Is Latin America starting to retreat from early and universal childbearing?

Luis Rosero-Bixby, Universidad de Costa Rica
lrosero@ccp.ucr.ac.cr

Teresa Castro Martín, Consejo Superior de Investigaciones Científicas, Madrid
tcastro@ieg.csic.es

Teresa Martín-García, Consejo Superior de Investigaciones Científicas, Madrid
tmartin@ieg.csic.es

Abstract

The fertility transition in Latin America has proceeded to a new stage in recent years. The proportion of women who are mothers, which had remained fairly stable in the past, dropped significantly in most Latin America countries since the 1990s. This paper documents this new trend, decomposing childbearing into the contributions of entry into motherhood and the additional children that mothers have, and comparing cohort estimates of these measures from the four waves of censuses conducted in 16 Latin American countries between 1970 and 2000. Drawing from the European experience, we discuss whether the recently observed increase in childlessness among young adults reflects primarily a gradual shift in the starting age of childbearing or whether it signals an emerging retreat from universal childbearing in the region. To substantiate the discussion, we examine several cofactors of the probability of staying childless in a series of surveys conducted in 14 Latin American countries in 2006.

Is Latin America starting to retreat from early and universal childbearing?

Introduction

Latin America is quickly approaching fertility replacement levels.[1] Recent data, circa 2005, show that more than half of the 20 Latin American countries have total fertility rates (TFR) close or below replacement levels (Figure 1). This group includes the four largest countries in the region: Brazil, Mexico, Colombia and Argentina, as well as five populations that have already crossed the replacement threshold (TFR=2.1): Uruguay, Chile, Costa Rica, Puerto Rico and Cuba. Fertility patterns and trends at these low levels are strongly determined by women's behavior regarding entrance to maternity, i.e. by first-birth-rate levels and age-schedules. If motherhood continues to be almost universal and at early ages, it seems unlikely that the region will eventually reach the lowest-low fertility levels observed in several European and Southeast Asian countries. Conversely, if large proportions of Latin Americans would opt for having their first birth at older ages, or for staying childless, it is plausible that period fertility rates in the region could fall below-replacement before long.

Up to now, a distinctive feature of the process of fertility decline in Latin America was that it took place without major changes in the onset of family formation, as indicated by fairly stable rates and ages at first union and first birth (Rosero-Bixby, 1996; 2004; Mensch et al. 2005). It seems, however, that Latin America has entered into a new stage of the fertility decline in recent years. The proportion of women under 30 who have made the transition to motherhood has dropped significantly in most Latin American countries in the past decade. In Costa Rica, for instance, the estimated proportion of women who would be mothers by age 30, according to the rates of the study year, has fallen from above 80% to about 65% from 1995 to 2005. Drawing from the European experience, this paper discusses whether this increase in childlessness among young adults reflects a novel shift in the starting age of childbearing, an emerging retreat from universal childbearing, or a combination of both.

The incorporation of younger groups into the analysis of childlessness adds a complementary perspective to earlier research. Previous studies on childlessness in developing countries have been traditionally confined to childlessness at the end of the reproductive span, i.e. among women in the oldest reproductive age groups, usually over age 40. Under the assumption that the desire for children is practically universal in developing countries, childlessness has been typically attributed to involuntary infecundity. And the comparison of data from the World Fertility Surveys and the Demographic and Health Surveys reveals that permanent childlessness has diminished in Latin America since the 1970s (United Nations, 2004). Yet, the proportion of childless women aged 25 to 49 has recently increased in several countries of the region (Rutstein

---

[1] The pace of fertility decline has been uneven across countries. For instance, Mexico and Brazil have experienced a rapid and sharp fertility transition over the last thirty years; Chile, Uruguay and Argentina already displayed a relatively low level of fertility in the 1970s and, even though fertility has declined in the following decades, the change in fertility rates has not been that sharp. In Guatemala, Bolivia, Honduras, Paraguay and Nicaragua, high fertility rates still prevailed by the mid 1990s (Guzmán et al., 1996).

and Shah, 2004), suggesting that childbearing is intentionally postponed by an increasing proportion of young adults or that some are even have decided not have children at all..

This paper documents the levels and trends of childlessness among young adult women in 16 Latin American countries between 1970 and 2000 with data from four waves of population censuses. It also uses individual-level data from a 2006 survey conducted in 14 Latin American countries to identify factors which are associated to childlessness. The paper focuses on *cohort* fertility, given that it has been shown that *period* indicators of fertility may be distorted by what Ryder called "demographic translation" effects (Ryder, 1964), also known as *tempo* effects in more recent literature (Bongaarts and Feeney, 1998). For example, while *period* total fertility rates are as low as 1.2 and 1.3 in several European countries, the lowest estimates of complete *cohort* fertility in those countries are in the order of 1.5 to 1.7 births among cohorts born circa 1970 (Sardon, 2006). The persistent postponement of births biases downwards the estimates of period fertility rates, because there can be a recuperation of fertility at older ages. However, it is well documented that, in general, "later means fewer" children (Rindfuss and Bumpass, 1976) or even none.

The European experience as background

In recent decades, Western European societies have witnessed significant changes in nuptiality and childbearing patterns (Billari, 2005). For most countries, a steady trend toward fewer and later births has been manifest from the 1970s on, although some variation exits. In Northern Europe, fertility has been increasing slightly since the 1990s and is getting closer to replacement levels. Meanwhile, in all Western European countries, with the exception of France and Ireland, fertility fluctuates at levels well below replacement, and lowest-low fertility (below 1.3) can be observed in Southern and Eastern European countries. Spain and Italy, for instance, are among the countries with the lowest fertility in the world since 1995. In the European context, the decline of fertility below the replacement threshold has gone hand in hand with the postponement of the transition to motherhood (Sobotska, 2004), and nowadays the average age of women at first birth in the EU-25 is around 28 (Eurostat, 2007). Spanish women are currently among the oldest first-time mothers in Europe, and arguably in the world, bearing their first child on average at age 29.3. The postponement of motherhood usually implies a reduction of complete fertility –between 2.9 and 5.1 percent for each one-year delay in the onset of motherhood in the case of Italy or Spain (Kohler et al., 2002)– and it increases the chances of voluntary and involuntary childlessness (Frejka and Sardon, 2004).

A wide range of research has shown that childlessness may be the outcome of different aspirations and circumstances (Tanturri and Mencarini, 2008). Some unpartnered women may not want to become mothers alone. Others may delay motherhood too long and may end up having fecundity problems. Some women may freely decide not to become mothers while others may be constrained to make that choice in an institutional context where children are not easily compatible with other commitments or aspirations in their lives.

Several explanations for deferred or foregone childbearing have been put forward in the literature. The New Home Economics perspective emphasizes that enhanced education and better job opportunities for women increase the opportunity costs of having children and therefore

reduce the demand for them (Becker, 1981). Also, occupational responsibilities constrain women, highly educated women in particular, to accommodate their personal life to their work life, and foreseen difficulties to conciliate family and work responsibilities may trigger the (in)definite postponement of family formation. Moreover, the widespread precariousness and uncertainty in the labour market may push young adults to perceive their lives as being "more vulnerable and insecure"; consequently, they may refrain from making certain long-term commitments, such as marriage and parenthood (Esping-Andersen et al., 2002). The institutional national context, however, may alter this family and work trade-off and may facilitate diverse strategies of family formation, since it affects individuals' risk perceptions.

A recent study illustrates the idea that, at the micro level, most women need to meet a minimum set of conditions before embarking in motherhood (González and Jurado-Guerrero, 2006). According to the authors, this set of conditions may include "job stability, a minimum income level, adequate housing and time flexibility, which might be more or less feasible according to the institutional context." In fact, they show that there is not a clear relationship between women's human capital investments and childlessness. Irrespective of age and educational attainment, women who are within the educational system or with unstable employment relations (temporary contracts, a recent employment relation or unemployment) have a low propensity to have a first child. However, in national institutional contexts where mothers cannot count on support from the State, opportunity costs of childbearing are higher, and women are more prone to opt out of employment for motherhood or to give up motherhood altogether.

A second major explanation for increasing childlessness is provided by perspectives that focus on value and preference mechanisms. Some authors consider this phenomenon in Europe as being part of the so-called *second demographic transition*, and its associated value and attitudinal change regarding sexuality, marriage, mother/parenthood and gender relations (van de Kaa, 1987; Lesthaeghe and Moors, 1995). From this perspective, the centrality of individual autonomy, women's economic independence and secularization are viewed as the driving forces that explain the delay in family transitions, the growing proportion of childless women, and the de-standardization of life course trajectories.

The emphasis on new values relevant to the family does not imply that they alone completely determine women's demographic behavior. As mentioned above, the so-called structural factors, i.e. competing opportunities and economic constraints, play an important role. However, changes in cultural values and social norms are crucial to understand how childlessness, which was widely stigmatized in the past, has gradually become an acceptable option. Hence, different theories and perspectives are more complementary rather than mutually exclusive. Women face nowadays a wider spectrum of choices in all spheres of life, and childbearing is subjected to a weighing of potential costs and rewards, making the transition to motherhood an optional path.

The Latin American context

Considering the far-reaching economic, social and political transformations that Latin America has experienced in the second half of the 20th century, it remains somewhat of a puzzle that demographic indicators of family formation, such as age at first union and age at first birth, showed, until very recently, so little change (Heaton et al., 2002). During the past decades, major

structural transformations have affected the organization of society, particularly the expansion of mass education, rapid urbanization and internal rural to urban migration, as well as the transition to democratic governments, in the political domain. Women's education and employment levels, which are well known to influence family formation, also increased rapidly during this period. The participation of women in the labor force, for instance, increased from around 20% in the 1950s to over 50% in the 1990s, albeit with large differences according to country, area of residence, age and educational level (CEPAL, 2007). The increase was particularly sharp after the debt crisis that affected the region in the 1980s and the subsequent economic restructuring of the 1990s. The deterioration of the economy, increasing unemployment and precarious attachment to the labor force rendered the traditional male breadwinner family model no longer sustainable (Jelin and Diaz-Muñoz, 2003). Yet, early life course transitions, such as the transition to first union and motherhood, changed remarkably little (Fussell, 2005).

Fertility in the Latin American region as a whole declined from 5.9 births per woman in 1950-1955 to 2.5 in 2000-2005 (United Nations, 2007). However, as mentioned above, this rapid and sustained process of fertility decline was not accompanied by a gradual delay in the onset of childbearing, as it has been the norm in most developed countries. In the early 1990s, relatively low fertility coexisted with traditional patterns of family formation –early nuptiality and young motherhood– in many Latin American countries. Fussell and Palloni (2004) argue that the explanation of this distinct Latin American pattern[2] lies on a strong cultural emphasis on family ties. According to these authors, the value placed on family networks, which represent the primary safety net guarding against economic and social instability, would explain the persistence of nearly universal and early family formation in spite of major changes in the economic, political and social spheres.

Traditional patterns, however, are not unchangeable, and it is reasonable to expect that behavior regarding to motherhood will eventually change in the face of modernizing forces, such as women's education and salaried work, particularly when the average desired family size has declined to about two children in most Latin American countries (Westoff and Bankole, 2002). Younger cohorts, particularly if they have had access to higher education, are likely to reach adulthood with different aspirations regarding marriage and family, work life, economic self-sufficiency and lifestyle than their mothers and grandmothers, as it has occurred in Western societies (Crimmins et al., 1991). Delaying, or even giving up, childbearing could be a suitable strategy to pursue higher education, to establish themselves in the labor market, to build their couple relationship before child-rearing, and also to deal with unstable life conditions or uncertainty in the economic context (Adsera and Menendez, 2006).

Data and methods

Drawing from the classic study of the decline of fertility in Europe that decomposed childbearing into marriage and marital fertility indexes (Coale and Watkins, 1986), the starting point in this

---

[2] Fertility patterns in Eastern Europe also reflect the atypical coexistence of very low fertility and early transition to childbearing, but an upward trend towards later motherhood has recently started (Council of Europe, 2005).

paper is the following identity that decomposes total fertility F in two different processes: (1) the proportion of women who became mothers M or motherhood rate; and (2) the G rate of fertility of mothers, which is just the additional number of children that mothers have:

$$F = M (G + 1)$$

The trend analysis is based on *cohort* estimates of F and M from the four waves of censuses conducted in 16 Latin American countries since 1970. The rate G is derived from the above identity. We focus on M at ages 25-29, which the data shows that represents 87% (5% SD) of complete M (cohorts in these data set reach complete M by age 40). And we focus on G in the age bracket 30-34, which includes 80% (5% SD) of complete G in each cohort. In some analyses we estimate complete M and G from the incomplete figures at ages 25-29 and 30-34, respectively, using relations derived from the data. The census data were taken from several sources, including the UN Demographic Yearbook, as well as online census data in the web from the IPUMS project in the University of Minnesota http://international.ipums.org/, the Central American Population Center http://censos.ccp.ucr.ac.cr/, and web pages of the census offices in Colombia, Brazil, Chile, Mexico, Nicaragua and Honduras.

This decomposition of fertility in G and M was used in an earlier study of the prospects of below-replacement fertility in fifteen metropolitan areas of Latin America (Rosero-Bixby, 2004). For comparison purposes, we also use the most recent estimates of cohort M and G for 22 European countries, which correspond to the cohorts born circa 1970. The lowest estimates of cohort total fertility in this group are in the order of 1.5 to 1.7 births. The estimates come from the European Demographic Observatory (Sardon, 2006) and the countries are: Austria, Bulgaria, Croatia, Czech Republic, Denmark, England and Wales, Finland, Greece, Hungary, Ireland, Latvia, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain and Sweden (countries with no estimates for 1970s cohorts were not considered.

To examine in more detail recent trends in motherhood rates, we use vital statistics data on first births in Chile and Costa Rica in the period 1980-2006. These are the only countries in the region with accessible and reliable series of numbers of births by birth-order. We estimate the time series of period M at age 30 as well as the median age at motherhood (i.e. when 50% of women reach motherhood) in these two countries.

This paper also uses micro-data from surveys conducted in 14 Latin America countries[3] in 2006, as part of the Latin American Public Opinion Project (LAPOP) of the "AmericanBarometer" of the Vanderbilt University www.LapopSurveys.org. These are national representative surveys of adult women and men aged 18 and over, with a sample size around 1,500 in each country. These surveys target political themes such as voting participation, tolerance, and support to democracy, citizens' rights, and the likes. However, by including questions on the number of children and socioeconomic status, these surveys offer a rare opportunity for comparing the co-factors of the prevalence of childlessness in several cohorts and across 14 Latin American countries. Using logistic regression, this paper estimates cross-sectional effects on the probability of being

---

[3] Mexico, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Bolivia, Peru, Paraguay, Chile, and the Dominican Republic.

childless, contrasting results among three age or cohort groups (women aged 20-29, 30-39 and 40-49 in 2006). The covariates included in the model are urban residence, educational level, occupation, household's wealth, religion and religiosity, trust in neighbors (an indicator of social capital), satisfaction with life and sources of news. Age and marital status are included as controls, and interactions between age and several covariates are also explored.

Results

Figure 2 (part B) shows the remarkable drop in the G rate of fertility of mothers from cohorts that were aged 30 to 34 in the wave of 1970 censuses (born around 1940) to analogous cohorts in the 2000 censuses and thus born around 1970. At these ages, about 80% of the final G fertility of the cohort is usually completed in Latin America. The oldest cohorts were at their peak reproductive ages in the 1960s, and the youngest cohorts, in the 1990s. Most countries went from a G rate of four or five children to one of around two children in these 30 years. The exceptions are, on the one hand, Argentina and Uruguay that already had a cohort G of about two births in 1970, which has changed little since then, and, on the other hand, Honduras and Guatemala, the only ones with G-rates higher than three births by 2000.

In contrast, as shown in part A of Figure 2, the observed trends are different in the proportion M of motherhood at ages 25 to 29 (at those ages, close to 90% of the final cohort-M is usually completed in Latin America). First, there is no clear pattern of change from 1970 to 1990; in some countries, like Chile and Peru, there are falls of about 10 percentage points in M, whereas in most countries, including the four regional giants Brazil, Mexico, Argentina and Colombia, the M change from 1970 to 1990 is only about two percentage points in any direction. In contrast, between the last two waves of censuses, from 1990 to 2000, there is a clear drop in M in almost all countries. With the exceptions of the Dominican Republic and Paraguay, the M proportion in the 2000 censuses is the lowest of the series.

Period indicators of M can show trends in a sharper way. Figure 3 shows the evolution over time in *period* indicators of M at age 30 and the median age of entry into motherhood in Chile and Costa Rica, the only Latin American countries with long enough series readily available. Three points come out from Figure 3: (1) there are no clear trends before 1990; (2) starting about 1990, there is a clear increase of almost three years in the median age at first birth over a period of about 10 years; and (3) there is a sharp drop of almost 20 percentage points in the M rate at age 30 in the decade of 1990. The proportion of mothers is below 65% at the end of the series. Considering that in the past no more than 10% of women entered motherhood after age 30, this might imply that as much as one out of four women could end up childless. This is, however, a naïve interpretation of a period M-rate that may be down biased by the shift in tempo of first birth. It is possible that women will enter motherhood after age 30 in higher proportions than in the past, if recent changes are driven mostly by a temporal postponement of the first birth.

Going back to the census-based cohort estimates of G and M, we completed the final ten years of the G rate in mothers of the birth cohorts born around 1970 (observed until about age 32), as well as the final ten years of the M rate in women born around 1975 and observed until about age 27 in the 2000 wave of censuses. To complete M we followed the same procedure that Frejka and Sardon (Frejka & Sardon, 2007) and we assumed that the rate in the coming ten years would be

the same as in the previous ten-year period in the same country and ages. To complete the cohort G rate, we estimated a simple regression model with G in the same cohort 10 years earlier as the predictor variable, using fixed effects estimates in the panel of 16 countries. The resulting equation was:

$$G_t = \quad 0.345 + \quad 1.1415\ G_{t-10}$$
$$\quad\quad (0.19) \quad (0.07) \quad\quad\quad R^2 = 0.93$$

Figure 4 shows the box plots for complete G and M in the 16 Latin American countries and in each of the four census waves, plus the prediction for the wave of 2010. These are cohort estimates for women at ages 40-44 for G and 35-39 for M. Therefore, the G estimate for cohorts born circa 1970 would correspond to the census wave of 2010. The Figure includes also a box for 22 European countries with available estimates for cohorts born around 1970. The figure confirms the precipitous fall in G from cohorts born around 1930 (median of 5.7 births) to those born around 1960 (median of 2.6 births). The fall has somehow stalled for the cohorts born about 1970 (median 2.3 births), well above the European median of about one birth per mother in the 1970 cohorts.

For the complete M rate, there is no clear trend when one moves from the 1935 cohorts to the 1965 cohorts. The median M hovers above 90% motherhood. In contrast, the cohorts born circa 1975 seem to be heading towards lower M (median of 86%), close to the M level in the European cohorts of 1970 (median of 83%).

To what extend M and G are related to each other? Is fertility of second and higher order births influenced by the rate of entrance into motherhood? Lower M usually means later age at first birth and a reduced exposure-time for having second and higher order births. This exposure effect would be strong in a natural fertility setting. But even under perfectly controlled fertility conditions, later may mean fewer, particularly for the tail of the age-distribution of women who start childbearing by age 40. However, if a lower M comes from a retreat from reproduction of large numbers of couples, further fertility of those who choose to be mothers may or may not be lower than in the previous situation in which women with low fertility desires were part of the pool of mothers. If there is a general reduction of fertility preferences, a reduced M will go hand by hand with a reduced G. If, however, there is in society a divide between couples who opt out of parenthood and couples more oriented towards family and children, one will not observe an association between G and M or the association may even be inverse.

Figure 5 shows the cross-sectional associations between the national levels of M and G in five successive Latin American cohorts and a recent European cohort. It is clear from the figure that the association between these two fertility components has changed over time. If one excludes the outliers Argentina and Uruguay from cohorts born in the 1930s and 1940s, there is almost no association between G and M in these cohorts. A positive and clear association takes shape in more recent generations of women, particularly in the 1950s and 1960s cohorts. However, the association weakens in the 1970s cohorts. Moreover, an inverse relationship can be observed in the 1970s European cohorts: in societies with lower motherhood proportion, fertility of mothers tends to be higher. This inverse association seems peculiar at first. But it may simply mean that when M falls below certain threshold, those women with lower fertility preferences are removed

from the pool of mothers, i.e. women who would have one child at most may be the ones who opt out of motherhood, leaving a self selected group of women with higher fertility preferences in the pool of mothers, which, consequently, results in a higher G-rate.

What factors increase the likelihood of being childless (even if only temporarily) among young adults? Are these factors acting differently than in older cohorts? Table 1 shows the results of a multivariate analysis on the probability of being childless in respondents of the LAPOP surveys of the AmericanBarometer, 2006. We present separate models for all women aged 20-49 and for each of the ten-year age brackets, i.e. for ten-year cohorts with central birth years at 1980, 1970 and 1960. All models include controls for age and country.

As expected, there is a clear and positive effect of education on childlessness (Castro and Juárez, 1995). College educated women have about four times higher odds of being childless compared to women with no education or incomplete elementary school. This effect does not differ much in young and old cohorts. Working-women have twice higher odds of childlessness than housewives, but this effect is present and significant only in younger cohorts. However, the direction of causality in this relationship cannot be disentangled with the available data: we cannot tell whether women are childless because they in the labor force or whether they are more likely to be in the labor force because they are childless. Women who get the news mostly from newspapers are more likely to be childless, whereas the opposite occurs among women who get the news mostly from TV. The model does not show clear effects on childlessness from residing in urban or metropolitan areas, once we control for education, or from the indicators of social capital in the community (measured by the trust scale). Religious affiliation and church attendance could be expected to influence women's fertility behavior, yet they show no effect on childlessness in these data.

The effects on childlessness of the scales of wealth and satisfaction-with-life deserve a closer look. The odds ratios show that the sign or direction of these effects reversed in younger cohorts. This change of direction is statistically significant as shown by the interaction effects included in the model. The change consists on that wealthier or more satisfied-with-life women are less likely to be childless in older cohorts and more likely to be childless in younger cohorts. Among younger women, going from zero to one in the wealth scale increases almost three-times the odds of being childless, whereas among older cohorts it reduces the odds to about one-third. Regarding to satisfaction with life, going form cero to one in the scale more than doubles the odds of being childless among younger women and reduces the odds by 30% in older women. If these were truly *cohort* effects, as opposite to *age* effects, they would stand for a dramatic generational change: childlessness seems now linked to happiness and wealth, contrary to what occurred just a generation ago in which childless women report to be less happy and less wealthy. Nevertheless, we should interpret these cross-sectional relationships with caution, because of possible reverse causality and the confounding effects of age and cohort.

Figure 6 reexamines the robust effect of education on the motherhood proportion M among women aged 25-29 with the two most recent census data in six Latin American countries. The educational gap in M is large and persistent over time. Having a college education seems particularly important for two reasons: (1) the gap for college is larger than for lower educational levels, and (2) college-educated women are the only ones with a clear reduction in M over time

in the six countries. In Costa Rica, for example, only 43% of women aged 25-29 who attended college are mothers in the 2000 census, compared to 76% and 84% of women with high-school and primary education respectively. Moreover, in this country, the proportion of mothers at ages 25-29 among college educated women fell 15 percentage points from the 1984 to the 2000 census, whereas the M proportion remained fairly stable in the other two educational groups. Among college educated women, M dropped 11 percentage points in Mexico, 9 points in Colombia, 7 points in Argentina and Brazil, and 5 points in Nicaragua.

Therefore, the fall in the M proportion among women with college education seems to be a key factor to understand the emerging retreat from childbearing in Latin America observed in recent years. Another key factor to understand this trend is the growing numbers of women who are having a college education. In the age bracket 25-29, the percentage of women with a college degree increased in the last two censuses by 15 points in Colombia, 8 points in Argentina, Costa Rica and Nicaragua, although only 1-2 points in Brazil and Mexico (Table 2). In the wave of 2000 census, college-educated women in this age bracket range from low levels of 11% in Brazil and 14% in Mexico and Nicaragua to a high 32% in Argentina, 27% in Colombia, and 21% in Costa Rica.

In a quick exercise to estimate the impact of the changing educational composition on M, we computed, for the six countries in Figure 6, a hypothetical M for the 2000 census wave assuming that the educational composition were that of the 1990 census wave. The result of this exercise is presented in Table 2 and suggests that educational improvement might be responsible for all of the observed national change in M in Argentina and Brazil and for about half of the M-change in the other four countries. In other words, about half the decline in M in Colombia, Costa Rica, Mexico and Nicaragua comes from M-reductions within educational groups, mostly within women with college education.

If the recent enhancement in women's education explains a great portion of the recent drop in the motherhood proportion, why then past educational improvements did not produced a similar result? The answer might be that educational improvements in the past occurred mostly at the primary and secondary levels and, as Figure 6 suggests, in all countries examined except Argentina and Brazil, there are only small differences in M at these lower educational levels. It is college education what seems to make a difference in the timing and level of transition to motherhood.

Discussion

This paper has documented an emerging trend towards lower motherhood proportions in Latin American women in their late twenties and early thirties. This emerging trend certainly means a shift in the region toward a later onset of childbearing but could even mean that some are even renouncing to have children. Until recently, one of the singular demographic features of the region was that rapid and sustained fertility decline occurred without a concomitant change in the timing of union formation or in the onset of childbearing. Early and nearly universal childbearing persisted in spite of radical changes in the demographic, economic, social and political spheres. There is, however, recent evidence that young cohorts are departing from this traditional pattern, and that Latin American women are waiting longer to become mothers. Although age at first

birth had remained fairly stable since the 1970s, the data presented from the 2000 round of census reveals that the proportion of women aged 25 to 29 who are still childless increased in most of the 16 countries analyzed. Data from vital statistics for Chile and Costa Rica also corroborate this new trend towards later motherhood.

The emerging trend in childbearing postponement raises the question on whether it will lead to an increase in permanent childlessness –voluntarily chosen or because of age-related infecundity– in the region. Estimates of the proportion of women born in 1975 who will eventually become mothers (86%) are somewhat lower than in the past, but they suggest that the transition to motherhood is still pervasive. Nevertheless, the increase in childlessness in the customarily prime ages of reproduction (25 to 29), even if transitory, deserves attention. It signals an important change in societies where the social imperative of motherhood has been traditionally strong and where women who wished to postpone their first birth or remain childless were commonly stigmatized as selfish. Latin American cultural constructions of femininity have been strongly influenced by women's symbolic and social roles as mothers (Jelin, 1990). Nowadays, motherhood continues to play a central role in women's lives, but there has been an expansion of women's nonfamilial identities and roles, possibly rendering the deferment of childbearing an acceptable option.

Beyond the normative context, economic constraints and competing opportunities are also likely to play a major role in shaping decisions and behaviours regarding childbearing. In the face of enhanced female labour market prospects, increased economic insecurity, or rising conjugal instability, delayed childbearing might become an increasingly common strategy for facing uncertainty, as it has occurred in Europe (Billari et al., 2006).

It is not evident whether these changes should be interpreted under the lens of the second demographic transition. The validity of that framework to explain recent family changes in Latin America is at the centre of contemporary debates (Quilodrán, 1999; García y Rojas, 2001). Divergent views persist on whether to interpret recent family dynamics as an outcome of diffusion processes of new cultural patterns or as a reflection of the lack of social cohesion of excluded sectors (Arriagada, 2002). Some demographic features of Latin American societies, such as the high prevalence of consensual unions or frequent union disruption, can be both linked to modernity and to exclusion, to tradition and to innovation, depending on the social group we focus on (Castro Martín, 2002). The delayed onset of childbearing, however, can be unequivocally labelled as an innovative behaviour. Furthermore, our education-specific trend analysis has shown that it is precisely the highly educated strata who have taken the lead in this behavioural change. In fact, a great deal of the overall increase in childlessness among young adults is due to the upgraded educational composition of the population. We argue that major educational improvements in the past did not have a comparable impact on the timing of motherhood because they were focused on the universalization of primary education. In contrast, the more recent expansion of secondary education and principally of college education is becoming a powerful force in restructuring the transition to adulthood and, consequently, the process of family formation (Grant and Furstenberg, 2007). In some countries, nonetheless, there is more to delayed fertility than a shift in the educational distribution of the population. In Nicaragua, Mexico, Costa Rica, and Colombia, for instance, we have documented significant changes in the proportion of motherhood within educational strata.

The multivariate analysis also reveals that high educational attainment is the most influential factor predicting childlessness among women of all ages. Hence, although our data do not allow to link the recent increase in childlessness at young adulthood to "post-materialist" values (van de Kaa, 2001), such as the search for individual autonomy or gender equality, the fact that highly educated women are the main protagonists of the observed trend points towards a change in values and competing life priorities that discourage early childbearing.

It is not certain whether a delayed childbearing pattern will spread across the entire population. Latin America continues to display some of the highest levels of inequality in the world (Portes and Hoffman, 2003) and the social processes that bring about family change in different social strata remain quite heterogeneous. Furthermore, the large socioeconomic divide that characterizes many Latin American societies may act as an unsurmountable barrier against the diffusion of social values regarding family, parenthood and the optimal calendar for adulthood transitions. Yet, it is foreseeable that the social imperative of early motherhood that prevailed during most of the Twentieth century will weaken and that we witness an increasing de-standardization of the life course.

There are multiple areas in which this research could be expanded in the future. One logical extension is to test cohort differentials regarding the timing and the determinants of the transition to motherhood within a life course framework, using retrospective birth histories from survey data. The problem is that very few Latin American countries have conducted (or plan to do it) demographic surveys in recent years. Another possible direction for analyses is to examine the prevalence and correlates of childlessness among young men, since socio-cultural expectations and competing opportunities shaping attitudes, decisions and fertility behaviour are fundamentally gendered. Another interesting line of analysis would be to explore whether the important position occupied by Latin America in the global international migration system influences young women's (and men's) expectations to migrate and if those plans condition the calendar of their childbearing plans.

An intriguing result worth of further research is the changing relationship between motherhood rates and fertility of mothers. In particular, the observation in European countries that when fertility is very low, a further reduction in motherhood rates might result in higher fertility of couples who decide to procreate. This inverse association between M and G could mean a deep and broadening divide between those who move themselves out of procreation and those who decide to reproduce and pass their genes.

References

Adsera, A. and Menendez, A. (2006). Fertility Changes in Latin America in the Context of Economic and Political Uncertainty. Paper presented at the XX Annual Conference of the European Society for Population Economics, Verona, 22-23 June, 2006.

Arriagada, I. (2002). Changes and Inequalities in Latin American Families. *CEPAL Review* 77: 135-153.

Becker, G. (1981). *Treatise on the Family*. Cambridge: Cambridge University Press.

Billari, F. (2005). Partnership, Childbearing and Parenting: Trends of the 1990s. In Macura, M., MacDonald, A. and Haug, W. (Eds.), *The New Demographic Regime: Population Challenges and Policy Responses*. Geneva: United Nations. Pp. 63-94.

Billari, F.C., Liefbroer, A.C. and Philipov, D. (2006). The Postponement of Childbearing in Europe: Driving Forces and Implications. *Vienna Yearbook of Population Research* 2006: 1-17.

Bongaarts, J. and Feeney, G. (1998). On the quantum and tempo of fertility. *Population and Development Review* 24 (2): 271-291.

Castro Martín, T. and Juárez, F. (1995). The Impact of Women's Education on Fertility in Latin America: Searching for Explanations. *International Family Planning Perspectives* 21 (2): 52-57.

Castro Martín, T. (2002). Consensual Unions in Latin America: Persistence of a Dual Nuptiality System. *Journal of Comparative Family Studies* 33 (1): 35-55.

Coale, A. J. and Watkins, S. C. (1986). *The Decline of Fertility in Europe*. Princeton: Princeton University Press.

Council of Europe (2005). *Recent demographic developments in Europe 2004*. Strasbourg: Council of Europe Publishing.

Crimmins, E. M., Easterlin, R.A. and Saito, Y. (1991). Preferences Changes Among American Youth: Family, Work and Goods. *Population and Development Review* 17: 115-133.

ECLAC (Economic Commission for Latin America and the Caribbean) (2007). *Panorama social de Latinoamérica*. Santiago, Chile: United Nations publication LC/G.2351-P/E.

Esping-Andersen, G., Gallie, D., Hemerijck, A. and Myles, J. (2002). *Why We Need a New Welfare State*. Oxford: Oxford University Press.

Eurostat (2007). *Europe in Figures*: *Eurostat Yearbook 2006-07*. Luxembourg: Office for Official Publications of the European Communities.

Frejka, T. and Sardon, J.-P. (2007). Cohort birth order, parity progression ratio and parity distribution trends in developed countries. *Demographic Research* 16 (11): 315-374.

Frejka, T. and Sardon, J.-P. (2004). *Childbearing Trends and Prospects in Low-Fertility Countries. A Cohort Analysis*. Dordrecht: Kluwer.

Fussell, E. and Palloni, A. (2004). Persistent Marriage Regimes in Changing Times. *Journal of Marriage and the Family* 66: 1201-1213.

Fussell, E. (2005). Measuring the early adult life course in Mexico: An application of the entropy index. *The Structure of the Life Course: Advances in Life Course Research* 9,: 1–32.

García, B. and Rojas, O. (2001). Recent Transformations in Latin American Families: A Sociodemographic Perspective. Paper presented at the XXIV IUSSP General Population Conference, Salvador de Bahía, Brasil, 18-24 August 2001.

González, M.J. and Jurado-Guerrero, T. (2006). Remaining Childless in Affluent Economies: a Comparison of France, West Germany, Italy and Spain, 1994–2001. *European Journal of Population* 22 (4): 317–352.

Grant, M. J. and Furstenberg F.F. (2007). Changes in the Transition to Adulthood in Less Developed Countries. *European Journal of Population* 23: 415–428.

Guzmán, J.M., Singh, S., Rodríguez, G. and Pantelides, E.A. (Eds.) (1996). *The Fertility Transition in Latin America*. Oxford: Clarendon Press.

Heaton, T.B., Forste, R. and Otterstrom S.M. (2002). Family Transitions in Latin America: First Intercourse, First Union and First Birth. *International Journal of Population Geography* 8: 1-15.

Jelin, E. (Ed.) (1990). *Women and Social Change in Latin America*. London: Zed Books and Geneva: UNRISD.

Jelin, E. and Díaz-Muñoz, A.R. (2003). Major Trends Affecting Families: South America in Perspective. Report prepared for United Nations Department of Economic and Social Affairs Division for Social Policy and Development Programme on the Family. Mimeo.

Kohler, H.P., Billari, F. and Ortega, J.A. (2002). The emergence of lowest-low fertility in Europe during the 1990s. *Population and Development Review* 28 (4): 641–680.

Lesthaeghe, R. and Moors, G. (1995). Living Arrangements and Parenthood: Do Values Matter? In De Moor, R. (Ed), *Values in Western Societies.* Tilburg: Tilburg University Press.

Mensch, B. S., Singh, S. and Casterline, J. B. (2005). Trends in the timing of first marriage among men and women in the developing world. In Lloyd, C.L. et al. (Eds.), The Changing Transitions to Adulthood in Developing Countries: Selected Studies. Washington, D.C.: National Academies Press. Pp. 118–171.

Population Reference Bureau (2007). *2007 World Population Data Sheet.* Washington DC: PRB publications.

Portes, A. and Hoffman, K. (2003). Latin American class structures: Their composition and change during the neoliberal era. *Latin American Research Review* 38: 41–82.

Quilodrán, J. (1999). L'union libre en Amérique Latine: aspects récents d'un phenomene seculaire. *Cahiers Quebecois de Demographie* 28 (1-2): 53-80.

Rindfuss, R. R. and Bumpass, L. L. (1976). How Old is Too Old? Age and the Sociology of Fertility. *Family Planning Perspectives* 8 (5): 226-230.

Rosero-Bixby, L. (1996). Nuptiality trends and fertility transition in Latin America. In Guzman, J.M., Singh, S., Rodriguez, G. and Pantelides, E.A. (Eds.), *The Fertility Transition in Latin America.* Oxford: Oxford University Press, pp. 135-150.

Rosero-Bixby, L. (2004). La fecundidad en áreas metropolitanas de América Latina: la fecundidad de reemplazo y más allá. *Notas de Población* 37 (78): 35-63.

Ryder, N. (1964). The process of demographic translation. *Demography* 1 (1): 74-82.

Rutstein, S.O., and Shah, I.H. (2004). Infecundity, Infertility, and Childlessness in Developing Countries. DHS Comparative Reports No. 9. Calverton, Maryland, USA: ORC Macro.

Sardon, J.-P. (2006). Recent Demographic Trends in the Developed Countries. *Population-E*, 61 (3): 197-266.

Sobotka, T. (2004). *Postponement of childbearing and low fertility in Europe*. Doctoral thesis, University of Groningen. Amsterdam: Dutch University Press. Sobotka, T. 2004. *Postponement of childbearing and low fertility in Europe*.

Tanturri, M.L. and Mencarini, L. (2008). Childless or Childfree? Paths to Voluntary Childlessness in Italy. *Population and Development Review* 34 (1): 51-77.

United Nations (2004). *World Fertility Report 2003*. New York: United Nations Population Division. Sales No. E.04.XIII.10.

United Nations (2007). *World Population Prospects: The 2006 Revision Population Database*. http://esa.un.org/unpp/

Van de Kaa, D.J. (1987). Europe's Second Demographic Transition. *Population Bulletin*, 42: 3-57.

Van de Kaa, D. J. (2001). Postmodern fertility preferences: From changing value orientation to new behavior. In Bulatao, R.A. and Casterline, J.B. (Eds.), *Global Fertility Transition*. Supplement to *Population and Development Review*, Vol. 27. Pp. 290-331.

Westoff, C.F. and A. Bankole (2002). Reproductive Preferences in Developing Countries at the Turn of the Century. DHS Comparative Reports 2. Calverton, Maryland: ORC Macro.

Figure 1. Latin American populations under or near fertility replacement levels. Total Fertility Rate (TFR) by 2005

2005 TFR (Births per woman)

Country	
Peru	2.5
Argentina	2.5
Panama	2.4
Mexico	2.4
Colombia	2.4
Brazil	2.3
Uruguay	2.1
Chile	2.0
Costa Rica	1.9
Puerto Rico	1.7
Cuba	1.5

Source: Population Reference Bureau, 2007 World Population Data Sheet
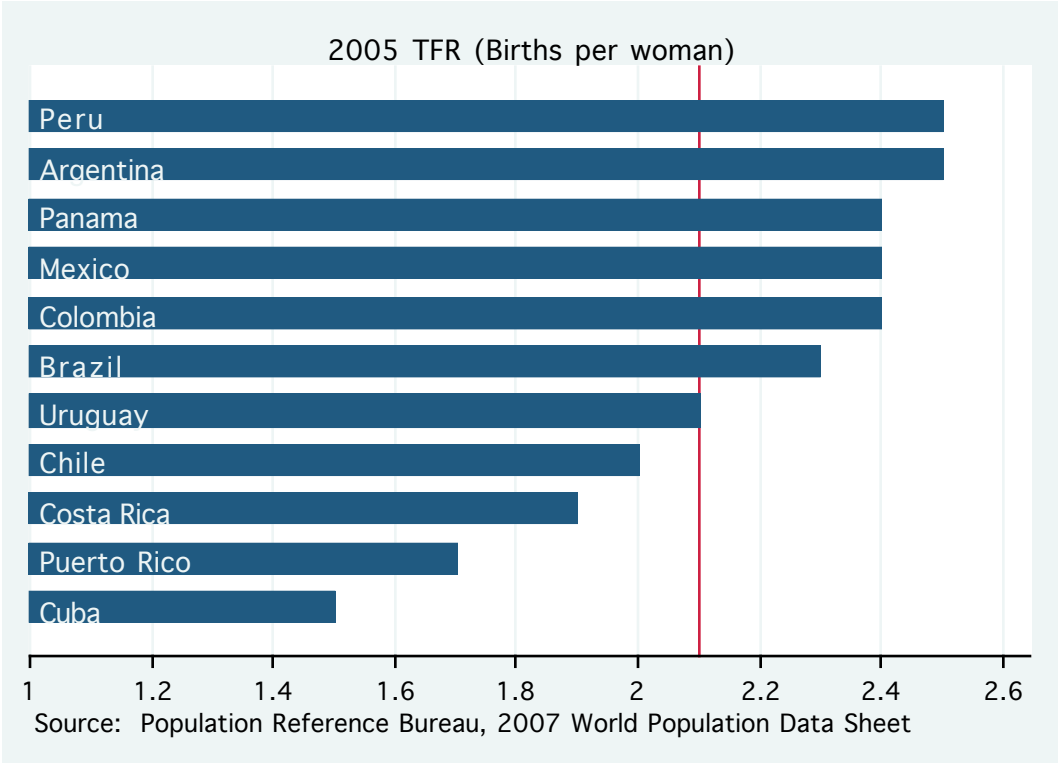
Figure 2. M proportion and G rate in Latin American countries over four census waves

A. Motherhood M at ages 25-29

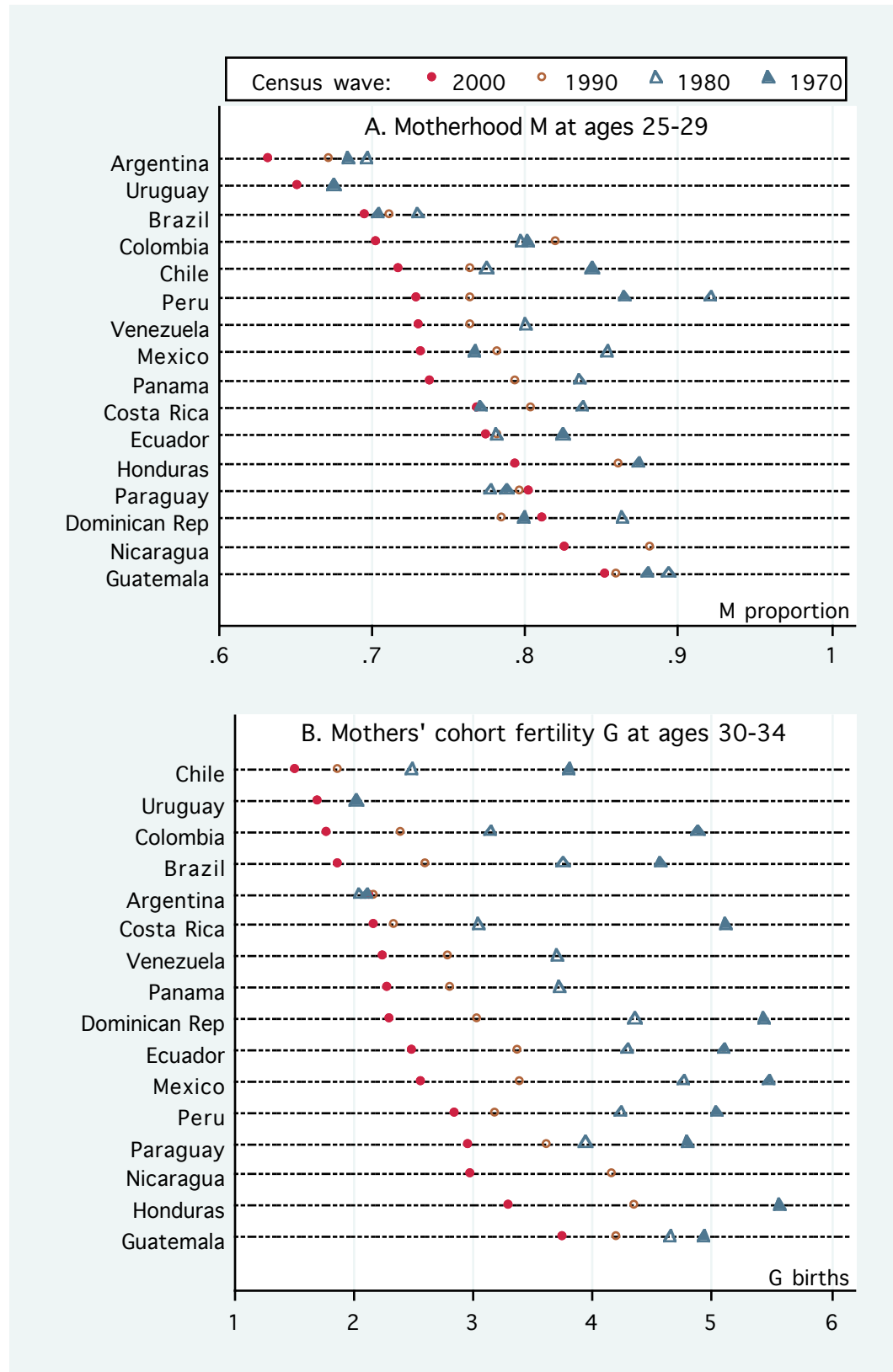B. Mothers' cohort fertility G at ages 30-34

Figure 3. Trend in motherhood proportion at age 30 and median age at motherhood.
Period rates in Costa Rica and Chile

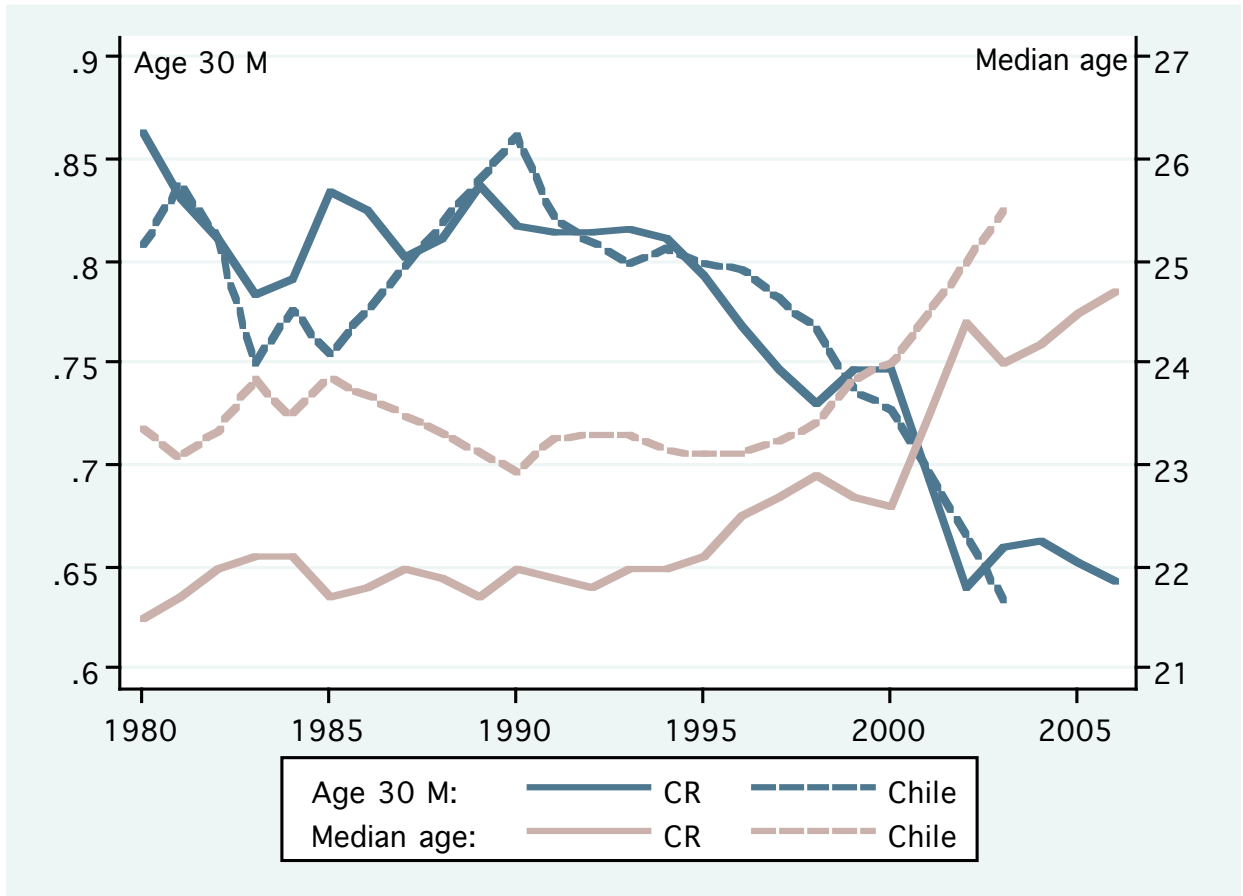Figure 4. Trend in the approximately final G and M in five cohorts of 16 Latin American countries and in the 1970 cohort of 22 European countries.
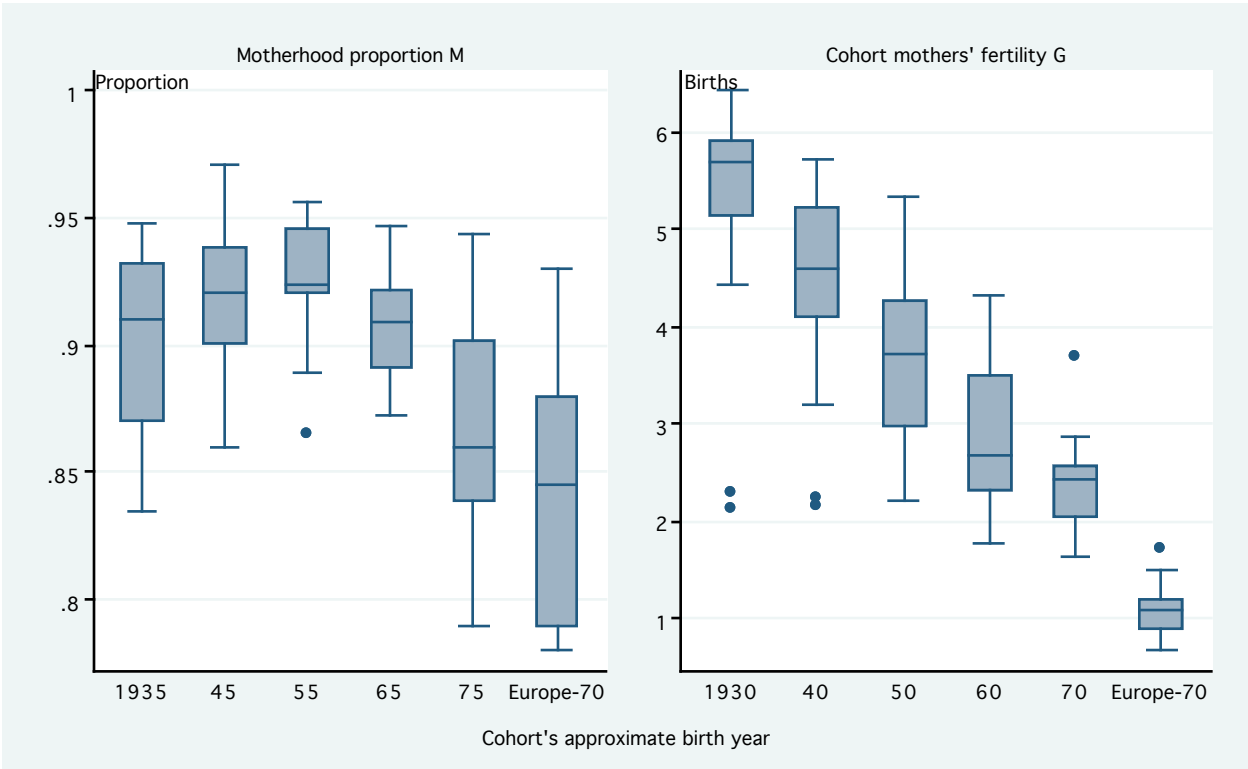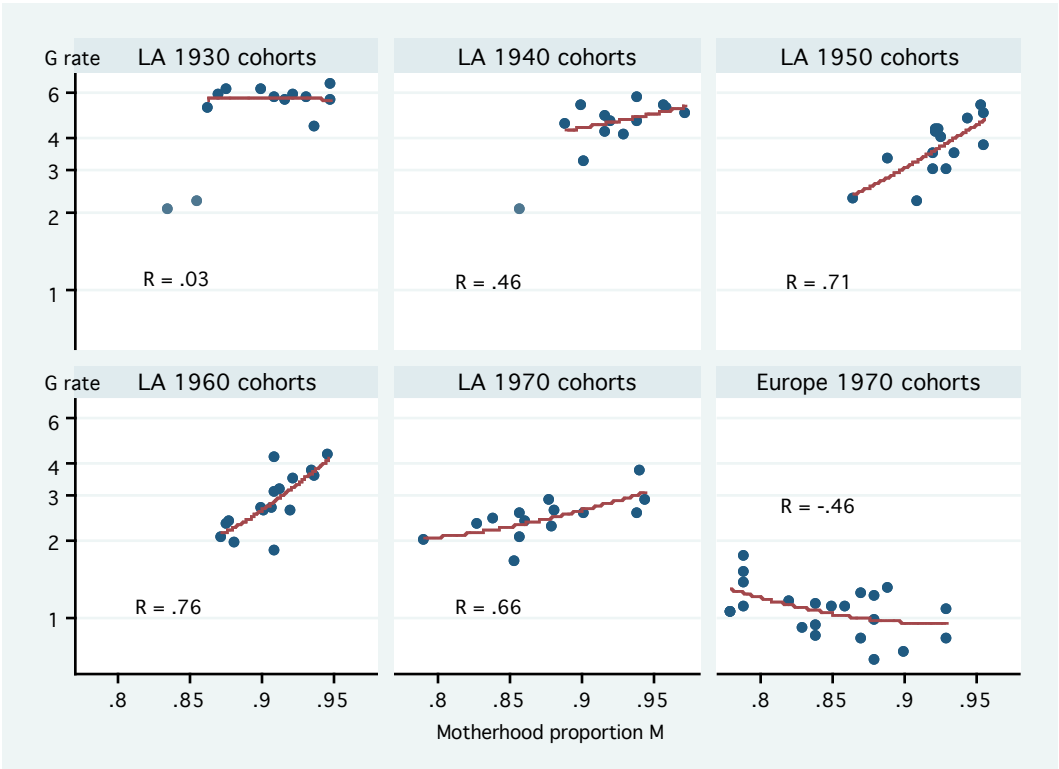
Figure 5. Cross-sectional relationships between G and M. Latin American (LA) countries cohorts 1930-1970 and Europe cohort 1970

Note: the two outliers in 1930 are Argentina and Uruguay; the outlier in 1940 is Argentina.
R is the correlation coefficient (excluding the outliers)

Figure 6. Motherhood proportion M at age 25-29 by education in the two most recent censuses, selected countries
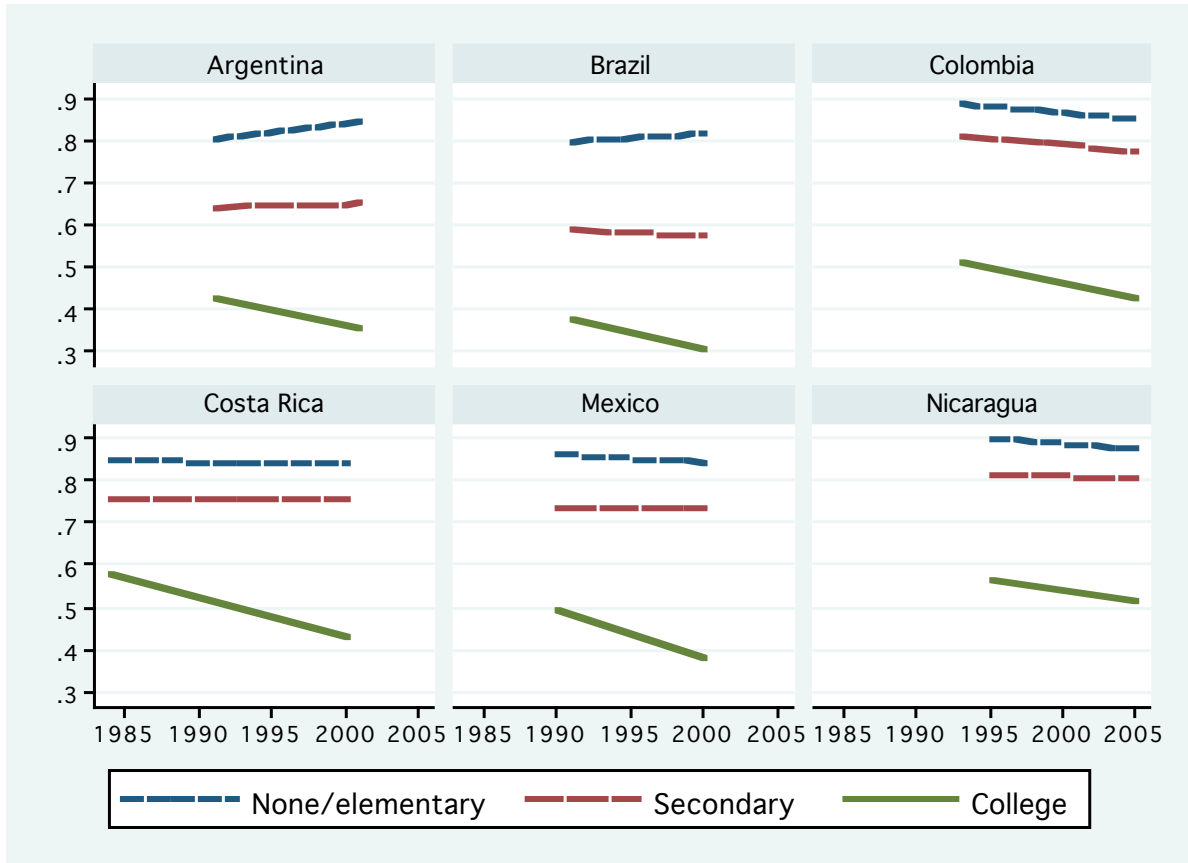
Table 1. Logistic regressions on the probability of being childless.   LAPOP-2006 surveys, in 14 Latin American countries

Explanatory variables	Total		Age 20-29		Age 30-39		Age 40-49	
	Odds Ratio	P>|z|	Odds Ratio	P>|z|	Odds Ratio	P>|z|	Odds Ratio	P>|z|
Marital status								
With no couple	1	Ref.	1.00	Ref.	1	Ref.	1	Ref.
Common law union	0.09	0.00	0.08	0.00	0.10	0.00	0.16	0.00
Married	0.07	0.00	0.09	0.00	0.05	0.00	0.11	0.00
Place of residence								
Metropolitan	0.89	0.29	0.77	0.07	1.15	0.58	1.22	0.50
Other Urban	0.80	0.07	0.77	0.09	1.13	0.66	0.59	0.16
Rural	1	Ref.	1.00	Ref.	1	Ref.	1	Ref.
Education								
Incomplete elementary	1	Ref.	1.00	Ref.	1	Ref.	1	Ref.
Completed elementary	1.44	0.04	1.24	0.36	1.66	0.17	1.82	0.12
High school	1.70	0.00	1.70	0.01	1.58	0.15	1.78	0.10
College	3.72	0.00	4.06	0.00	3.61	0.00	5.19	0.00
Occupation								
Housewife	1	Ref.	1.00	Ref.	1	Ref.	1	Ref.
White-collar / student	2.03	0.00	2.69	0.00	1.26	0.32	0.94	0.83
Blue-collar	1.48	0.00	1.71	0.00	1.11	0.63	1.37	0.21
Religion								
Catholic	1	Ref.	1.00	Ref.	1	Ref.	1	Ref.
No Catholic	1.08	0.45	1.21	0.13	0.74	0.20	1.17	0.55
No religion	1.03	0.83	1.26	0.25	0.79	0.51	0.55	0.34
Church attendance								
Weekly vs. less than weekly	1.09	0.30	1.11	0.33	0.82	0.28	1.28	0.27
Trust scale (0 - 1)	1.08	0.55	1.07	0.70	0.84	0.53	1.25	0.54
TV informed scale (0 - 1)	0.62	0.00	0.54	0.00	0.66	0.18	0.77	0.48
Paper informed scale (0 - 1)	1.42	0.01	1.37	0.06	1.47	0.16	1.43	0.29
Satisfied with life scale (0 - 1)	2.26	0.00	2.23	0.00	1.63	0.17	0.71	0.44
Wealth scale (0 - 1)	2.85	0.00	2.97	0.00	4.33	0.00	0.31	0.05
Age groups and interactions								
20-29	1.09	0.30						
30-39	1.22	0.62						
40-49	9.43	0.00						
Life satisfaction and								
Age 30-39	0.58	0.17						
Age 40-49	0.35	0.02						
Wealth and:								
Age 30-39	1.23	0.61						
Age 40-49	0.24	0.00						

Results controlled by age (continuous) and country (13 dummies)
Source: LAPOP surveys project data online at http://encuestas.ccp.ucr.ac.cr/Lapop.html

Table 2. Educational composition and M proportion in women aged 25-29 in the two most recent censuses

Country year	Distribution of women				M proportion			
	None/el-ementary	High school	College	Total	None/el-ementary	High school	College	Total
Argentina								
1991	50	25	25	100	.81	.65	.43	.67
2001	38	30	32	100	.85	.65	.36	.63
Percent M-change explained by education								**100**
Brazil								
1991	67	23	10	100	.80	.59	.38	.71
2000	60	29	11	100	.82	.58	.31	.69
Percent M-change explained by education								**100**
Colombia								
1993	56	32	12	100	.89	.81	.51	.82
2005	26	47	27	100	.85	.78	.43	.70
Percent M-change explained by education								**63**
Costa Rica								
1984	52	34	14	100	.85	.76	.58	.78
2000	48	31	21	100	.84	.76	.43	.73
Percent M-change explained by education								**51**
Mexico								
1990	56	32	12	100	.87	.74	.50	.78
2000	39	47	14	100	.85	.74	.39	.73
Percent M-change explained by education								**51**
Nicaragua								
1995	58	35	7	100	.90	.82	.57	.85
2005	52	34	14	100	.88	.81	.52	.80
Percent M-change explained by education								**50**