *Andean* complex, and the presence of indigenous populations was much lower. The *Santander* was also an extremely patriarchal complex. The low presence of black populations and the presence of religious and economic institutions such as the *encomienda* fostered the religious assimilation of the indigenous groups. However, marriage was not particularly important to the Hispanic population. Among Hispanic families, patriarchal norms and the political tensions with the Church moved these families away from the influence of the Church. Marriages were arranged by the families and were therefore strongly endogamic in terms of social status.

The *Antioquian* complex was the most heavily influenced by the Church, which structured the families under its norms. Religious marriage was the dominant form



**Map 7.1** Percentage cohabiting among partnered women aged 25–29 by Colombian municipalities 1973–1985 (Source: Authors' elaboration based on census samples from IPUMS-International)

of union. Historically, the *Antioquian* complex had the lowest levels of cohabitation and the highest marriage rates. Cohabitation within this complex occurred in the urban areas or in areas adjoining the other complexes. Finally, the *Coastal-mining* complex was a tri-ethnic complex with a predominantly black population. Poverty was higher than in any other complex, and the Church had a rather limited influence. Hence, cohabitation was the dominant form of union. The geographic isolation of these areas combined with the lack of influence from the Church explains the diminished presence of marriage in the *Coastal-mining* complex.

### 3.2 *The Geography of Cohabitation at Municipal Level, 1973–2005*

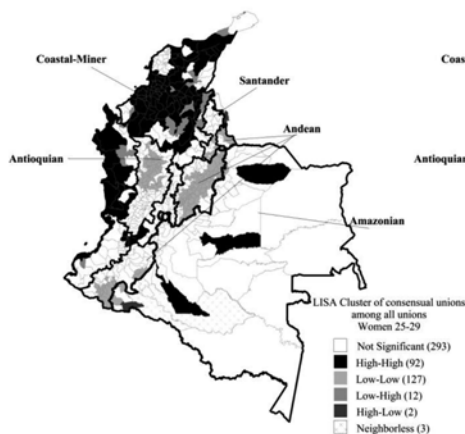
Map 7.1 shows the geography of cohabitation in 1973, 1985, 1993 and 2005. It represents the percentage of cohabitation among 25–29-year-old partnered women in 532 spatial units that correspond to Colombian municipalities or groups of municipalities. The geographic boundaries of Gutierrez Pineda's four cultural complexes are highlighted on the maps. The geography of cohabitation in Colombia is quite diverse. Consistent with Pineda, the *Coastal-mining* complex shows the highest proportion of cohabiting women. This complex includes the majority of the municipalities along the Caribbean and Pacific coasts. The Caribbean coast is characterized by *mestizo* populations and the important presence of Afro-Colombian populations, the majority of whom reside in the Department of Bolívar. The Pacific coast includes the largest concentrations of Afro-Colombian populations in sparsely populated areas, such as in the Department of Chocó. Cohabitation in the *Coastal-mining* complex grew to 72.8% in 2005, from 45% in 1973.

The *Andean*, *Santander* and *Antioquian* complexes had traditionally lower levels of cohabitation than the *Coastal-mining* complex. The *Antioquian* and *Santander* complexes have similar levels of cohabitation, which increased from 20% in 1985 to 54% in 2005. Cohabitation in the *Andean* complex grew from 24% in 1985 to 63% in 2005. These three complexes belong to the Andean and Central regions of Colombia that have historically been the most economically developed regions and contain the largest cities in the country (e.g., Bogotá, Cali and Medellín).

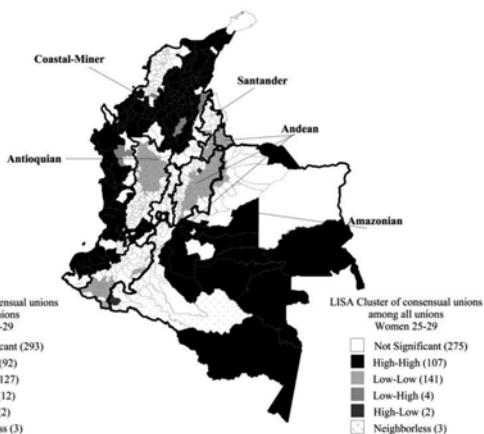
The Orinoquia and the Amazonian regions were not included in Gutierrez Pineda's work but can be studied with the census. These two regions are characterized by a large presence of indigenous populations in a low-density setting. For example, in the eastern Departments of Vaupes and Guainía, the percentage of indigenous populations exceeds 60% of the entire population. The level of cohabitation in these areas is similar to levels in the *Coastal-mining* complex. Cohabitation in these regions increased from 43% to 71% between 1985 and 2005.

Despite the surge in cohabitation, its spatial distribution has scarcely changed. The spatial distribution of high and low values of cohabitation has remained relatively constant over time. One manner of showing this stability is to observe this trend in the Local Indicators of Spatial Association (LISA). LISA indicators belong to the family of spatial autocorrelation measurements (Anselin 1995) and indicate the extent to which a particular observation correlates with its neighboring units. Positive autocorrelation indicate spatial clustering of values similar to the unit of reference. Negative spatial autocorrelation indicates spatial clustering of values dissimilar to the reference unit. Positive autocorrelation can be further deconstructed into two groups based on whether the similitude is to high or low values of cohabitation. The LISA indicators are based on standardized levels of cohabitation within each year; thus, the increase in cohabitation is neutralized. When this occurs, we can clearly observe a nearly identical spatial patterning over the 4 years (see Map 7.2), indicating, once again, the stability of the geographic pattern of cohabitation over time.

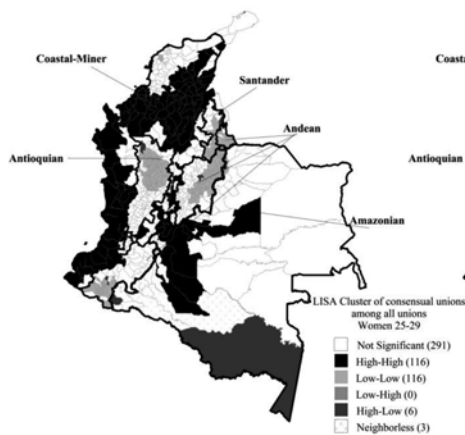
1973



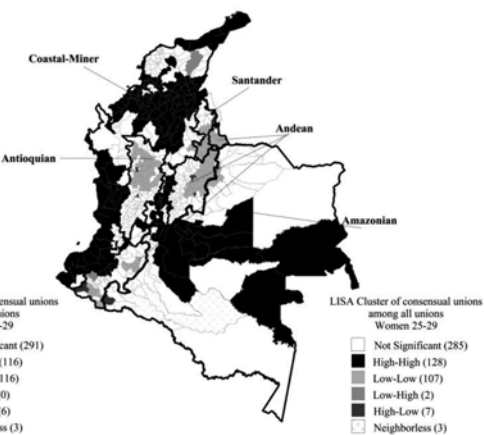
1985



1993



2005



**Map 7.2** LISA cluster maps of unmarried cohabitation in Colombia 1973–2005 (*Source:* Authors' elaboration based on census samples from IPUMS-International)

#### 4 A Multilevel Model of Cohabitation in Colombia, 2005

The previous sections depicted the social profile and spatial patterning of cohabitation in Colombia. We have also shown that despite the increase in cohabitation, its social and spatial patterning has remained constant over time. We now turn to the 2005 census microdata to implement a multivariate multilevel logistic regression model of cohabitation based on individual and contextual characteristics at the municipal level. The multilevel logistic regression model serves three primary purposes. First, this model allows us to examine the individual profile of cohabiting women in a multivariate framework in which the role of education and ethnic

background and other individual variables can be simultaneously considered. Second, the multilevel logistic regression model assesses the importance of contextual variables by measuring its influence on the probability of cohabitation, which allows us to answer the following question: Is the ethnic composition of the municipality more important for cohabitation than the ethnic background of the individual? Third, multilevel models offer the possibility of exploring the degree to which the variance at the municipal level is explained by the individual- and contextual-level variables.

Our model includes three individual and four contextual-level variables. As individual variables, we include education, ethnic background and migratory status (see Table 7.2). At the contextual level, we considered four variables on the municipal scale and one on the department scale. On the municipal scale, we included a measure regarding the level of education, the ethnic background and the migrant composition of the population. The fourth variable at the municipal level is altitude, which in Chap. 1 has been strongly and negatively correlated to cohabitation. The influence of religion was important to consider; however, religious data were not available at the municipal level. Therefore, we used department-level data from the Latin American Public Opinion Project (LAPOP) data source to include the proportion of Catholics in each department. This obliged us to develop a three-level model with individuals nested into municipalities and municipalities nested into departments.

Table 7.3 shows the results of four different specifications of the multilevel logistic regression model of cohabitation. The interpretation of the results is analogous to a logistic regression model in which the estimated parameters are shown in odds ratios. Odds ratios express the relative risk of experiencing an event given a particular category (e.g., more education) compared with the reference category (e.g., less education). Values above 1 indicate that the relative risk of that particular category is higher than the reference category. Values below 1 indicate the contrary. In a multilevel model, the constant is deconstructed in various sections: the fixed intercept plus a random effect for each unit at each level. In our case, we have designed a three-level model in which level one is the individual, level two is the municipality of residence and level three, the department of residence. As output, multilevel models yield the variance of the random effects at each level. A higher variance indicates greater heterogeneity across units. If the variance were zero, this would mean that there were no differences across municipalities or departments. An interesting feature of multilevel models is that we can observe how much of the variance is modified after including (controlling for) individual and contextual variables. If the heterogeneity across level two (municipalities) or level three (departments) units is explained by the socioeconomic characteristics of their populations, the variance across units should decrease after considering such characteristics in the model.

We start our modeling strategy with an empty model in which there is only one term: the constant. This model predicts the probability of a 25–29-year-old partnered woman being in an unmarried cohabitation as opposed to a married union. However, this probability is stratified by municipality and department of residence.

**Table 7.2** Characteristics of the individual and contextual variables included in the multilevel logistic regression model of unmarried cohabitation, women aged 25–29. Colombia, 2005

Category	%	% partnered women in cohabitation	Standard Deviation	N
<b>Dependent variables</b>				
<b>Women in union</b>				
Married	32.6	–	–	30,987
Cohabiting	67.4	–	–	64,140
<b>Individual variables</b>				
<b>Educational attainment</b>				
Less than primary	24.6	78.1	–	23,221
Primary completed	38.8	74.3	–	36,701
Secondary completed	30.9	59.0	–	29,251
University completed	5.7	34.7	–	5,399
<b>Ethnic background</b>				
No ethnic background	82.0	63.7	–	77,981
Afro-descendant	10.9	78.2	–	10,348
Indigenous	6.4	73.8	–	6,074
Other	0.7	68.3	–	724
<b>Migration status</b>				
Sedentary (resides in municipality of birth)	61.0	64.6	–	57,803
Migrant (resides in different municipality as birth)	39.0	66.9	–	36,961
<b>Contextual variables</b>				
<b>Municipality level</b>				
Percentage of women with secondary education or more	14.3	–	0.08	–
Percentage of women with no ethnic background	93.5	–	0.26	–
Percentage of women residing in different municipality from birth municipality	30.0	–	0.16	–
<b>Altitude</b>				
Up to 500 m	31.7	73.0	–	–
500–1000 m	9.1	68.8	–	–
1000–1500 m	16.3	65.2	–	–
1500–2000 m	10.2	56.8	–	–
2000–3000 m	15.2	56.6	–	–
Above 3000 m	17.5	63.9	–	–
<b>Department level</b>				
Percentage of Catholics	83.3	–	0.09	–

Source: Authors' tabulations based on census samples from IPUMS-International and the 2009 Americas Barometer

**Table 7.3** Estimated odds ratios from a multilevel logistic regression model of unmarried cohabitation by individual and contextual characteristics, women aged 25–29. Colombia, 2005

Category	Model 1	Model 2	Model 3	Model 4
<b>Individual variables</b>				
<b>Education</b>				
Less than primary (ref.)		1	1	1
Primary completed		0.82	0.82	0.82**
Secondary completed		0.39	0.39	0.39**
University completed		0.13	0.13	0.13**
<b>Ethnic background</b>				
No ethnic background (ref.)		1	1	1
Afro-descendant		1.41	1.41	1.41**
Indigenous		0.86	0.86	0.86**
Other		0.95*	0.95*	0.95
<b>Migration status</b>				
Sedentary (ref.)		1	1	1
Migrant		1.16	1.16	1.00
<b>Contextual variables</b>				
Percentage of women with secondary education or more (municipality)			0.99**	0.99*
Percentage of women with no ethnic background (municipality)			0.99	1.00**
Percentage of migrants (municipality)			1.01	1.01
<b>Level of Catholicism in the department</b>				
At or above the median			0.61**	0.79*
Below the median			1	1
<b>Altitude</b>				
Up to 500 m				1.00
500–1000 m				0.73
1000–1500 m				0.57
1500–2000 m				0.44
2000–3000 m				0.36
Above 3000 m				0.25
<b>Variance</b>				
<i>Municipalities</i>	0.38	0.36	0.32	0.26
<i>Departments</i>	0.26	0.27	0.15	0.11
<i>Intercept</i>	0.96**	1.37	2.03*	1.97*

Note: All the coefficients are statistically significant at  $p < 0.001$  except\*:  $p < 0.05$  and\*\*:  $p < 0.01$

Source: Authors' tabulations based on census samples from IPUMS-International and the 2009 Americas Barometer

Thus, the constant is partitioned into a fixed effect plus a random effect at higher levels. The variance at both levels indicates that there are statistically significant differences across municipalities (0.38) and across departments (0.26). Model 2 adds three individual variables to the baseline model: education, ethnic background and migratory status. All of these variables have a statistically significant effect

on cohabitation. Highly educated women are less likely to cohabit than poorly educated women. Afro-Colombian (black) women are more likely to cohabit than women with no ethnic background. Indigenous women are less likely to cohabit than women with no ethnic background. Women who are not living in the municipality of their birth are more likely to cohabit than women who do reside in the municipality of their birth. Although all individual variables have a significant effect on cohabitation, the variance at the municipal and contextual levels has scarcely changed from the baseline model. This shows that regional differences in cohabitation persist after controlling for the individual characteristics of the regions' inhabitants. In other words, women with identical socioeconomic characteristics in two different regions may have quite different levels of cohabitation.

Model 3 adds four contextual variables to the model, three variables at the municipal level and one variable – religion – at the department level. Again, we identify statistically significant effects for all contextual variables. Consistent with the individual effects, as the percentage of women with secondary education in the municipality increases, the level of cohabitation decreases. Similarly, cohabitation is lowest in those areas with the fewest women with an ethnic background. The presence of migrants in the municipality is positively related to cohabitation. Finally, there is less cohabitation in those departments in which there are the greatest proportions of Catholics (above the median level of the country).

Adding the contextual characteristics at the municipal and department levels leads to two basic conclusions. First, there is an important structural-level dimension of cohabitation that suggests that regardless of individual characteristics, women living in areas with low levels of education, a high ethnic presence, a high migrant component, and low levels of religiosity are more likely to cohabit than women living in areas with the opposite characteristics. Second, contextual characteristics do not account for the heterogeneity across municipalities; however, the variance across departments has shrunk from 0.27 in Model 2 to 0.15 in Model 3, primarily because of the religiosity factor.

Finally, Model 4 adds the altitude at the municipal level. Given that there are several units with more than one municipality, we used a population-weighted average of the altitude corresponding to each municipality in that group. As shown in Chap. 1, we identified a striking relation between altitude and cohabitation in all Andean countries except in Peru. Colombia and Ecuador were the clearest examples of that correlation. In a multilevel framework, we can now test whether the altitude gradient remains statistically significant after controlling for socio-economic individual and contextual level characteristics. The answer to this question is yes. Cohabitation decreases with altitude even in a model in which the educational, ethnic, migrant and religious dimensions are considered. Not only does altitude have a statistically significant effect on cohabitation but also decreases the variance left at the municipal and department levels. At the municipal level, the variance decreases from 0.33 to 0.25 between Models 3 and 4. This indicates that our models are not completely capturing the rich spatial variation of Colombian cohabitation, which suggests the need to further investigate what altitude is in fact capturing.



To conclude the multilevel analysis of cohabitation in Colombia, we decided to examine the random (or residual) effects estimated by Model 2 at the municipal level and cross-tabulate those effects by two dimensions. The results of this exercise are shown in Table 7.4. The first dimension classifies municipalities based on their contextual characteristics regarding education, ethnicity and religion. The second dimension classifies municipalities according to which cultural complex the municipality belongs to according to Gutierrez Pineda's classification. For each combination of the two dimensions, we compute the average of the residual effects at the municipal level and show the number of municipalities that fall into each category. Positive values indicate that the municipalities that belong to that combination have higher than average levels of cohabitation, and negative values indicate lower than average levels of cohabitation. Municipalities with identical contextual characteristics have different values of cohabitation depending on which cultural complex the municipality belongs to. Regardless of their contextual characteristics, the municipalities in the *Antioquian* and *Santander* complexes have systematically low levels of cohabitation. In the *Andean* complex, cohabitation is typically below the average but not always. In this complex, only the municipalities with low percentages of Catholics and a strong ethnic presence have levels of cohabitation above the average. In the coastal-mining complex and in the Amazonian and Orinoquia regions, we find the municipalities with the highest levels of cohabitation regardless of their contextual characteristics, with few exceptions.

## 5 Cohabitation in the Andean States

Using the same analytical approach employed in the Colombian data, the final section of this chapter is devoted to the Andean countries that because of their characteristics and the availability of data allow running a similar model. We focus on Bolivia, Ecuador and Peru, which with Colombia belong to the so-called Andean States. We have excluded Venezuela from the analysis because the presence of the Andes there is less important than in the other countries and because the 2001 census includes a limited coverage of key variables such as ethnicity.

The geography of cohabitation in Ecuador, Bolivia and Peru is quite heterogeneous. In Chap. 1, we have shown that Ecuador displays the highest internal contrast regarding cohabitation. We have also observed that, except for Peru, there is a strong relation between altitude and the presence of cohabitation. To examine the influence of the socioeconomic profile of women and the influence of contextual variables on cohabitation, we use multilevel logistic regression models in which individual variables are at the first level of analysis and the contextual characteristics are at the second level. In Ecuador, we use 114 *cantones* as geographic units; in Bolivia, 84 provinces; and 176 provinces in Peru. Map 7.3 shows the percentage of 25–29-year-old partnered women in cohabitation in the three countries.

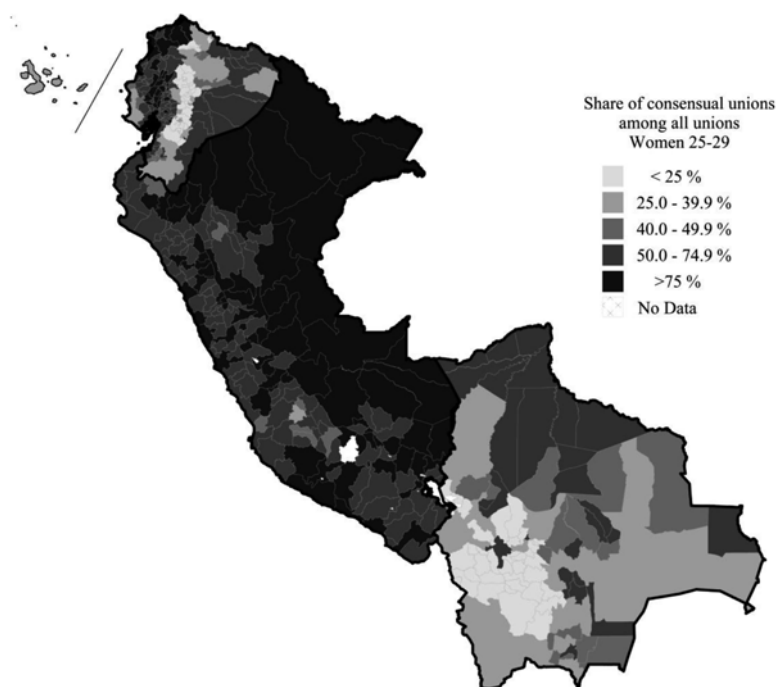
We comment on the results of the models country by country; however, we use the same analytical strategy for all countries. Model 1 is the baseline or empty model.

**Table 7.4** Averaged residuals at the municipality level from Model 2. Municipalities classified according to their contextual characteristics and the cultural complex to which they belong. Colombia, 2005

Education	Religion	Ethnic background	All municipalities	Antioquian	Santander	Andean	Coastal-Mining	Amazonian and Orinoquia
High	High	Low	-0.42 (101)	-1.04 (33)	-0.68 (6)	-0.31 (45)	0.40 (14)	0.27 (3)
High	High	High	-0.22 (40)	-0.96 (13)	-	-0.81 (9)	0.20 (16)	0.47 (2)
High	Low	Low	-0.10 (45)	-0.08 (11)	-0.38 (1)	-0.30 (8)	-0.06 (18)	0.09 (7)
High	Low	High	0.15 (81)	-0.01 (12)	-0.25 (1)	0.52 (1)	0.27 (56)	0.37 (11)
Low	High	Low	-0.79 (89)	-0.89 (27)	-1.28 (4)	-0.70 (42)	0.05 (10)	-0.48 (6)
Low	High	High	-0.09 (61)	-0.71 (13)	-	-1.12 (15)	0.41 (29)	-0.25 (4)
Low	Low	Low	-0.52 (30)	-0.22 (2)	-0.66 (8)	-1.13 (10)	0.28 (5)	-0.04 (5)
Low	Low	High	0.44 (85)	-	-0.15 (1)	0.14 (13)	0.53 (52)	0.41 (19)
Total			-0.11 (532)	-0.74 (111)	-0.73 (21)	-0.55 (143)	0.32 (200)	0.16 (57)

Note: In brackets, number of municipalities that belong to each category.

Source: Authors' tabulations based on census samples from IPUMS-International and the 2009 Americas Barometer



**Map 7.3** Percentage cohabiting among partnered women aged 25–29. Bolivia, 2001; Ecuador, 2010; and Peru, 2007 (*Source:* Authors' elaboration based on census samples from IPUMS-International)

In this model, the intercept is partitioned into two components: the fixed effect plus a random effect for each of the units at the second level (*cantones* in Ecuador and provinces in Bolivia and Peru). Model 2 includes individual variables. These variables refer to the ethnic, educational, and migration backgrounds and when available, the language spoken. Model 3 adds several contextual variables. Model 4 examines whether altitude remains a significant influence on the level of cohabitation.

## 5.1 Bolivia

Table 7.5 shows the results for Bolivia, 2001. The Bolivian model includes four individual-level variables – ethnicity, education, migration status, and urban residence – and 4 contextual-level variables based on the ethnicity, education, migration status and altitude of each *cantón*. We have dichotomized each *cantón* based on whether the presence of the Quechua population was above or below the median among *cantones*. The same strategy was used for the percentage of women with secondary education and women born in the *cantón* of residence. Altitude was

**Table 7.5** Sample characteristics and estimated odds ratios from a multilevel logistic regression model of unmarried cohabitation among partnered women aged 25–29 by selected individual and contextual level characteristics. Bolivia, 2001

Category	Distribution in %	Model 1	Model 2	Model 3	Model 4
<b>Dependent variable</b>					
Married	65.32				
Cohabitation	34.68				
<b>Individual variables</b>					
<b>Ethnicity</b>					
Guarani	1.60		1.34	1.34	1.34
Chiquitano	2.42		0.93**	0.93**	0.93
Quechua	30.71		0.86	0.86	0.87
Aymara	25.34		0.81	0.81	0.81
Other indigenous	2.45		1.39	1.39	1.39
Spanish (ref.)	37.49		1	1	1
<b>Education</b>					
University completed	3.70		0.08	0.08	0.08
Secondary completed	25.8		0.38	0.38	0.38
Primary completed	38.6		0.88	0.88	0.88
Less than primary completed (ref.)	31.8		1	1	1
<b>Migration last 5 years</b>					
Abroad	1.12		0.87**	0.87**	0.87
Different major administrative unit	16.17		1.16	1.16	1.16**
Same major, different minor administrative unit	0.20		1.30*	1.30*	1.30
Same major, same minor administrative unit (ref.)	82.51		1	1	1
<b>Urban</b>					
Rural	32.44		0.95**	0.95	0.95
Urban (ref.)	67.56		1	1	1
<b>Contextual variables. Proportions by provinces for all women</b>					
<b>Quechua/Aymara (median 45.6%)</b>					
At or above the median				0.41	0.56
Below the median				1	1
<b>Secondary (median 11.0%)</b>					
At or above the median				0.99*	1.19
Below the median				1	1
<b>Born in same administrative unit (median 89.5%)</b>					
At or above the median				0.77*	1.13
Below the median				1	1
<b>Altitude</b>					
Above 3000 m	40.5				0.39

(continued)

**Table 7.5** (continued)

Category	Distribution in %	Model 1	Model 2	Model 3	Model 4
2000–3000 m	19.3				0.60**
1500–2000 m	1.5				0.57**
1000–1500 m	4.8				1.16*
500–1000 m	1.6				0.66*
Up to 500 m	32.3				1
<i>Variance left between provinces</i>		0.91	0.89	0.60	0.53
<i>Intercept</i>		-0.84	-0.53	-0.05*	0.13*

Note: All the coefficients are statistically significant at  $p < 0.001$  except \*:  $p < 0.05$  and \*\*:  $p < 0.01$ .

Source: Authors' tabulations based on census samples from IPUMS-International and the 2009 Americas Barometer

categorized in 6 categories, ranging from less than 500 m below sea level to over 3000 m above sea level.

Model 1 is the empty model. It presents the variance that exists across *cantones* when neither individual nor contextual level variables are considered. In this model, the variance is 0.90. Model 2 includes all the individual variables and shows that the estimated odds ratios are statistically significant. Regarding ethnicity, women of Quechua and Aymara ethnicity, who combined compose more than 50% of the population, are less likely to cohabit than women who reported Spanish ethnicity (the reference category). By contrast, Guaraní and other indigenous groups have higher odds of cohabiting than women with Spanish ethnicity. Chiquitano women are slightly less likely to cohabit than Spanish women.

The relation between cohabitation and education shows a steep negative gradient. Women with a university education are less likely to cohabit than women with less than a primary education. Except for Bolivian women who were living abroad 5 years earlier, cohabitation is always higher among women who were living in a different municipality 5 years earlier than among women who were living in the same municipality. Women in rural areas are less likely to cohabit than women in urban areas, although the difference between rural and urban areas is rather small. Including the individual variables in the model has had little effect on the variance observed across provinces (0.88 compared to 0.91 in Model 1).

Model 3 adds three contextual variables, all with statistically significant effects on cohabitation. Clearly, women residing in provinces with the largest shares of Quechua and Aymara residents are less likely to cohabit than women living in provinces with the lowest presence of these two ethnic groups. The effect of the educational variable at the contextual level has a statistically significant but modest effect: Women in the more educated provinces are less likely to cohabit than those residing in the less educated provinces. Finally, the migratory dimension is important as well. Cohabitation is less frequent in those provinces with fewer migrants (i.e., the largest percentage of the population residing in the same province in which they

were residing 5 years ago). The contextual variables have reduced the variance across provinces to 0.6, from 0.88 in Model 2. Finally, Model 4 examines whether altitude remains a significant influence on cohabitation. Women residing in provinces above 1500 m are less likely to cohabit than women residing in provinces below that level. Above 3000 m, the rate of cohabitation is even lower. After including altitude, the variance across provinces shrinks to 0.53, from 0.6 in Model 3. Contrary to what occurred in Colombia, the contextual variables included in Model 3 have had a greater effect on reducing the variance across provinces than altitude.

## 5.2 Ecuador

The Ecuadorian model includes 5 individual level variables – race, education, language, migration status and urban/rural – and three contextual variables at the *cantón* level regarding Quechua speaking, education and migration (see Table 7.6). Provinces are dichotomized based on the percentage of the population that speaks Quechua (below or above the median across provinces), the percentage of women with a secondary education, and the percentage of the population born in the province of current residence. Model 1, the empty model, yields a variance across provinces of 1.55, which in Model 2, after including the individual variables, shrinks to 1.17.

All individual variables matter for cohabitation. Afro-Ecuadorians, Black, Montubio and mulatto women have higher levels of cohabitation than white women (reference category). Indigenous and *mestizo* women have lower levels of cohabitation than white women. Education is negatively related to cohabitation. Quechua-speaking women are less likely to cohabit than women who only speak Spanish (reference category). However, for women speaking Shuar, Jivaro or other indigenous languages, the odds of cohabitation are higher than among Spanish-speaking women. Migration matters as well. Women who lived in a different municipality 5 years before the census are more likely to cohabit than women who remain in the same municipality.

The contextual variables included in Model 3 have a significant effect on cohabitation. Cohabitation is lowest in those *cantones* with the largest Quechua-speaking populations. Cohabitation is also low in those *cantones* in which the percentage of women with a secondary education or beyond is above the median. And, finally, cohabitation is lowest in provinces with the lowest presence of migrants. The variance across *cantones* in Model 3 is 0.78, which is half of the variance observed in Model 1 (1.55).

Model 4 adds altitude as a contextual variable, which is statistically significant. Higher altitudes indicate lower levels of cohabitation. Furthermore, the altitudinal gradient halves the variance across *cantones* (0.38) with regard to Model 3 (0.78). This clearly suggests that altitude is measuring a social and historical legacy that is not fully captured by any of the individual and contextual variables included in the model.

**Table 7.6** Sample characteristics and estimated odds ratios from a multilevel logistic regression model of unmarried cohabitation among partnered women aged 25–29 by selected individual and contextual level characteristics. Ecuador, 2010

Category	Distribution in %	Model 1	Model 2	Model 3	Model 4
<b>Dependent variable</b>					
Married	52.12				
Cohabitation	47.88				
<b>Individual variables</b>					
<b>Race or color</b>					
Afro-Ecuadorian	4.91		1.45	1.45	1.45
Black	0.95		1.96	1.96	1.96
Indigenous	7.68		0.42	0.42	0.42
Mestizo (indigenous and white)	71.44		0.82	0.83	0.83
Montubio (Ecuador)	7.18		1.34	1.34	1.34
Mulatto (Black and white)	2.42		1.58	1.58	1.58
Other	0.41		0.67	0.67	0.67
White	5.01		1	1	1
<b>Education</b>					
University completed	9.48		0.18	0.18	0.18
Secondary completed	34.94		0.38	0.38	0.38
Primary completed	43.27		0.69	0.69	0.69
Less than primary completed	12.31		1	1	1
<b>Language 1 or 2</b>					
Missing and only foreign	0.72		0.82	0.82	0.82
Other indigenous language	0.28		1.89	1.89	1.89
Quechua or Kichwa	4.66		0.43	0.44	0.44
Shuar/Jivaro	0.50		5.53	5.53	5.53
Only Spanish	93.83		1	1	1
<b>Migration last 5 years</b>					
Abroad	1.52		1.84	1.84	1.84
Different major administrative unit	7.56		1.31	1.31	1.31
Same major administrative unit	90.92		1	1	1
<b>Urban</b>					
Rural	36.02		0.94	0.94	0.94
Urban	63.98		1	1	1
<b>Contextual variables. Proportion by cantons for all women</b>					
<b>Quechua (median 4.0%)</b>					
At or above the median				0.29	0.81*
Below the median				1	1
<b>Secondary (median 17.8%)</b>					

(continued)

**Table 7.6** (continued)

Category	Distribution in %	Model 1	Model 2	Model 3	Model 4
At or above the median				0.89**	0.75**
Below the median				1	1
Born same administrative unit (median 95.8 %)					
At or above the median				0.68**	0.87*
Below the median				1	1
Altitude cantones					
Up to 500 m	55.43				1
500–1000 m	2.01				0.81*
1000–1500 m	2.68				0.47**
1500–2000 m	0.51				0.35
2000–3000 m	33.10				0.23
Above 3000 m	6.26				0.12
<i>Variance left between cantones</i>		1.55	1.17	0.78	0.38
<i>Intercept</i>		0.03*	0.80	1.65	1.72

*Note:* All the coefficients are statistically significant at  $p < 0.001$  except \*:  $p < 0.05$  and \*\*:  $p < 0.01$ .  
*Source:* Authors' tabulations based on census samples from IPUMS-International and the 2009 Americas Barometer

### 5.3 Peru

Finally, we examine Peru, 2007. The models for Peru include five individual variables – mother tongue, education, religion, migration and urban areas – and four contextual level variables regarding the importance of the Quechua/Aymara language, education, religion and altitude (see Table 7.7). The baseline model yields a variance across provinces of 0.36. After including all of the individual variables, the variance remains nearly identical (0.35) despite all of the variables having a significant effect on cohabitation. Women who speak Quechua or Aymara are less likely to cohabit than Spanish-speaking women (the reference category). Women speaking Ashanika or any other indigenous language are more likely to cohabit than Spanish-speaking women. Highly educated women (secondary or university) are less likely to cohabit than women with only primary or less than primary education. Women who report no religion are more likely to cohabit than women who profess Catholicism. Among religious women, however, evangelicals are less likely to cohabit than Catholic women (the reference category). Women living in a different administrative unit 5 years before the census are more likely to cohabit than women who reside in the same unit, except for women living abroad 5 years prior to the census. Cohabitation among rural women is lower than among urban women.

Model 3 includes three contextual variables. Women living in provinces with the largest shares of Quechua- and Aymara-speaking populations are less likely to cohabit than women in provinces with low shares of these two populations. However, cohabitation is highest among women living in areas with the greatest proportion of



**Table 7.7** Sample characteristics and estimated odds ratios from a multilevel logistic regression model of unmarried cohabitation among partnered women aged 25–29 by selected individual and contextual level characteristics. Peru, 2007

Category	Distribution in %	Model 1	Model 2	Model 3	Model 4
<b>Dependent variable</b>					
Married	30.2				
Cohabitation	69.8				
<b>Individual variables</b>					
<b>Mother tongue, Peru</b>					
Ashaninka	0.3		1.96	1.96	1.96
Quechua	13.5		0.92	0.92	0.92
Aymara	2.0		0.69	0.69	0.69
Other indigenous language	0.9		2.67	2.67	2.66
Foreign language	0.1		0.53	0.53	0.53
Not applicable	0.0		1.11*	1.11*	1.11*
Spanish (ref.)	83.2		1	1	1
<b>Education</b>					
University completed	8.1		0.31	0.31	0.31
Secondary completed	48.2		0.72	0.72	0.72
Primary completed	25.8		1.12	1.12	1.12
Less than primary completed (ref.)	17.9		1	1	1
<b>Religion</b>					
No religion	2.9		1.15	1.15	1.15
Evangelical Protestant	13.9		0.34	0.34	0.34
Other	3.2		0.35	0.35	0.34
Catholic (Roman or unspecified) (ref.)	80.1		1	1	1
<b>Migration last 5 years</b>					
Abroad	0.3		0.41	0.41	0.41
Different major administrative unit	8.4		1.27	1.27	1.27
Same major, different minor administrative unit	3.3		1.22	1.22	1.22
Same major, same minor administrative unit (ref.)	88.0		1	1	1
<b>Urban</b>					
Rural	23.8		0.73	0.73	0.73
Urban (ref.)	76.2		1	1	1
<b>Contextual variables. Proportions by provinces for all women</b>					
<b>Quechua/Aymara (median 8.1%)</b>					
At or above the median				0.97*	1.05*
Below the median				1	1

(continued)

**Table 7.7** (continued)

Category	Distribution in %	Model 1	Model 2	Model 3	Model 4
Secondary (median 17.3 %)					
At or above the median				1.03*	1.01*
Below the median				1	1
Evangelical (median 9.7 %)					
At or above the median				1.08*	1.00*
Below the median				1	1
Altitude province					
Up to 500 m	18.7				1.00*
500–1000 m	35.4				0.85*
1000–1500 m	3.4				0.94*
1500–2000 m	3.7				1.00*
2000–3000 m	11.8				0.85*
Above 3000 m	27.0				0.81*
<i>Variance left between provinces</i>		0.36	0.35	0.35	0.36
<i>Intercept</i>		0.98	1.49	1.45	1.58

*Note:* All the coefficients are statistically significant at  $p < 0.001$  except \* :  $p < 0.05$  and \*\* :  $p < 0.01$ .  
*Source:* Authors' tabulations based on census samples from IPUMS-International and the 2009 Americas Barometer

women who have secondary or college educations and with the highest shares of evangelicals. Despite including the contextual variables, the variance across provinces has scarcely changed with regard to Models 1 and 2. Model 4 includes altitude in the equation and shows that there is no relation between altitude and cohabitation in Peru.

To conclude, Bolivia, Ecuador and Peru have exhibited some common characteristics regarding the effect of individual variables on cohabitation. Education is negatively related to cohabitation. Migrant and urban women are more likely to cohabit. Migrant and urban women also show substantial diversity across ethnic, racial or linguistic groups. Quechua and Aymara populations in Peru, Bolivia and Ecuador systematically exhibit the lowest levels of cohabitation. However, there are indigenous groups with high levels of cohabitation, such as the Jivaro in Ecuador, the Guaranis in Bolivia, and the Ashanika in Peru. In Ecuador, Black and mulatto populations are more likely to cohabit than white populations. Contextual-level variables are always statistically significant, and basically their effect is consistent with what is observed at the individual level. The capacity of each model to explain the variance across second-level administrative units (i.e., the geography of cohabitation) varies depending on the country. In Ecuador, which displayed the largest internal contrasts, the variance across *cantones* decreases by half when the individual and contextual variables (excluding altitude) are considered (from 1.5 to 0.78). In Bolivia, the variance declined from 0.9 to 0.60, and in Peru, the variance did not change. Altitude has no effect in Peru, a modest effect in Bolivia, but a substantial effect in Ecuador.

## 6 Conclusions

In this chapter, we have documented the spectacular increase in cohabitation in Colombia and explored its social and spatial patterning, which, despite the overall increase in cohabitation, continues to the present day. We have shown that education, ethnicity and migration status matter to cohabitation. However, we have also shown that these individual characteristics matter relatively little when explaining the large internal differences observed within countries. In this regard, contextual variables are important as well and always behave in the same manner as the individual variables. Poorly educated women in poorly educated provinces are always more likely to cohabit than poorly educated women in highly educated provinces. Education, ethnicity and migration matter at the individual and contextual levels. However, contextual characteristics at the municipality level account for only a portion of the variance in cohabitation levels within countries.

These results demonstrate the importance of context and the need to delve into the historical legacies of cohabitation to understand the origin of the Colombian boom in cohabitation. The examples of Ecuador, Peru and Bolivia have been used in this chapter to enhance the Colombian case. The four countries could in fact have been analyzed together because the individual and contextual predictors of cohabitation behaved in similar manners. We have observed that education indicates a negative gradient with cohabitation and that the effect of ethnicity varies by ethnic background. Indigenous populations are not a homogeneous group. Quechua and Aymara populations exhibit different behaviors from other groups, as seen in the cases of Bolivia, Peru and Ecuador. In Colombia, that distinction was not possible although it is quite likely that we would have identified different patterns of cohabitation across indigenous groups. Consistent with historical explanations, Afro-descendant populations systematically show the highest levels of cohabitation.

The joint use of individual- and contextual-level explanatory variables is sufficient to account for the majority of Bolivia's internal diversity regarding cohabitation but not sufficient to account for the internal diversity identified in Peru or Ecuador. Compared with Ecuador, Peru has fewer internal differences in terms of cohabitation. Ecuador was the country in Latin America with the sharpest contrasts within regions. Half of the internal variance in Ecuador was explained by individual and contextual characteristics based on education, ethnicity and migration status. After all these controls, however, altitude nevertheless remains a good predictor of cohabitation, suggesting that, as in Colombia, altitude is a proxy of an unobserved feature of how the institutionalization of marriage occurred in the Andes.

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## References

- Anselin, L. (1995). Local indicators of spatial association – LISA. *Geographical Analysis*, 27(2), 93–115. doi:10.1111/j.1538-4632.1995.tb00338.x.
- Aristizábal, M. (2007). *Madre y esposa: silencio y virtud. Ideal de formación de las mujeres en la provincia de Bogotá, 1848–1868* (p. 333). Bogotá: Universidad Pedagógica Nacional. ISBN ISBN: 9789588316260.
- Castro-Martín, T. (2001). Matrimonios sin papeles en Centroamérica: persistencia de un sistema dual de nupcialidad. In L. Rosero-Bixby (Ed.), *Población del Istmo 2000: familia, migración, violencia y medio ambiente*. San José de Costa Rica: Centro Centroamericano de Población, 388. ISBN ISBN: 9977-15-096-6.
- Castro-Martín, T., Cortina, C., Martín García, T., & Pardo, I. (2011). Maternidad sin matrimonio en América Latina: un análisis comparativo a partir de datos censales. *Notas de Población*, 37(93), 37–76.
- DANE (Departamento Administrativo Nacional de Estadística). (2007a). *La visibilización estadística de los grupos étnicos colombianos*. Bogotá: Imprenta Nacional.
- DANE (Departamento Administrativo Nacional de Estadística). (2007b). *Colombia una nación multicultural. Su diversidad étnica*. Bogotá: Imprenta Nacional.
- Dueñas, G. (1997). *Los hijos del pecado. Ilegitimidad y vida familiar en Santafé de Bogotá colonial*. Bogotá: Universidad Nacional de Colombia, 284 pages.
- Echeverry de Ferrufino, L. (1984). *La familia de hecho en Colombia: constitución, características y consecuencias socio jurídicas*. Bogotá: Editorial Tercer Mundo, 484 pages. ISBN 9586010104.
- Esteve, A., Lesthaeghe, R., & López-Gay, A. (2012). The Latin American cohabitation boom 1970–2007. *Population and Development Review*, 38(1), 55–81. doi:10.1111/j.1728-4457.2012.00472.x.
- Esteve, A., López-Ruiz, L. A., & Spijker, J. (2013). Disentangling how educational expansion did not increase women's age at union formation in Latin America from 1970 and 2000. *Demographic Research*, 28(3), 63–76.
- Ghirardi, M., & Irigoyen López, A. (2009). El matrimonio, El Concilio de Trento e Hispanoamérica. *Revista de Indias*, 69(246), 241–272.
- Gutiérrez de Pineda, V. (1968). *Familia y cultura en Colombia*. Bogotá: Universidad Nacional de Colombia/Tercer Mundo Editores. ISBN 958-655-156-3.
- Guzman Álvarez, M. P. (2006). *El régimen económico del matrimonio*. Bogotá: Centro Editorial Universidad del Rosario, 182 pages. ISBN 958-8225-82-5.
- Minnesota Population Center. (2014). *Integrated Public Use Microdata Series (IPUMS)*. University of Minnesota [online]. <https://international.ipums.org/international-action/variables/group>
- Pachón, X. (2007). La familia en Colombia a lo largo del siglo xx. In R. Puyana & M. H. Ramírez (Eds.), *Familias, cambios y estrategias* (pp. 145–159). Bogotá: Universidad Nacional de Colombia. ISBN 9789587017984.
- Pribilsky, J. (2007). *La chulla vida: Gender, migration, and the family in Andean Ecuador and New York city*. Syracuse: Syracuse University Press, 336 pages. ISBN 0815631456/978-0815631453.
- Quilodrán, J. (1999). L'union libre en Amérique Latine: Aspects récents d'un phenomene seculaire. *Cahiers Quebecois de Demographie*, 28(1–2), 53–80.
- Quilodrán, J. (2001). L'union libre latinoamericaine a t'elle changée de nature. Paper presented at the XXIVe Congrès International de la Population, IUSSP, Salvador de Bahía (Brasil), 18–24 August. [http://www.archive-iussp.org/Brazil2001/s10/S11\\_02\\_quilodran.pdf](http://www.archive-iussp.org/Brazil2001/s10/S11_02_quilodran.pdf)
- Quilodrán, J. (2003). La familia, referentes en transición. *Papeles de Población*, 9(37), 51–83.
- Rodríguez, P. (2004). *La familia en Iberoamérica 1550–1980*. Bogotá: Universidad Externado de Colombia, 526 pages. ISBN 9586981347/9789586981347.
- Rodríguez Vignoli, J. (2004). Cohabitación en América Latina: ¿Modernidad, exclusión o diversidad. *Papeles de Población*, 40, 97–145.

- Rodríguez Vignoli, J. (2011). La situación conyugal en los censos latinoamericanos de la década de 2000: Relevancia y perspectivas. In M. Ruiz Salguero, & J. Rodríguez Vignoli (Eds.), *Familia y Nupcialidad en los Censos Latinoamericanos Recientes: Una Realidad que Desborda los Datos* (pp. 47–70). Santiago: CELADE, Serie Población y Desarrollo n° 99. ISBN 9789213234808. <http://www.eclac.org/publicaciones/xml/9/42709/lc13293e-P.pdf>
- Rojas, T. (2009). Colombia en el Pacífico. In UNICEF, FUNPROEIB Andes (Ed.), *Atlas Sociolingüístico de Pueblos Indígenas en América Latina* (pp. 660–676). Cochabamba: FUNPROEIB Andes. ISBN 978-92806-4491-3
- Saavedra, A. C., Esteve, A., & López-Gay, A. (2013). La unión libre en Colombia: 1973–2005. *Revista Latinoamericana de Población*, 7(13), 107–128.
- Vera Estrada, A., & Robichaux, D. (comps). (2008). *Familias y culturas en el espacio latinoamericano*. México: Universidad Iberoamericana, and Centro de Investigación, and Desarrollo de la Cultura Cubana Juan Marinello, 411 pages. ISBN 9592421196/9789592421196.
- Zamudio, L., & Rubiano, N. (1991). *La nupcialidad en Colombia*. Bogotá: Universidad Externado de Colombia.