

Trends in age at first union and first child in Latin America: Stability across more educated cohorts¹

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Abstract

In this article we document trends in age at first sexual inter-course, union and child across cohorts of women born in 13 Latin American countries between the 1940s and 1980s. We examine the relationship between years of schooling and age at first union and first child to shed light on the following paradox: if years of schooling delay union formation and childbearing, why more educated cohorts do not form unions and have children at later ages compared to less educated ones? Logistic regression results show that the expected delays in first sexual inter-course, union formation and childbearing due to educational expansion have been offset by changes in behavior within educational groups across cohorts. At each educational level, but clearly among women with less than 12 years of schooling, women born in the 1980s have been forming unions and having children earlier than women with analogous years of schooling born 40 years before. These results question the automatic impact of education and stress the importance of the social and cultural milieu in which educational expansion is taking place. In this regard, we show that a relative measure of education that ranks each woman's education based on the educational distribution of her cohorts fits better the stable cohort trends. We also show that despite educational expansion, preferences in ideal family size have neither changed over time, nor show significant differences by years of school. Finally, lack of efficient contraception at early ages may also be related to the stability of young mothers across cohorts.

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INTRODUCTION

In this article we document trends in age at first union and first child across cohorts of women born in 13 Latin American countries between 1940 and 1980. We examine the relationship between educational attainment and age at first union and first child to shed light on the following paradox: if years of schooling delay union formation and childbearing, why more educated cohorts do not form unions and have children at later ages compared to less educated ones? We refer to this paradox as the age-stability paradox. First, we provide background for the paradox both in terms of previous research that has partially dealt with it. Second, we document cohort trends in age at first union and first child. We also include trends in first sexual-intercourse despite we mainly focus in the other two. Third, we examine the relationship between years of schooling and age at first union and first sex and decompose cohort trends between changes in the educational distribution of women and changes in age at first union and first child within educational groups.

Latin America has gone through major family transformations in recent decades. Total fertility rates have decreased throughout the region. In 1970, fertility rates were above 3 children per woman in all Latin America countries (from Mexico to Argentina) with the only exception of Uruguay. By 2010, all countries but Bolivia, Guatemala, Haiti, were below that level and a growing minority of them had already reached the 2.1 replacement level (e.g. Bolivia, Chile, Costa Rica, Cuba, El Salvador and Uruguay) (CELADE, 2013). As a result, the average household size has decreased, from nearly 4.6 to 3.8 persons per household in countries like Ecuador, Peru and El Salvador. Marriage has undergone an intense process of deinstitutionalization, mainly due to the rapid increase in unmarried cohabitation (Esteve et al. 2013), which has boomed across all social groups and regions of Latin America. As a consequence, the percent of children born out of wedlock has spiked, from 17% to 39% between 1970 and 2000 for 13 Latin American countries (Castro et al, 2011). Such family transformations have occurred in years of great economic, social and political change. Economically, Latin America went over periods of severe economic difficulties (ie. the inflation period of the 80s) and more recent periods of economic expansion. Female activity rates have increased from 38.1% to 52.5% between 1990 and 2010 (CELADE, 2013) and education has expanded considerably. School attendance rates at Primary level are technically universal in all countries and the average number of years of schooling has grown an average of 4,5 years between women older than 20 years old, born in the 1940s and those born in 1980.

Despite these transformations, women's age at first union and first child has remained quite stable across cohorts and over time. This has been a puzzling characteristic of Latin American family systems that has set this region apart from other areas of the world where the surge of non-conformist family forms (e.g. low fertility, high cohabitation, more children out of wedlock, high union stability) has occurred in parallel with delays in union formation and childbearing⁴. The stability paradox has been already the basis of important work. In 2004, Fussell and Palloni attributed the persistence of early and nearly universal family formation in Latin America to the value placed in family networks in a context economic turmoil. Consistent with this argument, Esteve and colleagues (2013) found out that despite recent increases in non-marital cohabitation and single motherhood, more than 40% of cohabiting couples and about 60% of single mothers were co-residing with at least one parent/parent in

⁴ Precisely, it has been the lack of postponement that has led some authors to question the Latin America's fit to the Second Demographic Transition.

law, a percent that had not decreased among recent cohorts and that did not present significant differences by educational attainment. All in all, these results underline the importance of family support to young people.

On the specific relationship between education attainment and union formation and childbearing, Castro (1995) explored the relationship between women's education and childbearing using Demographic and Health Survey Data from 26 developing countries, including 10 from Latin America. Fertility differentials by education were present in all countries, but the effect varied across Latin America. Castro compared DHS data with World Fertility Data (produced on average 10 years before) to examine if the cross-sectional gradient between education and fertility was consistent with the time trend. She found that fertility behavior within analogous educational groups had changed during the inter-survey period to the extent of offsetting the expected delays in childbearing due to educational expansion. Along the same line, Heaton (2002) was puzzled by the fact that trends in first sexual intercourse, union and childbearing were relatively flat as measured by birth cohorts, urging researchers to pay further attention to the lack of correlation between the individual level and the long-term social change. Regarding age at union formation, Esteve and colleagues (2013) demonstrated, using census micro data, that the expected postponement in age at union formation due to educational expansion was offset by earlier union formation (mostly through non-marital cohabitation) among the least educated and formally largest groups.

The stability paradox, should not underestimate the importance of education (Heaton et al. 2002; Castro and Juárez 1995; Wulf and Singh 1991; Heaton and Forste 1998). Indeed, in comparative perspective, Latin American stands as the region in which the relationship between education and fertility behavior is strongest (Castro, 1995). Using DHS data for 9 Latin American countries in the lately 80s, Castro and Juárez performed a multivariate analysis to examine through which mechanisms education was having its largest influence on fertility. Results pointed out that the socioeconomic dimension of education. High education was closely correlated to socioeconomic status and status with low levels of fertility. Nevertheless, the authors found out that there were no significant differences in desired fertility across educational groups, which suggest that social diffusion processes may have homogenized reproductive norms across social strata. Despite homogeneous goals in fertility, the gap between wanted an observed fertility varied by educational group, being largest among the lower educated women. The size of the gap was mostly attributable to differences in contraceptive practices across educational groups.

Despite the mounting evidence on the strong correlation between education and age at union formation and childbearing, the cohort and overtime stability in age at union formation and childbearing in Latin America still remains a puzzle. Compared to previous research, this article focuses mainly on the stability paradox regarding age at first union and first child and presents additional data that may contribute to understand the paradox. The additional data refers to three dimensions. First, we will examine the relationship between years of schooling and age at first union and first child using a relative distribution of years of schooling based on the quartiles specified for each cohort. Hence, instead of comparing groups with the same amounts of schooling across cohorts, we will compare women based on their relative position within their cohorts. It has been commonly argued in Latin American that educational expansion has not contributed to eradicate social inequality but to reproduce it. If this is the case, the absolute number of years of schooling may not be as relevant as the women's position within the educational hierarchy with respect to women of the same cohort.

Second, we will examine the extent to which the ideal family size has changed across cohorts and educational groups, as suggested by Castro and Juárez (1995), based on similar data from the 1980s. Have preferences in ideal family size have changed? Are there significant differences by years of school?

Third, we will investigate patterns of contraceptive use among those women who had their first child before age 18. What percent of mothers by age 18 were using contraception before giving birth to their first child? Are there significant differences across educational groups? Have trends in contraception changed across cohorts?

DATA

We use data from 39 Demographic and Health Surveys held in 13 Latin American countries from 1986 to 2012. DHS data come from representative surveys of women age 15-49 that have between 4,000 to 53,000 cases depending on the country and year. Table 1 shows the characteristics of the samples included in our analyses. DHS coverage in terms of years and countries is not homogeneous. DHS data offer retrospective information about women. We are interested in the following main variables: age at first sexual intercourse, age at first union, and age at first child. For each variable, we created a dichotomous variable to identify women who had experienced first sex, first union or first child before age 18. The percent of women who had experienced such events before age 18 is an indirect measure of the mean age at union formation with the advantage of not requiring complete cohorts to get this estimate. As long a cohort has reached the 18 years of age, this figure can be estimated. Besides, it is strongly correlated to the median and age at first union or first child.

Table 1. DHS, by country, year of survey, cohorts, and total number of women over 20 years observed in the study. Latin America region

Country	Year of interview						Cohorts	Women >20 years
	1985- 1989	1990- 1994	1995- 1999	2000- 2004	2005- 2009	2010- 2012		
Bolivia	1989	1993-94	1998	2003-04	2008	-	1940-89	48.879
Brazil	1986	1991-92	1996	-	-	-	1940-79	19.564
Colombia	1986	1990	1995	2000	2004-05	2009-10	1940-89	100.176
Dominican Rep.	1986	1991	1996	2002	2007	-	1940-89	58.087
Ecuador	1987	-	-	-	-	-	1940-69	3.535
Guatemala	1987	-	1995	-	-	-	1940-79	13.448
Haiti	-	1994-95	-	2000	2005-06	2012	1940-89	29.527
Honduras	-	-	-	-	2005-06	2011-12	1950-89	31.378
Mexico	1987	-	-	-	-	-	1940-69	6.754
Nicaragua	-	-	1997-98	2001	-	-	1940-89	20.246
Paraguay	-	1990	-	-	-	-	1940-69	4.565
Peru	1986	1991-92	1996	2000	2003-08	2012	1940-89	111.793
Trinidad & Tobago	1987	-	-	-	-	-	1940-69	3.002
Totals: 13 countries 39 surveys	9	7	7	6	6	4	-	450.955

To analyze change over time, we used a cohort perspective. All women who were 20 years or older at the time of the interview were included in the analysis. The number of cohorts varies from country to country subject to data availability.

Using multiple DHS for a single country, we have gathered data of the same cohort at different points (ages) in time. As a result, we have gained in sample size. We have performed sensitivity analysis to examine if women's responses within cohorts are consistent over time. Results are consistent except for age at first sexual intercourse in Bolivia, Brazil, Colombia, Dominican Republic, Haiti and Peru. In these countries, the percent of women of the same cohort who reported to have had sex before age 18 increased over age. Our models include age at response to control for the age at response bias introduced by the age at which women responded the questionnaire. Cohorts have been grouped in ten years intervals: 1940-49, 1950-59, 1960-69, 1970-79 and 1980-89.

Finally, we constructed two measures of educational attainment based on years of schooling. The first one, groups years of schooling into four categories: <5 years, 6-8, 9-11, 12 and more. The second one measures the relative position of each woman's education according to the educational distribution of her cohort. We have used four categories using quartiles as threshold for each group. The first category groups the 25% of women with less years of schooling. As education expands, the number of years of schooling that correspond to each quartile grows up.

RESULTS

Cohort trends in age at first sexual intercourse, first union and first child

Table 2 shows data on the percent of women who have experienced first sexual intercourse, first union and first child before age 18 by cohort and country of residence. The higher the percent, the more women of that cohort had experience the corresponding event before age 18. If the percent is stable across cohorts, it means that women from later cohorts were forming their first unions and having their first children at similar ages than women from earlier cohorts. The percent of women that had first sexual intercourse by age 18 in Latin America was on average 50%. Mexican and Brazilian women born before the 1970s show the lowest percents in sexual debut by age 18. By contrast, women from the Dominican Republic, Nicaragua, Haiti and Colombian women born since the 1970 show the highest prevalence of sexual debut by age 18. Cohort trends do not depict a clear pattern expect of Dominican Republic, Colombia, Haiti and Brazil. In these countries, results show that recent cohorts have had their sexual debut at earlier age compared to women from older cohorts.

Regarding age at first union (marriage or cohabitation), the percent of women ever in union by age 18 was around 40%. In Central America, at least 50% women had formed their union before age 18. This percentage is much lower in Mexico and South America, hardly above 40%, which suggest later transition to first union compared with the countries in Central America. Brazil stands out as the country with the lowest percent of women ever in union by age 18. Despite differences across countries, cohort trends over are fairly stable. The slight variations that we observe between cohorts do not depict a clear trend. In the Dominican Republic, the percent of women ever in union by age 18 has remained stable at the 50% level. Similar stability is observed in Colombia, Brazil, Bolivia and Haiti. Only Peruvian,

Nicaraguan and Paraguayan women show some postponement signs between the two most recent cohorts, although they need to be interpreted with caution.

Table 2. % women aged older 20 who had first intercourse, first union or first birth before age 18, by cohort, according to country.

Countries	First intercourse					First union					First birth				
	40s	50s	60s	70s	80s	40s	50s	60s	70s	80s	40s	50s	60s	70s	80s
Dominican Rep.	62%	56%	53%	59%	63%	60%	51%	47%	51%	49%	40%	33%	31%	35%	35%
Honduras	.	60%	57%	59%	56%	.	53%	49%	50%	46%	.	38%	36%	38%	36%
Nicaragua	59%	62%	61%	61%	57%	54%	57%	58%	58%	52%	43%	43%	43%	42%	40%
Guatemala	55%	58%	59%	54%	.	47%	52%	53%	.	.	35%	37%	40%	37%	.
Trinidad & Tobago	53%	46%	46%	.	.	45%	41%	43%	.	.	30%	25%	22%	.	.
Peru	50%	50%	50%	49%	51%	37%	33%	32%	29%	27%	28%	27%	25%	23%	23%
Haiti	50%	54%	59%	62%	66%	34%	32%	36%	35%	32%	23%	23%	25%	25%	22%
Bolivia	49%	52%	55%	54%	53%	34%	35%	36%	33%	32%	27%	27%	29%	29%	30%
Ecuador	48%	51%	46%	.	.	41%	41%	38%	.	.	29%	30%	27%	.	.
Colombia	48%	47%	50%	62%	72%	37%	32%	30%	32%	32%	28%	24%	23%	28%	29%
Paraguay	46%	46%	51%	50%	.	35%	32%	34%	27%	.	24%	23%	27%	23%	.
México	45%	45%	38%	.	.	43%	43%	37%	.	.	31%	31%	29%	.	.
Brazil	38%	42%	47%	52%	.	33%	32%	34%	31%	.	20%	21%	25%	25%	.

Source: Demographic Health Survey, DHS. *Note:* .=unavailable

Finally, table 2 provides information on the percent of women who had their first child before age 18. Compared to first sexual inter-course and first union, the percent of mothers by age 18 is lower: 30% of women were mothers by age 18. Cross-national variations in age at first child are closely correlated to country differences in age at first union. The highest proportions of mothers at age 18 are found in Central America (typically above 30 and even 40%) and the lowest in Mexico and South America (at 30% or lower). As it was for the percent of women ever in union, Brazil has the lowest percentage of mothers at age 18 of all countries. Cohort trends do not show any consistent pattern, except for being mostly stable. The percent of women in Nicaragua who were mothers by age 18 changed from 43% to 40% between cohorts in the 1940s and the 1980s. Peruvian women are the only ones that show steady but modest declines in the percent of mothers by age 18 (from 28% to 23% between 1940s and 1980s cohorts), suggesting a delay in childbearing.

Female educational expansion

Table 3 shows the distribution of women by years of schooling and the cohort specific quartiles from the cumulative distribution of years of schooling. To illustrate cohort trends, we show data for the earliest and most recent cohorts available in each country. About sixty percent of women born in the 1940s had less than 5 years of schooling and no more than 10% had 12 years of schooling. During the last four decades, women's education has expanded dramatically. Between the earliest and most recent cohorts, the percentage of women with less than 5 years of school at least halved and the percent of with more than 12 years at least doubled in all countries. As an example, the percent of Dominican Republic women with 12 or more years of school rose from 8 to 46% between the cohorts born in the 1940 and those

born in the 1980s. Educational expansion has increase the number of years of schooling associated to each quartile. In Peru, the years of school that set the 25% of women with the lowest level of education increased from 1 to 8 between the earliest (1940s) and most recent cohort (1980s).

Table 3. Percentage distribution of women aged older 20, by years of schooling they have completed, by cohorts, and quartiles of years of schooling.

Country	Cohorts	Years of schooling				Quartiles		
		<5 years	6-8 years	9-11 years	12+ years	Q1	Q2	Q3
Bolivia	1940	73%	10%	5%	12%	0	2	6
	1980	22%	13%	13%	51%	6	12	13
Brazil	1940	75%	9%	10%	6%	1	3	5
	1970	41%	26%	28%	6%	4	7	11
Colombia	1940	71%	11%	13%	5%	2	4	7
	1980	17%	11%	40%	32%	8	11	13
Dominican Republic	1940	67%	20%	5%	8%	2	4	7
	1980	13%	18%	22%	46%	8	11	12
Ecuador	1940	50%	28%	10%	11%	2	5	7
	1960	22%	32%	17%	30%	6	8	12
Guatemala	1940	77%	12%	6%	5%	0	1	5
	1970	60%	17%	10%	12%	0	3	7
Honduras	1950	58%	24%	3%	16%	1	4	6
	1980	26%	35%	10%	29%	5	6	12
Haiti	1940	92%	4%	3%	1%	0	0	1
	1980	38%	20%	26%	15%	4	8	11
México	1940	60%	25%	11%	4%	1	4	6
	1960	30%	24%	29%	16%	4	7	9
Nicaragua	1940	64%	19%	11%	6%	0	3	6
	1980	31%	25%	30%	14%	4	8	11
Peru	1940	61%	9%	16%	13%	1	5	10
	1980	10%	15%	38%	36%	8	11	13
Paraguay	1940	57%	26%	5%	11%	3	5	6
	1970	25%	38%	15%	22%	6	6	11
Trinidad & Tobago	1940	37%	41%	19%	2%	5	7	8
	1960	12%	30%	56%	2%	7	10	10

Source: Demographic Health Survey, DHS.

First sexual inter-course, first union and first child by years of school

Table 4 shows the percent of women that had their sexual debut, first union and first child before the age 18 by years of schooling and country of residence. We compare the results between the earliest and most recent cohort in each country. Two main conclusions arise. First, women with more years of schooling are less likely to have experienced first sexual

intercourse, union or child than women with less amounts of schooling. Hence, years of schooling delay transitions to union formation and childbearing in all countries. For example, 24% of Brazilian women born in the 1940s with less than 5 years of school were mothers by age 18, compared to only 2% among women with 12 or more years of formal education. Second, cohort trends shot that the percent of women who had sexual intercourse, had been in union and had children before age 18 has increased in all educational groups, which implies that women born in recent years are speeding up their sexual activity, first union and first child compared to women born earlier with the same amounts of schooling. By bringing forward the age at first sex, first union and first child, these women are offsetting the postponement effect that the expansion of education should have had on the cohort's aggregate behavior. The three lowest educational categories show the highest change over time. For instance, the percent of Bolivian women with less than 5 years of schooling that had been in union by age 18 went up from 38% to 54% between cohorts born in the 1940s and the 1980s.

Table 4. % women aged older 20 who had first intercourse, first union or first birth before age 18, by years of schooling and cohort, according to country.

Country	Cohort	First intercourse				First union				First birth			
		<5	6-8	9-11	> 12	<5	6-8	9-11	> 12	<5	6-8	9-11	> 12
Bolivia	1940	55%	52%	36%	19%	38%	37%	23%	11%	30%	29%	17%	7%
	1980	73%	75%	75%	33%	54%	55%	48%	12%	52%	53%	43%	11%
Brazil	1940	44%	29%	18%	10%	39%	27%	15%	6%	24%	15%	11%	2%
	1970	64%	57%	36%	28%	45%	34%	15%	6%	37%	28%	9%	2%
Colombia	1940	56%	37%	27%	12%	44%	29%	21%	11%	33%	22%	14%	6%
	1980	86%	87%	73%	57%	62%	58%	31%	9%	58%	56%	27%	9%
Dominican Republic	1940	71%	58%	35%	21%	69%	56%	32%	22%	47%	36%	18%	11%
	1980	90%	88%	68%	43%	83%	80%	53%	25%	72%	61%	36%	13%
Ecuador	1940	57%	47%	44%	15%	48%	42%	34%	12%	35%	31%	21%	5%
	1960	74%	57%	38%	18%	60%	50%	32%	13%	48%	36%	18%	7%
Guatemala	1940	61%	36%	43%	17%	54%	32%	29%	9%	39%	26%	18%	7%
	1970	67%	50%	39%	9%	61%	45%	30%	5%	48%	34%	18%	5%
Honduras	1950	73%	54%	45%	24%	65%	49%	25%	21%	48%	32%	21%	11%
	1980	75%	66%	53%	28%	67%	56%	41%	17%	56%	43%	30%	11%
Haiti	1940	52%	33%	34%	25%	34%	26%	20%	25%	24%	11%	20%	25%
	1980	78%	69%	59%	43%	49%	32%	21%	8%	37%	21%	12%	3%
México	1940	58%	30%	22%	16%	55%	30%	19%	8%	41%	24%	9%	1%
	1960	61%	46%	23%	10%	61%	46%	22%	8%	51%	34%	16%	4%
Nicaragua	1940	69%	53%	30%	24%	63%	47%	28%	29%	52%	37%	22%	0%
	1980	82%	69%	36%	24%	79%	67%	29%	13%	67%	50%	20%	4%
Peru	1940	64%	47%	30%	14%	48%	30%	21%	8%	37%	23%	15%	3%
	1980	76%	73%	57%	28%	56%	54%	29%	5%	54%	47%	23%	4%
Paraguay	1940	57%	40%	16%	15%	44%	32%	10%	8%	32%	19%	4%	4%
	1970	70%	54%	55%	17%	52%	29%	18%	0%	42%	25%	18%	0%
Trinidad & Tobago	1940	68%	52%	27%	33%	60%	44%	21%	6%	42%	30%	10%	0%
	1960	52%	60%	38%	12%	53%	57%	35%	12%	35%	33%	14%	0%

Source: Demographic Health Survey, DHS.

Decomposing cohort trends: educational expansion or rate change?

We now turn to logistic regression as way of standardizing cohort trends by changes in rates and changes in the educational distribution. All models control by the age of the respondent as we have noticed lack of consistency in the cohort responses at different ages (see Data

section). Table 5 summarizes the main results. It shows the logistic regression coefficients (odds ratio) of the most recent cohort. In all models, the earliest cohort is taken as a reference. There are three dependent variables: One for sexual intercourse, one for first union and the last one for first child before age 18. We have computed three models for each dependent variable. Model one has two variables: cohort and age at response. Model 2 adds years of schooling as categorical variable to model 1. Model 3 uses instead the relative distribution of schooling based on quartiles. Values above 1 indicate that women of the most recent cohorts are more likely to have experienced the event (sexual intercourse, union or child) compared to women from the earliest cohort. Values below 1 indicate that the probability has decreased and, thus, that there has been some postponement.

Regarding first sexual intercourse, model 1 yields significant coefficients in 6 out of the 13 countries. In all these countries, women born in recent years are more likely to have had sex before age 18 than women born in earlier years (i.e. 1940s of the 1950s). For example, Colombian women born in the 1980s are 4 times more likely to have had sex before age 18 than women in the 1940s. With regard to women ever in union, recent cohorts of women do not show a clear difference with respect to the oldest one. Coefficients are statistically significant in 5 countries and, when significant, they not show large differences. Cohort trends are less concluding when it comes to age at first child. Women born in the 1970s or the 1980s are not statistically significantly different from earlier ones, which confirm again the stability pattern.

Table 5. Probabilities of having the first sexual intercourse, first union or first child before age 18 by cohort and country. Probabilities estimated from 3 logistic regression models.

Country and cohort	First Intercourse			First union			First birth		
	Model	Model	Model	Model	Model	Model	Model	Model	Model
	1	2	3	1	2	3	1	2	3
Bolivia (1980s)	1,5*	2,9*	1,3*	0,9	1,6*	0,8*	1,1	2,0*	0,9
Brazil (1970s)	2,5*	3,5*	2,4*	0,9	1,4*	0,9	1,2	1,7*	1
Colombia (1980s)	3,9*	9,5*	5,3*	0,9*	2,2*	1	1,1	2,9*	1,4*
Dominican Rep. (1980s)	1,5*	5,9*	1,5*	0,8*	2,9*	0,7*	0,9	2,9*	0,8*
Ecuador (1960s)	0,8	0,9	0,6	1	1,1	0,8	0,9	0,9	0,7
Guatemala (1970s)	1,3	1,8*	1,3	0,8	1,2	0,8	0,9	1,2	0,8
Honduras (1980s)	0,8	1	0,7*	0,7*	0,8	0,8	0,8	1	0,7*
Haiti (1980s)	2,1*	3,5*	1,6*	0,6*	1,1	0,4*	0,8	1,5*	0,5*
Mexico (1960s)	0,9	0,9	0,5*	0,8	0,8	0,4*	0,9	1	0,5*
Nicaragua (1980s)	1,3	1,8*	0,9	1,1	1,4	0,7	1	1,3	0,7*
Peru (1980s)	1,3*	3,1*	1,7*	0,6*	1,5*	0,7*	0,8*	1,7*	0,9*
Paraguay (1970s)	1,2	1	0,7	0,9	0,8	0,6	1,1	0,9	0,7
Trinidad & Tobago (1960s)	1,2	1,4	0,7	1,2	1,4	0,8	0,8	1	0,5*

Source: Demographic Health Survey, DHS.

Model 2 adds years of schooling into model 1. Thus, model 2 hold years of schooling constant. At every category of years of schooling, women born in recent years (i.e. 1970s or 1980s) are more likely to have had first sex, first union or first child by age 18 compared to women borne in earlier years (i.e. 1940s or 1950s). The cohort coefficients are almost always

statistically significant and well above 1, which indicates that, regardless of years of schooling, women are speeding up their sexual debut, first union, and first child. With regard to sexual activity, at the same years of school, Colombian women born in the 1980s are 9.5 times more likely to have experienced sexual intercourse before age 18 than women born in the 1940s.

Results of models 1 and 2 show that the cohort stability derived from model 1 was indeed the result of two offsetting forces: educational expansion pushing in the direction of postponement (i.e. later transitions) and changes within educational categories pushing in the opposite direction (i.e. earlier transitions). This suggests a deflationary process of years of schooling as education expands. To illustrate this point, model 3 uses an alternative classification of years of schooling based on quartiles.

What does a relative measure of education bring to the story?

In Model 3 we use a relative measure of years of schooling based on quartiles. Each woman's years of schooling is classified according to her relative position within her cohort. Hence, a women with 9 years of school may belong to different quartiles depending on the cohort she was born. For instance, a Colombian woman with 5 years of education belongs to the third quartile if she was born in the 1940s and to the first one if she was born in the 1970s. Results show that the cohort coefficients are closer to those of model 1, proving that there are no significant cohort changes when a relative measure of education is taking into account instead of an absolute measure of it. Compared to model 1, model 3 has the advantage that it captures the negative gradient of years of schooling. All in all, model 3 suggests that advances in females educational have not changed dramatically women's sexual, union and childbearing behaviors. This finding is consistent with the arguments that educational expansion in Latin America has not contributed to eradicate socio-economic differences among.

Have there been significant changes in the ideal family size?

The ideal family size can be used as measure of preference. DHS surveys asked women about the number of children they would like to have. The answer to the question is very sensitive to the age and the number of children women have at the time of the interview. Table 6 shows standardized ideal family sizes by years of schooling and year. These figures are standardized by age and number of children at the time of the interview within each country. Therefore, they are comparable across educational groups and over time but not across countries. Time trends in ideal family size show a modest decline over the last decades. In neither country this decline represents more than 0.5 children per woman. In Bolivia, it decreased from 2.5 to 2.4 children per woman between 1985-89 and 2005-09. In Colombia it decreased between 2.8 to 2.3 and in Peru from 2.6 to 2.4.

Table 6. Mean desired family size adjusted by woman's age and number of living children, by years of schooling, year of DHS interview, according to country.

Country	Year of interview	Years of schooling					Dif 12years - <5
		Total	<5	6-8	9-11	+12	
Bolivia	1985-1989	2,5	2,4	2,6	2,6	2,8	0,4
	2005-2009	2,4	2,2	2,2	2,4	2,5	0,3
Brazil	1985-1989	2,6	2,6	2,6	2,5	2,5	-0,2
	1995-1999	2,4	2,4	2,3	2,4	2,4	0,0
Colombia	1985-1989	2,8	2,8	2,6	2,6	2,2	-0,7
	2010-2012	2,3	2,3	2,2	2,2	2,3	0,0
Ecuador	1985-1989	3,0	3,1	3,0	2,7	2,9	-0,2
Guatemala	1985-1989	3,3	3,5	2,8	2,8	2,7	-0,7
	1995-1999	3,4	3,7	3,1	2,8	2,8	-0,9
Haiti	1990-1994	3,2	3,3	3,1	3,0	2,5	-0,8
	2010-2012	2,8	2,9	2,8	2,7	2,8	-0,2
Honduras	2005-2009	3,0	3,1	2,9	2,7	2,6	-0,5
	2010-2012	2,9	3,1	2,9	2,6	2,6	-0,4
Mexico	1985-1989	3,0	3,3	2,9	2,6	2,6	-0,7
Nicaragua	1995-1999	2,7	2,9	2,5	2,5	2,6	-0,4
	2000-2004	2,8	3,1	2,6	2,5	2,5	-0,6
Paraguay	1990-1994	3,9	4,1	3,8	3,6	3,5	-0,6
Peru	1985-1989	2,6	2,6	2,5	2,5	2,5	-0,1
	1995-1999	2,5	2,5	2,4	2,4	2,5	0,0
	2010-2012	2,4	2,4	2,3	2,3	2,4	0,0
Dominican Republic	1985-1989	3,4	3,4	3,4	3,3	3,5	0,1
	1995-1999	3,2	3,3	3,2	3,0	3,1	-0,2
	2005-2009	3,0	3,2	3,0	2,9	3,0	-0,2
Trinidad & Tobago	1985-1989	3,0	3,0	3,0	2,9	2,1	-0,9

Source: Demographic Health Survey, DHS.

Surprisingly, there are no large variations across educational groups. Peru and Dominican Republic show no differences by years of schooling. In Colombia and Haiti we observe rather modest differences by years of schooling. And Mexico and Guatemala show a 1 child gap between the lowest and highest educated women. All in all, our data supports the claim that trends in ideal family sizes are relatively homogenous across educational groups and do not show major shifts during the last decades. Nevertheless, as widely known, fertility rates are well above desired fertility levels despite recent fertility declines, which leads to think about the use of contraception.

Is the early and stable onset of childbearing related to the lack of efficient contraception at early ages in contexts where sexual initiation has also remained stable or becoming earlier? What percent of mothers by age 18 had used contraception before giving birth to her first child? Table 7 shows that less than 15% of women mothers by age 18 had used contraception before giving birth to their first child (except in Colombia and Brazil). It also shows that this figure has remained constant over cohorts, with a slight tendency to increase. Contraception use is highest among the most of educated women even if we only show data for those who were mother before age 18. Nevertheless, given the low number of mothers among the higher educated groups, generalizations about the data need to be made with caution.

Table 7. Percentage of women using contraception before the first birth, by years of schooling and cohort, according to country

Country	Cohort	Years of schooling				Total
		<5	6-8	9-11	12+	
Bolivia	1940s	0%	3%	0%	0%	0,3%
	1980s	8%	11%	18%	25%	14%
Brazil	1940s	5%	16%	12%	,0%	6%
	1970s	34%	48%	58%	65%	41%
Colombia	1940s	2%	3%	10%	21%	2%
	1980s	30%	38%	42%	51%	38%
Dominican Republic	1940s	1%	1%	0%	9%	1%
	1980s	21%	31%	33%	42%	31%
Ecuador	1940s	1%	0%	6%	0%	1%
	1960s	1%	5%	8%	%	4%
Guatemala	1940s	0%	1%	0%	0%	0%
	1970s	2%	5%	8%	8%	3%
Honduras	1950s	1%	2%	0%	0%	1%
	1980s	8%	18%	17%	29%	15%
Haiti	1940s	0%	0%	0%	0%	0%
	1980s	7%	22%	7%	36%	11%
México	1940s	0%	0%	0%	0%	0%
	1960s	1%	5%	11%	4%	4%
Nicaragua	1940s	0%	0%	0%	0%	0%
	1980s	15%	20%	31%	10%	19%
Peru	1940s	2%	3%	4%	7%	2%
	1980s	18%	22%	37%	49%	28%
Paraguay	1940s	2%	3%	0%	37%	3%
	1970s	3%	7%	0%	0%	5%
Trinidad & Tobago	1940s	2%	2%	21%	0%	3%
	1960s	21%	15%	24%	0%	19%

DISCUSSION

In this article we have examined cohort trend in age at first sexual intercourse, first union and first child in 13 Latin American countries that despite having differences in levels show remarkably stable patterns over time. This has happened during years of substantial educational expansion, during which the proportion of women with less than 5 years of schooling has halved and the percent with 12 or more years has at least doubled in the majority of countries. Because of the well known association between years of schooling and the age at which major demographic transitions occur (i.e. union formation and childbearing), the lack of postponement in Latin American over more educated cohorts presents a paradox, the stability paradox. This article has shed light on the stability paradox by uncovering the mechanisms by which it has been possible. To this end we have used all DHS data available for Latin America.

Logistic regression models have shown that the expected delays in first sexual inter-course, union formation and childbearing due to educational expansion have been to a large (if not total) extent by changes in behavior within educational groups across cohorts. At each educational level, but most clearly among the least educated, women born in the 1980s are forming unions and having children earlier than women with the same amount of schooling but born 40 years before. Why it has happened?

To answer this question, in this article we have provided additional data. First, we have shown that when adopting a relative measure of education (based on quartiles), cohorts remain stable over time. This clearly suggests that despite gains in absolute years of school it is the relative position within the educational difference what really matters. Second, we have shown that there have not been major changes in ideal family size. Neither we observe differences over years of schooling, nor we observe changes over time. Again, this finding suggests a strong normative context regarding to social reproductions that shows no clear social gradient. Finally, our results have shown that the lack of contraception at early ages should also be a key factor to understand why the percent of mother at age 18 has been so stable. The additional data has presented as new lines of research to further investigate the age stability paradox in Latin America.

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Probabilidad de haber utilizado anticoncepción alguna vez, para mujeres de 18 años, según año de observación

País	1985-1989	1990-1994	1995-1999	2000-2004	2005-2009	2010-2012	Constante
Bolivia	1,0	2,0	2,3	3,3	3,7	-	0,0
Brasil	1,0	1,4	2,6	-	-	-	0,0
Colombia	1,0	1,8	3,8	6,6	9,1	16,2	0,0
Rep. Dominicana	1,0	1,1	1,8	2,9	4,7	-	0,0
Haití	-	1,0	1,8	1,6	2,9	-	0,0
Perú	1,0	1,7	3,2	3,1	9,2	12,5	0,0

* Los números en rojo indican significación $> 0,025$

Odds ratios obtenidos al controlar por Haber tenido relaciones sexuales (Sex), Tener hijos (Births) y Años de Escolaridad

Los países de la tabla son aquellos con los que se cuentan con más de dos años de observación, los otros con menos años de encuestas no se consideran.