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Regional and social contrasts of non-marital cohabitation in Colombia

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Background

The cultural diversity in Latin America has been also present in the heterogeneity of union's formations. Informal unions have been linked to barriers imposed by Catholicism in colonial times (Quilodran 1999) and the strong sense of social and ethnic homogamy. While Catholic marriage was exclusive to the endogamous unions, a rule among Hispanic populations and an increasing trend among Indian populations as religious acculturation expanded. Consensual unions in their many forms were the alternative path through which mixed and black populations could form their unions. At that time, social and ethnic characteristics were closely linked and this attribute defined the limits to access to legal unions. Historical background of non-marital cohabitation played without doubt a decisive role in the early consolidation of consensual unions in Latin America. This occurred long before that determining factors such as educational expansion or the progressive increase in female economic activity have changed the dynamic of the marriage market (Fussell and Palloni 2004).

The effects of education on union formation has been extensively researched in the field of demography, its direct relation with the rising mean age at first union, marriage postponement along with a decreasing number of marriages have been widely documented for many Western countries (Sobotka and Toulemon 2008). Specifically in Latin American studies have not fully been confirmed these findings, results show that in a context of educational expansion there has not been a significant increase in women's age at marriage (Mensch, Singh and Casterline 2005) and that marriage decline there has been while informal unions were increased (Esteve, López and Spijker 2013).

Changes in union formation were simultaneously framed by a clear territorial and cultural division that remains visible even today in many Latin American countries (Esteve, Lesthaeghe and López 2012). The way in which couples choose one or other type of union formation has also a geographical explanation. Cultural backgrounds in family formation are strongly linked with the territory, the distribution of social groups with a high or low affinity to formal or informal unions triggered a family map already identified in Colombia in the 1960s (Gutiérrez de Pineda 1968).

The "new" or "modern" cohabitation is a concept that emerged to try to designate this new kind of couples with less affinity to marriage, more unstable relationships and common among educated youth (%%% ref). While "traditional" cohabitation has been associated with social disadvantaged classes. Some researchers have suggested that the dominant cohabitation in Latin America is closer to "traditional" type (Castro Martín 2002). This begs the question whether traditional forms of cohabitation are or not being partially replaced by a new form of cohabitation. If this assumption is true, in major cities such as Bogotá in which average educational attainment is higher than that of other regions, cohabitation levels among well educated women are expected to be highest than those of their counterparts.

This paper explores which individual and contextual variables are associated to both types of cohabitation in Colombia. To this end, I use census microdata from 1985 to 2005. First, I describe overall trends of marriage and cohabitation. Second, I examine the role of education by cohort and time. Third, I explore differences across regions. Results show that cohabitation has risen across all educational groups but continues to be more prevalent among the low educated women. Similarly, cohabitation has increased in all regions but regional differences persist.

Data and Methods

Making use of harmonized census data collected from Ipums website, the last three time series for Colombia censuses (1985, 1993 and 2005) were selected. The sample was restricted for women 25-44 in union, this age range allows two things: to group a large number of women with their conjugal situation defined and their educational training almost completed.

The first part addresses general trends in union formation for the last three census rounds and by birth cohort. The second section deals about association between education and non-marital cohabitation over time and among birth cohorts. Lastly the geographical dimension of cohabitation is examined at department and regional level. For this purpose, different logistic regression models were used for estimating net and controlled effects of explanatory variables at individual level (e.g. age, education, profession, urban or rural location and region of residence) to the fact of being cohabiting or, conversely, being married. These variables were tested through a combination of simple logistic models and applying in some cases, tests for interactions. Results are displayed graphically through log-odds, these estimates have the advantage of allow a better visualization of interactions (different trends among different groups). Results are displayed using the logit transformation according to the following model structure:

$$\text{logit}(p) = \log(p/(1-p)) = \beta_0 + \beta_1*x_1 + \dots + \beta_k*x_k$$

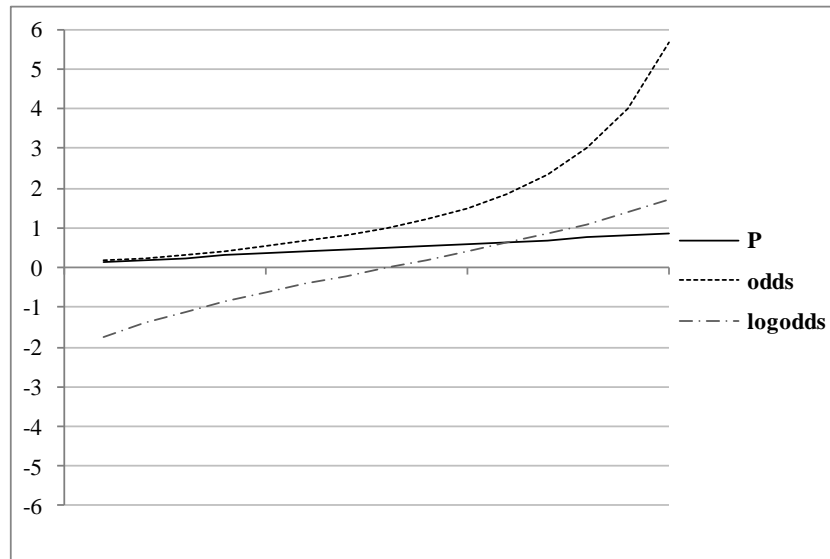
Crude estimates have been calculated employing transformations from probabilities (expressed in proportions) to the log base e (log) of the odds as follows:

$$\text{Odds} = p/(1-p)$$

$$\text{Ln}(p/(1-p)) = \text{ln}(\text{odds}) = \text{logit}(p)$$

Figure below show probabilities (in percentage), odds and log of odds as a log transformation:

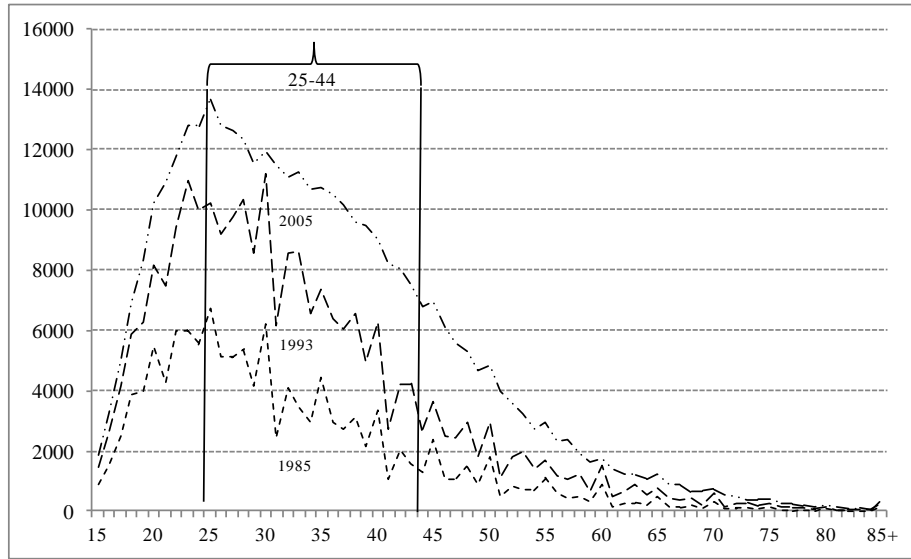
Figure 1. Graph with probabilities, odds and log-odds transformations.



1. Non-marital cohabitation spread, trends over time and generations

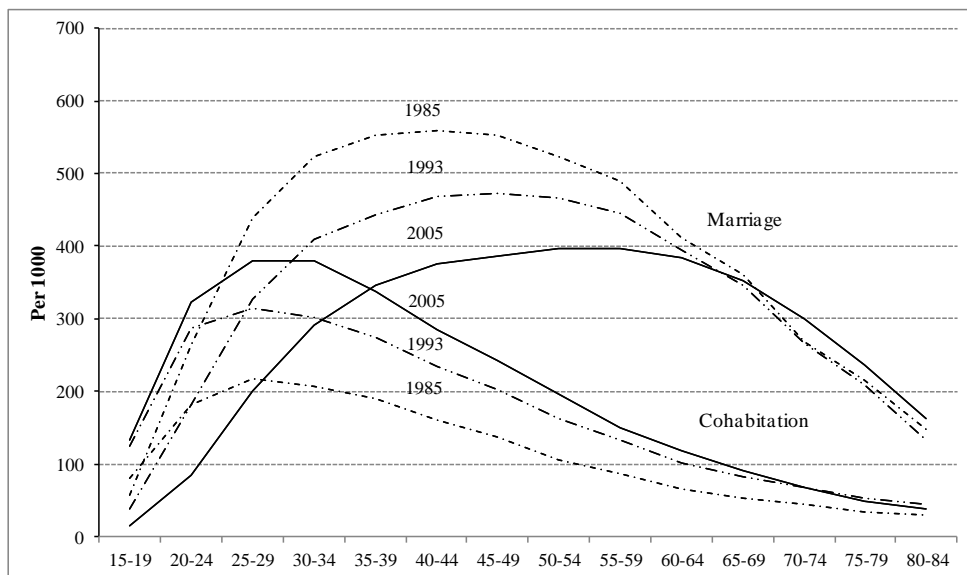
The number of cohabiting women has been increasing over time (Figure 2) and this has been mainly at the expense of a decreasing number of marriages until well into adulthood (Figure 3). In 1985, the proportional number of cohabitators was not exceeded by the number of married women between ages 15-19. But in 1993 this number had grown surpassing the number of marriages at ages 25-29 in 1993, and women ages 35-39 in 2005. Despite this fact, marriage remains as the most common path for living as a couple at adult ages (Figure 3). A growing number of young people, most of them students, tend to avoid marriage for several reasons, a greater need of time to complete their educational attainment, an uncertain socioeconomic condition or the lack of a real need to marry at early ages whether there is the possibility to live as a couple without marriage (Villeneuve-Gokalp, 1990). Several European researches has revealed that the turning point comes after have successfully overcome a certain period of cohabitation or when couple are facing a pregnancy (Villeneuve-Gokalp, 1990; Kiernan, 2001; Toulemon, 1997). In Latin America, however, childbearing has not been strongly associated by marital status. Unlike developed countries where a premarital conception can act as a precursor of the transition from cohabitation to marriage, differences in reproductive behavior between formal and informal unions in Latin America are negligible. This suggests that levels of unmarried cohabitation at older ages should be higher than one would expect in developed countries.

Figure 2. Number of women in non-marital cohabitation (over the age of 15), 1985-2005.



Decreases in marriage rates were also accompanied by a shift in the trend towards right side, this may be indicative of a high number of remarriage (Figure 3). Non-marital cohabitation is by essence youthful, and although its rise has been more pronounced at early ages it also occurred at older ages although on a considerably smaller scale. The relative growth has been practically the same between the three time series for ages 25 to 44, rates have almost doubled from one year to another.

Figure 3. Rate of women in cohabitation or marriage per 1000 women (over the age of 15).

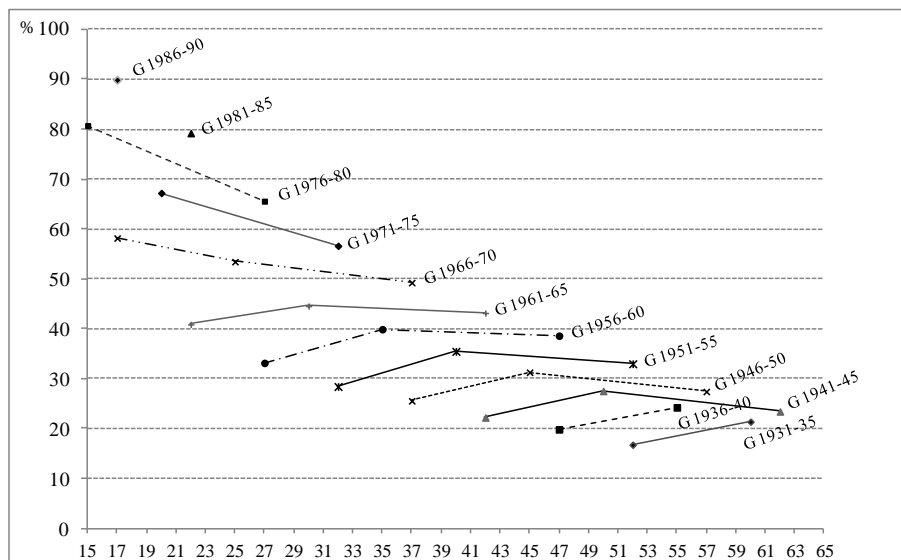


Cohabitation proportions by birth cohorts were calculated for women between the ages of 15 and 65. Even though this task cannot be executed in its entirety due to not all ages within each birth cohort may be fully observable, this can give one an approximate idea of the generational pattern. Cohabitation levels for

these cohorts were estimated by assigning the share of cohabitation at the mid-point of each five year age group.

Non-marital cohabitation among all birth cohorts shows an increasing trend and without overlaps, this means that cohabitation has grown its frequency by generations regardless of age. Recent cohorts which almost entirely should correspond to first unions, cohabitation seems to be a forced step previous or not to marriage. Younger women are the ones who exhibit a more significant decline in cohabitation levels, cohorts 1971-75 and 1976-80 decreased by around 10 to 15 percentage points over the course of twelve years. After this time, a sizeable number of these women will be married and, accordingly, the proportion of cohabitators will decrease with age. 1941-45 to 1966-70 birth cohorts are directly affected by the long intercensal periods, after eight years cohorts below 1966 are increasing their cohabitation levels but twelve years later a regular drop is observed across cohorts. This may also reflect the pace at which cohabitation was growing, between 1985 and 1993 this was faster than that shown between 1993 and 2005 (Figure 4).

Figure 4. Proportion of non-marital cohabitation among women in union by birth cohort.



2. The role of education

Educational expansion started in nearly all Latin America countries in 1970s, after considerable efforts to reinforce basic education. In the span of little over thirty years, were achieved huge advances in primary education which in turn to led significant accomplishments in secondary education and university levels (Esteve, Lesthaeghe, and López 2012). Non-marital cohabitation has become more frequent over time and in all scholar grades (see Fig. 5a). This rise was particularly marked between 1985 and 1993. From 1993 to 2005, it was less pronounced especially at university levels. Non-marital cohabitation is more common among less educated women and this pattern has not changed over the past twenty years. However, this does not mean that cohabitation in least educated had grown in equal proportions than other educational groups. It was, precisely, middle and high scholar grades who most increased informal unions. Even if the gap among higher and lower categories of educational attainment by log odds is clear; this difference seems to be shrinking fast from 1985 to 1993 in those women with less than university education. The preference for formal unions over informal was a constant until 1993, but this trend was reversed in 2005

among less educated women. This year, women in union with incomplete secondary education or less reported for the first time greater proportions of cohabitation than marriage.

Figure 5a. Non-marital cohabitation among women 25-44, by education level and year (log-odds, estimated from crude proportions).

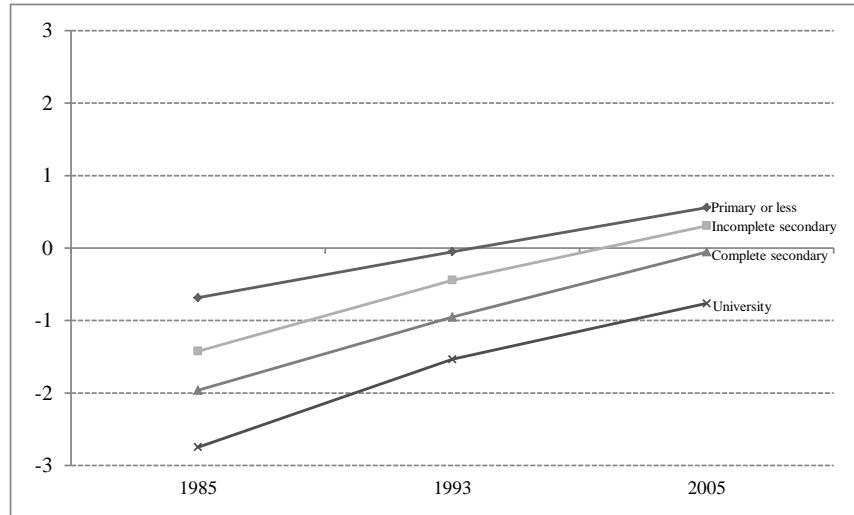
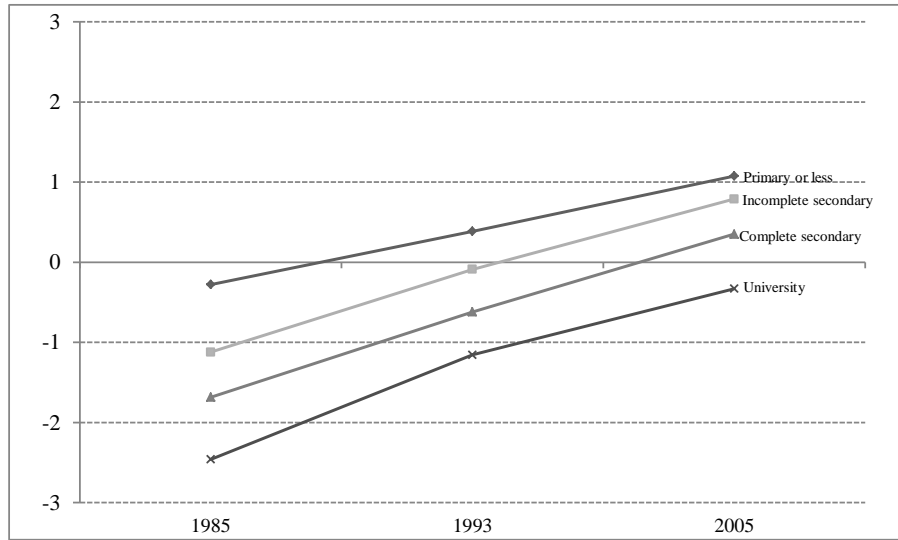


Figure 5b shows estimated logistic regression coefficients of being in non-marital cohabitation in relation to education level and census year. Figures 5a and 5b have been made comparable, showing log-odds ratios. The overall level in figure 5b depends on the reference categories for the control variables, but the distance between the curves and the slope of the curves are invariant, and directly comparable to the “uncontrolled” log-odds ratios shown on Figure 5a. Estimated coefficients support the assumption of the negative effect of age on cohabitation levels. Controlling this fact and using younger women as reference group, coefficient values for less educated, compared to women with a university degree, are increased when controlled for age. Less educated women are older (due to the increase in education by cohort) and they are more often cohabiting than women with a university degree. The contrast with women with a university degree of the same age is larger than the crude contrast with (younger) women with a university degree.

Figure 5b. Non-marital cohabitation among women 25-44, by education level and year (log-odds, estimated from logistic regression coefficients).



A number of factors may have contributed to these results, education level has been increasing with time and therefore people are more educated. At the European level, it is a fact that educational attainment is directly related with changes in the timing of entrance into unions and as a result, people in union are increasingly older and more educated (Sobotka and Toulemon 2008). In the Latin American context this is not entirely accurate, although it is true that educational expansion in the second half of the 20th century had a strong impact on average educational level (Esteve, Lesthaeghe and López 2012), it is also true that the mean age at first union remained remarkably stable throughout the same period (Fussell and Palloni, 2004; Esteve, López and Spijker 2013). If one makes the assumption that starting at age 25, educational training is almost completed and a large part of these women have entered in union. The mean age at entering first union in Latin America did not exceed age 25 in 2000 census rounds (Fussell and Palloni, 2004). Moreover, people with complete secondary and university degrees are mostly young and older people have mainly incomplete secondary or primary education. Controlling for age, remain a higher effect of primary schooling compared with other levels of education.

Log-odds ratios in Figure 6a display how education attainment behaves on non-marital cohabitation by birth cohorts. Rising patterns of cohabitation by educational groups are strikingly consistent among generations and do not show meaningful differences among educational levels, women with primary education display a higher tendency to cohabitation both between all birth cohorts and others educational categories. Non-marital cohabitation is strongly associated with younger generations and less educated women, but in older women poorly educated, cohabitation was a well-known practice. The breaking point took place for the 1961-65 birth cohorts in which the preference between marriage and cohabitation among women with the lowest education level (primary or less) is reversed in favor of the second. For the youngest cohort 1976-80, less educated women (with complete secondary or less) already preferred cohabitation over marriage.

Figure 6a. Non-marital cohabitation among women 25-44, by education level and birth cohort (log-odds, estimated from crude proportions).



Estimated log-odds ratios have a specific effect of period, in which younger cohorts are affected by data collection. This means that more recent cohorts have a structure defect of age that selects younger women (see Figure 4). Controlling for age, there are no significant differences on non-marital cohabitation by educational attainment among birth cohorts (Figure 6b). In previous cohorts to 1951, only women above the age of 30 can be observed. One can suppose that older women cohorts mostly correspond to long unions' duration and second unions, while young cohorts have different types of unions' duration. If cohabitation decline with union duration, increasingly delayed unions lead to shorter unions and therefore, these couples have a greater propensity to be in cohabitation and not in marriage.

Some social and structural factors are useful to explain large part of these results: the fact that disruptions and new unions are becoming more popular at both younger and older ages, educational attainment as good proxy of social class could support the postulate of some social researchers that argue that the determining factor of cohabitation is poverty (Castro Martín 2002) or the fact that demographic structure is mostly young population thereby specifically favoring cohabitation unions. In Colombia, contextual factors such as the legal recognition of non-marital couples in 1990¹ might have supported a gradual opening to informal unions.

Figure 6b. Non-marital cohabitation among women 25-44, by education level and birth cohort (log-odds, estimated from logistic regression coefficients).

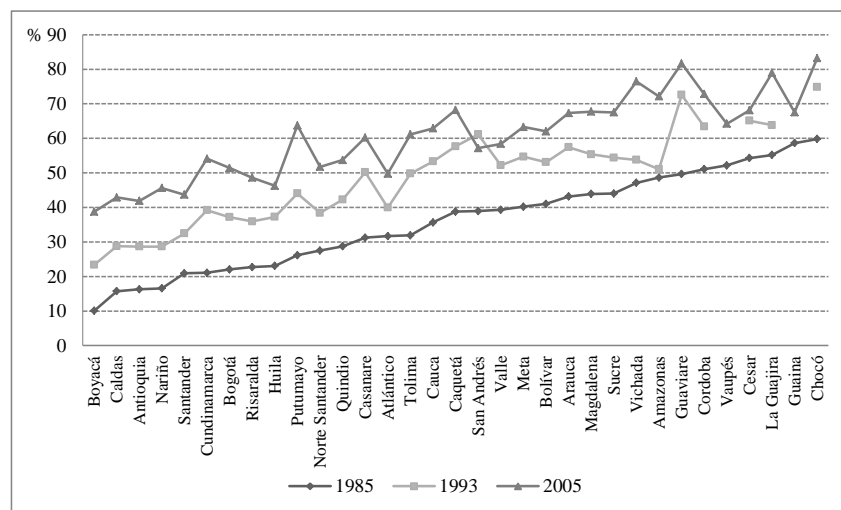
¹ Law No.54/1990 defines legally de facto marital unions as “one formed by a men and a women who, not being married to each other, make a permanent and singular common life”.



3. The territorial disparities

Colombia is divided into 32 departments and the capital district of Bogotá. Regional distribution does not belong to the official territorial division, however, is a division commonly used that is supported by natural parameters. As shown in Figure 7, geographic distribution of non-marital cohabitation by Departments displays a very wide range of variation. This is the case of e.g. Boyacá (Central Region) and Chocó (Pacific Region) departments which have the lowest and highest values for all time-series. These extreme points vary considerably, the first one with average values of 10,1%, 23,4% and 38,7% and the second with 59,8%, 74,9% and 83,2% for the years 1985, 1993 and 2005, respectively. This range of variation represents that differences in the ratio of maximum and minimum values fluctuate between 2,1 times in 2005 to 5,9 times in 1985. Highest values are mostly concentrated among departments placed in Caribe, Pacífico and, Orinoquía and Amazonia regions, while lowest values are focusing in Central region of which it is part Bogotá.

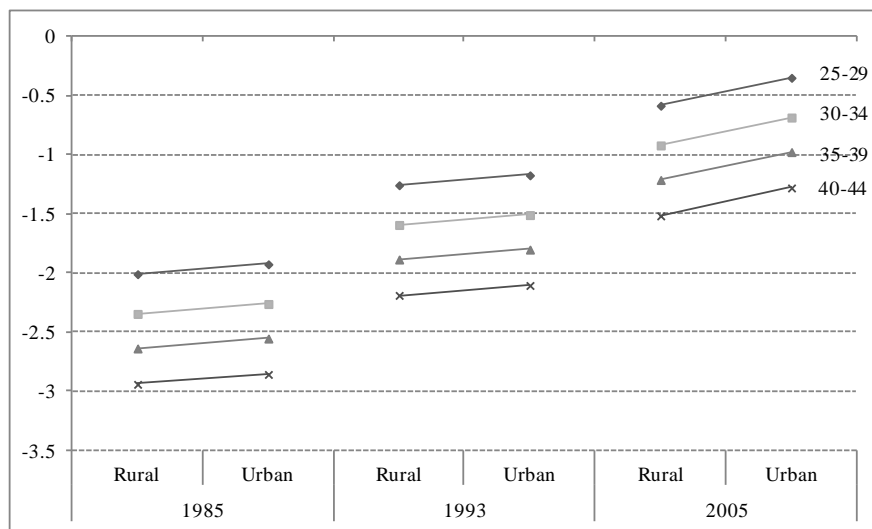
Figure 7. Pattern of cohabitation among all women in union 25-44, Departments of Colombia, years 1985-2005.



Closely related to geographical distribution of cohabitation the issue arises as to whether the predisposition is greater depending on the rural or urban distinction². Some research has suggested that there effectively exist a link between the fact of being cohabiting and the place of residence (Carlson and Klinger 1987; Castro Martín 2002). Cohabitation grew to a greater extent among middle and upper strata of developed society, while in Latin America this was spread first among lower social classes (Castro Martín 2002). Two indicators of deprivation: low socioeconomic status and low educational attainment, are probably the basis to claim that rural sectors are associated with a high prevalence of consensual unions.

In order to measure what the effect is of urban status on cohabitation was used a logit model as a function of age, year, education and the interaction between year and urban status (Figure 8). Non-marital cohabitation has become more common in urban than in rural areas. Before 2005, there are no substantial differences between rural or urban areas but in this year a greater tendency to cohabitation can be easily seen in urban setting. The gap among age categories is stable over time, younger women are particularly more likely to experience consensual unions than older women and this probability is intensified in urban areas.

Figure 8. Non-marital cohabitation among women 25-44 by place of residence and year (Log-odds).



Using the regional nomenclature adopted by Ipums were recoded 4 large areas³ that are adjusted to border limits of Regions in Colombia, while the Capital District of Bogotá was analyzed as one single territorial

² Urban or rural classification defined by municipal law in Colombia recognized the head town (“cabecera”), of each municipality as *urban* and the rest of the municipal area including other populated centers as *rural*. This definition had been systematic for all census rounds.

³ *Caribe* groups the departments of Atlántico, Bolívar, Cesar, Córdoba, La Guajira, Magdalena, Sucre and San Andrés Island. *Pacífica*: Cauca, Chocó, Nariño and Valle del Cauca. *Central*: Antioquia, Boyacá, Caldas, Cundinamarca, Huila, Norte de Santander, Quindío, Risaralda, Santander and Tolima. *Orinoquía and Amazonía*: Caquetá, Meta, Arauca, Casanare, Putumayo, Amazonas, Guainía, Guaviare, Vaupés and Vichada.

unit. Regional distribution has the particularity of do not follow the departments' borders. To resolve this, large regions were grouped respecting the larger or smaller territorial belonging of each Department. Figure 9 displays the results of the logistic regression model; this includes both estimated and adjusted beta coefficients.

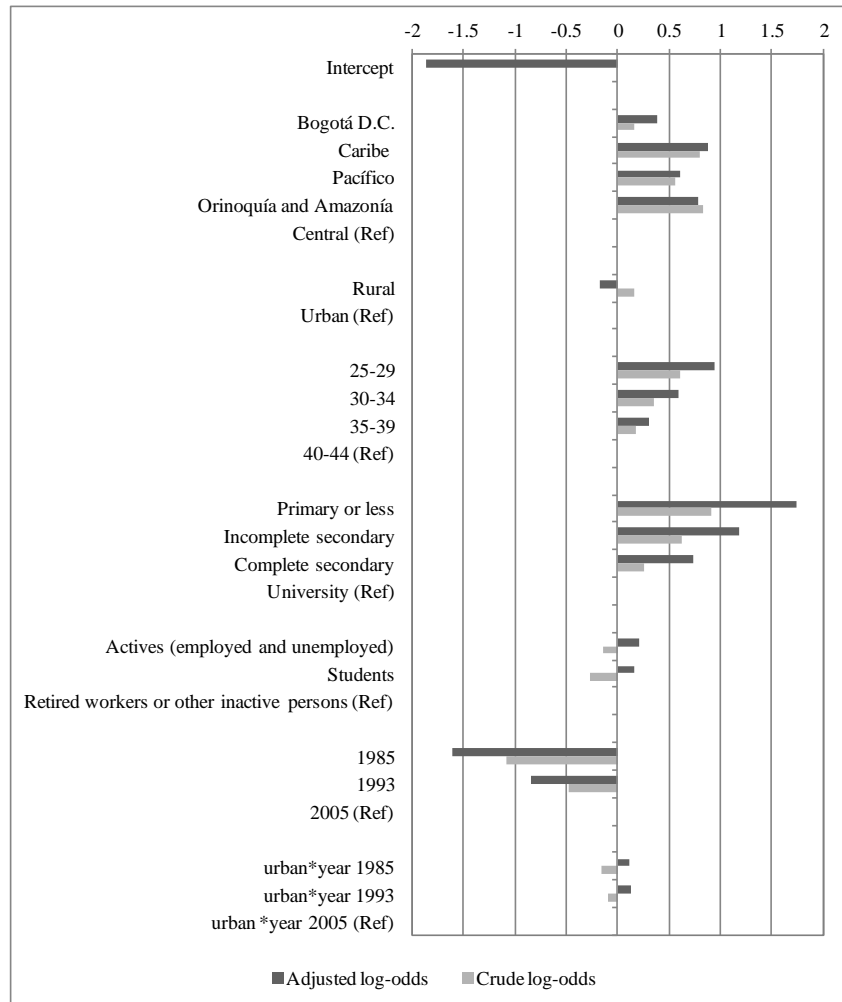
Women in Caribe, Pacífico and, Orinoquía and Amazonía Regions have a larger positive effect to forming non marital unions than women in Central Region , but this effect is nearly doubled in the case of Bogotá when is adjusted for all other variables. Living in rural areas rather than urban areas has by itself a positive effect on cohabitation but when place of residence interact mainly with educational level attainment this effect is exactly the opposite (Appendix table A1). This is one of the reasons why the effect is greatly increased in the capital, with almost 100% of people living in urban areas. Non-marital cohabitation is strongly associated with youth. Younger women in couple, independently of other characteristics, mostly prefer to be in informal unions than in formal marriage. But age at the same time is inversely proportional to cohabitation. As has already been pointed out, educational attainment is strongly affected by age structure, maintaining this effect constant differences among educational categories in relation to university education are substantially larger.

When the effect of other variables is controlled, students and active women show a larger propensity to form cohabiting couples than retired people but much less than expected in a context of “new cohabitation” expansion. This pattern seems to respond, among other things, to a greater spread and assimilation of informal unions by social class. Cohabitation is more attractive for active workers even more than for students, one can be inferred then that that type of union does not a transient state is more a lasting situation among couples.

There is no doubt that increase in female education changed the marriage market in many ways, one of them was the position of women in labour market and the feeling of economic independence that was reflected in social life. Among retired and inactive people, the lack of qualifications with regard to other occupational categories together with a higher average age facilitated the adoption of pattern more orientated to marriage. Marriage for women offers more advantages than informal unions in terms of security to start a family and have children, even more if there is no a promising future ahead.

The time effect as one might suspect is negative for years 1985 and 1993 regarding to 2005, this only confirms the idea of cohabitation expansion over time. Nevertheless, time effect drops considerably by the interaction with urban status. Regardless other variables, women in union who lived in rural areas in both 1985 and 1993 have a slightly greater positive effect towards cohabitation than women of urban areas in 2005.

Figure 9. Log-odds, crude and adjusted from a logistic regression of the fact of being in non-marital cohabitation among women in union 25-44.



Figures 10a and 10b show internal territorial variations of non-marital cohabitation by Regions, when variables as age, education and urban status held constant. Estimated and adjusted log-odds were calculated using values for Central Region in 1985 as reference group. This region is known for its high level of economic and social welfare relative to other regions, but also for its historical tradition to marriage. Looking just the effect of time on cohabitation in terms of log-odds, Bogotá and Central Region in 1985 were far from other Regions. Twenty years later gap among regional categories decreased notoriously, representing a higher increase among them less likely to cohabiting (Figure 10a). When control variables are introduced the effect is heightened in all territorial units. In relation to log-odds values for Central Region in 1985, Bogotá increases its estimates in such a way that in 2005 values were equal to Pacific Region (Figure 10b).

Figure 10a. Non-marital cohabitation among women in union 25-44 by Regions, years 1985-2005 (log-odds, estimated from crude proportions).

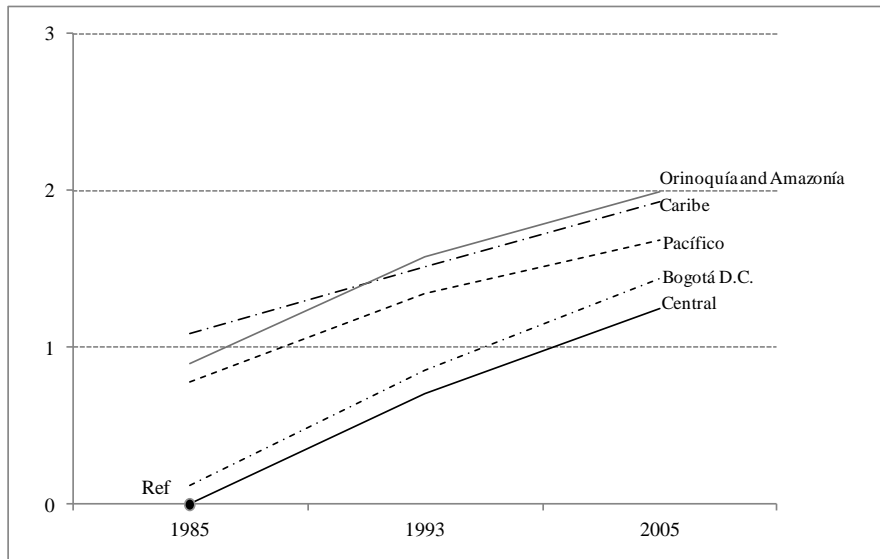
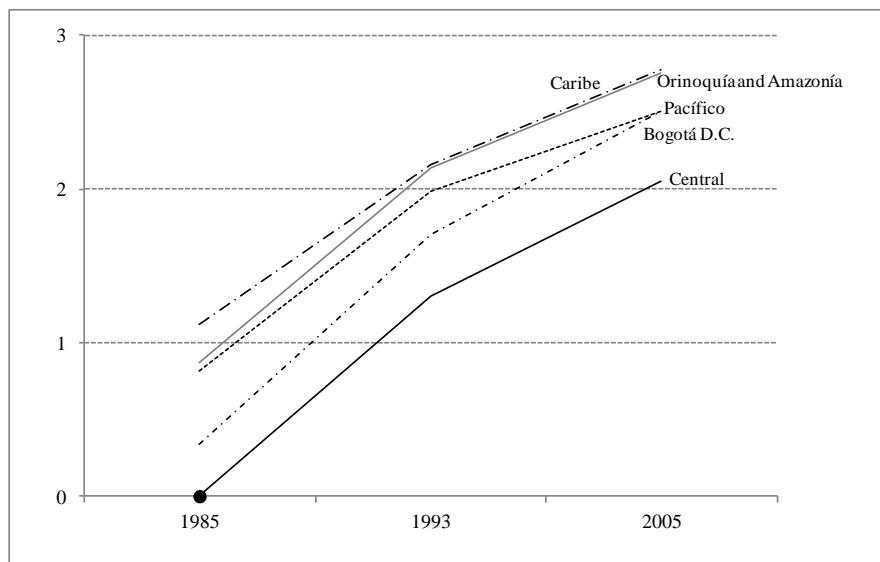


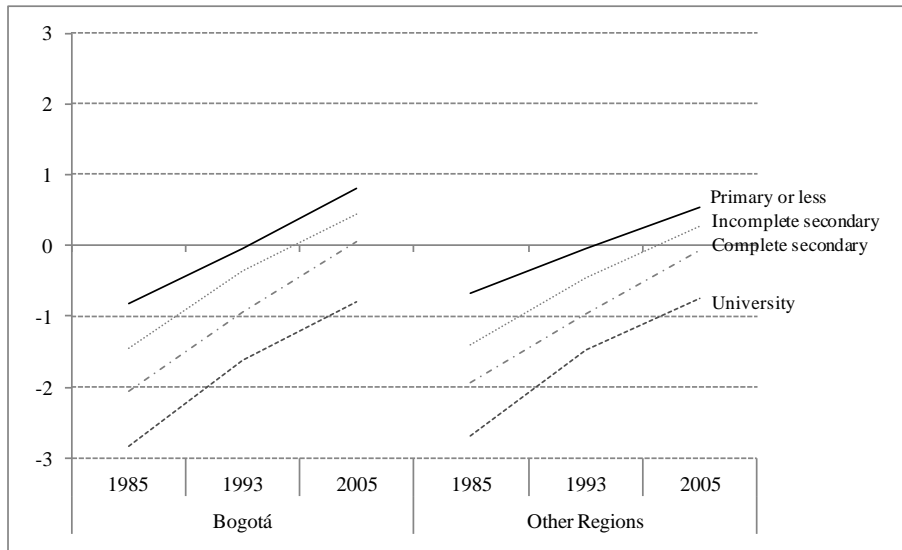
Figure 10b. Non-marital cohabitation among women in union 25-44 by Regions, years 1985-2005 (log-odds, estimated from logistic regression coefficients).



For the purpose of assessing whether a type of cohabitation more akin to modern characteristics is growing more than traditional type, Regions were grouped together as Other Regions and were examined jointly with respect to Bogotá. Figure 11 shows second and third order interactions between Region, education and year variables. Differences among educational groups in Bogotá are very similar to those in Other Regions, but the propensity to form cohabiting unions is higher among in less educated than in better educated women contrary to what might have been supposed. Log-odds in women with primary schooling in Bogotá are steadily increasing even more than elsewhere. While log-odds of non-marital cohabitation for university women in Bogotá are just slightly higher than those observed in other places for all time periods.

Under the assumption that the tendency towards cohabitation should be higher in places where educational average is higher (Appendix Table A2), there are serious indications to the contrary. Cohabitation has risen among all educational groups but continues to be more rooted in low educated women in spite of the territorial effect.

Figure 11. Non-marital cohabitation in Bogotá and other regions among women in union 25-44, years 1985-2005. (Log-odds ratios estimated from logistic regression coefficients).



Conclusions

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Appendix

Table A1. Logistic regression results expressed as beta coefficients of being in non-marital cohabitation among women in union 25-44.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	-0,61	-1,28	-1,36	-1,79	-3,27	-3,46
Region						
Bogotá D,C,	0,17	0,16	0,23	0,23	0,41	0,38
Caribe	0,80	0,82	0,83	0,83	0,87	0,87
Pacífico	0,56	0,82	0,59	0,60	0,62	0,61
Orinoquía and Amazonía	0,83	0,82	0,82	0,81	0,79	0,78
Central (Ref)	0	0	0	0	0	0
Year						
1985 (Ref)		0	0	0	0	0
1993		0,61	0,62	0,65	0,75	0,77
2005		1,10	1,11	1,19	1,56	1,58
Urban/rural status						
Rural			0,22	0,22	-0,13	-0,11
Urban (Ref)			0	0	0	0
Age						
25-29				0,75	0,93	0,94
30-34				0,46	0,60	0,60
35-39				0,23	0,30	0,30
40-44 (Ref)				0	0	0
Education						
PrimaryorLess					1,63	1,74
Incompletesecondary					1,09	1,18
Complete secondary					0,66	0,73
University (Ref)					0	0
Profesion						
Actives (employed and unemployed)						0,22
Students						0,16
Retired workers or other inactive persons (Ref)						0
-2 Log L (likelihood)	1306333,5	1264841,5	1262961,8	1247068,5	1176964,7	1162838,5
degrees of freedom	4	6	7	10	13	15

Table A2. Frequency distribution of main variables by Regions.

	Bogotá D,C,	Caribe	Pacífico	Orinoquía and Amazonía	Central	Colombia (All)
Rural	0,2	26,8	29,1	32,2	30,9	24,5
Urban	99,8	73,2	70,9	67,8	69,1	75,5
25-29	27,6	29,2	28,0	30,0	27,5	28,1
30-34	27,6	27,0	27,1	27,6	26,8	27,1
35-39	24,9	24,7	25,1	24,5	25,3	25,0
40-44	19,9	19,1	19,7	18,0	20,5	19,9
Primary or less	39,3	61,4	62,7	67,4	62,6	58,6
Incomplete secondary	17,1	12,8	12,0	10,5	11,8	12,9
Complete secondary	20,4	14,7	14,7	13,3	15,4	15,9
University	23,2	11,1	10,6	8,7	10,1	12,6
Actives (employed and unemployed)	53,0	29,0	34,7	33,4	31,7	35,4
Students	1,6	1,3	1,4	1,2	1,3	1,4
Retired workers or other inactive persons	45,4	69,7	63,9	65,5	67,0	63,3
1985	24,7	24,7	26,1	22,8	26,3	25,5
1990	34,8	33,8	35,0	33,2	34,7	34,5
2005	40,4	41,5	39,0	44,0	39,1	40,0