Intergenerational Mobility in Latin America

By

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Abstract: High inequality has long been regarded as one of the main problems facing Latin American countries. To understand better the determinants of inequality and to help guide thinking about policy options, it would be useful to know whether inequality mainly reflects low intergenerational mobility or whether it is driven by differences in individual characteristics that arise independently of family background. In this paper we use five household surveys with questions about parental socioeconomic characteristics for adults, and a set of 112 standard household surveys to examine the intergenerational transmission of schooling and occupational status in Latin America and the United States. We find that intergenerational mobility is much higher in the United States than in Latin America, that there are sizable differences in mobility within Latin America, and that mobility in Latin America is strongly associated with schooling levels.

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Introduction

Inequality is widely regarded as one of the main problems facing Latin American countries historically and today. The big chasm that separates the haves and the have-nots is considered not only a source of social turmoil and violence (political and otherwise), but also a drag on economic growth, and even a source of macroeconomic instability. Not surprisingly, social commentators from different ideological perspectives have repeatedly argued that a more equal distribution of income and assets ought to be a major, if not the main priority of public policy in the region. [2]

To understand better the causes of the high inequality in the region and to inform policy choices that might affect inequality, one would like to know whether inequality is mainly driven by the absence of opportunities for large segments of the population because of their family backgrounds or whether it is driven by differences in individual characteristics that are separate from their family backgrounds. Two different societies with the same inequality may have very different levels of social welfare depending on whether family characteristics play a substantial role in determining individuals' fates in life. If they do, inequality is largely the reflection of the absence of opportunities for those with poor family backgrounds, society is likely to be viewed as less fair than if family background were not so important, and policies aimed at reducing inequality have ample justification.

As important as the previous issues are, very little is known about the extent to which family background affects socioeconomic outcomes in Latin America, and hence little is known about the extent of inequality of opportunity in the region as whole as well as in particular countries. Public opinion surveys show that most inhabitants of the region believe that opportunities are very limited and out of reach of large sectors of the population, but little confirmation of these opinions has been provided by systematic

[2] See, for example, the discussion of Berry (1997), or the recent paper by Birdsall and De la Torre (2001).

quantitative analysis.[3] This is so because of the absence of data sets containing information on various generations of adults in the same family, without which it is very difficult to gauge the effect of family background upon socioeconomic outcomes.

We follow two different strategies to circumvent the lack of longitudinal data sets that has hampered previous attempts to study intergenerational mobility in Latin America. First we rely on household surveys that have included retrospective questions about parental socioeconomic characteristics. After a thorough search, we were able to gather information on parental characteristics for adults for Brazil, Colombia, Mexico and Peru, which, to the best of our knowledge, are the only countries in the region that have collected this type of information. While this includes only four countries, it should be noted that these countries comprise about 65 percent of the population of the region. We examine the intergenerational transmissions of schooling and occupational status for these countries, and draw some comparisons with the United States. Our results reveal that intergenerational mobility is much higher in the United States than in these Latin American countries, and that there are sizable differences in mobility among them. These differences are systematically associated with mean schooling attainment both over time and across countries. However, changes in schooling attainment do not appear to be correlated with changes in mobility.

This type of analysis is inherently historical in that it focuses on the connection between family background and schooling achievements for past generations. Our second strategy uses a database constructed on the basis of 112 household surveys for 19 Latin American and Caribbean countries (LAC) and the United States to study these connections for more recent generations. We focus on teenagers co-residing with their parents, and examine the effects of family background on their relative schooling success. We document the existence of large differences in current mobility between Latin America and the United States and within Latin America. We also show that mobility tends to be higher in countries where teens have more years of schooling, which confirms our earlier results.

[3] 80 percent of respondents to the *Latinobarometro*, a public opinion survey carried out every year in 17 Latin American countries, state that connections are the most important mechanism to succeed in life. 55

The paper is organized as follows. Section I presents a brief overview of the literature on cross-national comparisons of intergenerational mobility. Section II examines the differences across countries in the intergenerational correlation of schooling and occupational status, as well as the connection between mobility and mean schooling attainment. Section III presents the effects of family background on schooling of teenagers living with their parents. And Section IV presents some general conclusions.

I. International Comparisons of Intergenerational Mobility: a Brief Overview

Economists and sociologists have long been interested in cross-national comparisons of social mobility and their repercussions. Karl Marx and Fredrick Engels, for example, argued that organized labor failed to take hold in the United States because social mobility was higher there than anywhere else in the world. Similarly, Alexis de Tocqueville claimed that the United States stood out among other advanced nations for its high levels of social mobility. But these and similar conjectures had to wait a long time to be formally tested. Only until very recently, researchers had access to the data required to compare the extent of social mobility across nations. And even today, very little is known about the extent of mobility in developing countries.

In the last decade or so, there has been renewed interest in cross-national comparisons of intergenerational mobility, spurred in part by three empirical papers that defied the general belief that the United States was an extremely mobile country. By using longitudinal data to represent longer-run ("permanent") income rather than annual income with large transitory components, these papers –Jere Behrman and Paul Taubman (1990), Gary Solon (1992) and David Zimmerman (1992)- showed that the correlation of earnings between fathers and sons in the United States was at least twice as large as had been previously estimated. Provoked by these findings, social scientists in Europe began

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percent state that hard work doesn't guarantee success.

to wonder about the extent of mobility in Europe vis-à-vis the United States, thus giving rise to an interesting meritocracy contest between the United States and European (mostly Scandinavian) countries.

The first results of this contest are now in hand and they show a virtual draw. According to the available evidence, intergenerational correlation of earnings in Canada, Finland, Germany, Sweden and the United States appear to be very similar.[4] If anything, this correlation is slightly higher in the United States than in the other countries, though generally the differences are slight.

But what about the differences between developed and developing countries? Unfortunately, very little is known about the answer to this question. The lack of longitudinal data sets has thwarted most previous attempts to study intergenerational mobility in developing countries in general and in Latin America in particular. Anecdotal evidence, as well as the high levels of inequality exhibited by countries in LAC, suggests that mobility can be lower (and perhaps much lower) in developing countries than in the developed ones. But little confirmation in the way of data analysis had been directed to this conjecture.

A few recent papers have attempted to measure intergenerational mobility by estimating the extent to which family background determines schooling attainment of children. By focusing on children who are young enough so that they are still co-resident with their parents, these papers have been able to circumvent the lack of longitudinal data, and thus to produce estimates of mobility for developing countries. In particular, Behrman, Birdsall and Székely (2000) and Dahan and Gaviria (2001) have used multiple household surveys to assess the extent of intergenerational schooling mobility in Latin America. Behrman, Birdsall and Székely define intergenerational mobility to be the extent to which school gaps of children who co-reside with their parents are not associated with parental characteristics, primarily schooling. Dahan and Gaviria define mobility as the fraction of

[4] See Björklund and Jänti (2000) for an overview of the international comparisons on intergenerational mobility. See also Hauser and Grusky (1988) and Osterberg (2000).

the total variance in schooling "success" explained by differences among siblings--they use data on siblings who are co-residing with their parents and define "success" as not lagging more than a grade below the median for each age level.

These studies unambiguously show that mobility is much higher in the United States than in Latin America as a whole. But the results are much less definitive when one compares Latin American countries among themselves. The results show, in particular, that different mobility measures produce very different country rankings. Dahan and Gaviria (2001) also show that there appears to be a systematic relationship between mean schooling attainment and mobility. That is, countries where mean attainment is higher are, in general, more mobile in that parental characteristics explain a smaller fraction of the differences among siblings in schooling success. We reconsider this relationship in Section III of this paper.

How is Social Mobility Statistically Modeled and Measured?

As reviewed by Behrman (2000), the way social mobility has been modeled and measured has varied depending on the specific aspects of social mobility under scrutiny, as well as on the available data. A common statistical characterization of mobility dating back at least to Galton's (1889) model of regression towards the mean is the first-order Markov model in which the relevant socioeconomic indicator -- say schooling -- for entity i in period t (S_{it}) depends on both the value of that indicator in the previous period (S_{it-1}) and a stochastic term (w_{it}) that is independent of the previous period indicator and that is independently distributed across individuals and across periods:[5]

$$S_{i,t} = \alpha + \beta S_{i,t-1} + w_{i,t}. \qquad (1)$$

[5] With data on three (or more) periods the first-order Markov assumption can be tested by its implication that the correlation in Y between periods t and t + 2 equals the product of the correlation between t and t + 1 and between t + 1 and t + 2.

In this context, each period can be a generation and *i* refers to the family dynasty. Thus the indicator of the previous generation carries all relevant past information about family *i*, including the past experience regarding transitory shocks (which means that the variance of S increases with t). The parameter β is positive and is greater than one if there is real growth in S. If S_{it} is defined relative to the mean of its distribution, then the parameter β affects the relative position in the distribution and $\beta < 1$ implies regression towards the mean (that is more rapid the smaller is β). The parameter β is a measure of immobility. Another frequently utilized measure of mobility is *r*, the inter-period correlation in S. As t goes to the limit, β and *r* coincide, but along the path β consistently exceeds r (Atkinson, Bourguignon and Morrisson 1992, p. 9).

Estimates of equation (1) may be used to characterize intergenerational (or intragenerational) social mobility with continuous socioeconomic indicators such as income, earnings, or occupational status measured in either absolute or relative terms. Another standard way to characterize intergenerational mobility is to use transition probability matrices for movements among segments of the distribution (e.g., relevant categories, terciles, deciles) between generations. In certain respects transition matrices allow greater flexibility in characterizing mobility than do the approaches based on continuous variables because they allow asymmetries and other non-linearities. For example, transition matrices easily may capture a situation in which the probabilities of moving in a large jump from the bottom of the schooling distribution to the top may be larger than the probability of moving from top to bottom, with the difference balanced out by differences in the probability of moving to the middle.[6] In general, the sum of elements in each column of the matrix need not be one. If the categories have equal numbers in them and there is *relative* or *exchange* mobility so that distribution does not change between generations, the sum of the elements in each column is one.[7]

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[6] A transition probability matrix (P) is an n x n matrix, where n refers to the number of categories. The element in the j^{th} row and k^{th} column of a transition probability matrix (p_{jk}) gives the probability that an entity moves from the j^{th} category to the k^{th} category between generations (periods). The sum across elements in each row must be one because every family that initially is in the j^{th} category must end up in one of the categories ($\Sigma_k p_{jk} = 1$ for each j), assuming that all family lines continue to the next generation.

[7] The latter term is frequently used by sociologists concerned with social mobility in contrast to "structural" mobility if the distribution is changed. If the sum of the elements in each of the rows and of the elements in each of the columns is one, the matrix is said to be "bi-stochastic."

One important strain in the literature is concerned with how to infer the extent of intergenerational (or other types of social) mobility from transition probability matrices of the types indicated above. In essence, the problem is how to reduce such a probability matrix to a scalar that characterizes the extent of mobility (immobility). A number of possibilities have been proposed in the literature and are summarized by Dardanoni (1993). It should be borne in mind, however, that currently there is no one "correct" way to measure relative mobility with transition matrices, different approaches may yield different rankings for the same transition matrices, and to make much progress in such cases may require explicit assumptions about welfare functions – but even with such assumptions complete orderings of transition matrices may not be possible.[8]

II. Schooling Expansion and Intergenerational Mobility in Latin America

Data sets containing information about socioeconomic outcomes for two or more generations of the same family are rare commodities in developing countries in general and in LAC countries in particular. For LAC, a few surveys here and there have included some questions about parental characteristics of household heads, their spouses and other adults living in the household. After a thorough search, we were able to find comparable data on parental characteristics (and hence comparable information on intergenerational mobility) for four different Latin-American countries: Brazil, Colombia, Mexico and Peru. As noted above, these four countries comprise about 65% of the population in LAC.

For Brazil, we used a special module on "social morbidity" included in the 1996 wave of the national household survey (PNAD). This module has considerable information on socioeconomic and demographic characteristics of the parents of the household heads and

[8] Partly for this reason, Fields and Ok (1996) propose an axiomatic approach to characterizing mobility from longitudinal data. Based on seven axioms, they derive a measure of total mobility that is additively decomposable into mobility from (i) the transfer of resources among individuals with total resources held constant (relative or exchange social mobility) and (ii) a change in the total resources available.

their spouses. The data used is representative of the population as a whole and covers 331,263 individuals. For Colombia, we used a living standards survey (*Encuesta Nacional de Calidad de Vida*) carried out in 1997. This survey contains information on parental schooling, occupational status and migration history for all individuals older than 18 years of age. The data is also representative of the population as a whole and covers 38,518 individuals.

For Mexico, we used a module on family conditions administered as an addendum of the National Urban Employment survey for 1994. This module contains a myriad of information about the family of origin of respondents 18 years of age and older, including parental schooling and occupation. The module was administered on six Mexican cities, which together comprise one third of Mexico's urban population.[9] The data covers 16,273 individuals and it can be regarded as representative of urban Mexico. For Peru, we use a small set of questions on parental characteristics included in the 1985 wave of the National Household Survey. This survey is representative of urban and rural areas combined, and contains data on parental characteristics for 26,309 individuals.

For comparative purposes, we also use a sample of individuals drawn from the General Social Survey (GSS); a cross sectional survey regularly carried out in the United States since 1972. Each cross section of this survey contains information on political attitudes, labor market outcomes and demographic characteristics for over one thousand individuals. Beginning in 1977, all waves have included several questions about parental schooling and occupational status. Here we pool all individuals from the 1990-97 waves to enlarge the sample.[10] The pooled data contains information on parental schooling and occupational status for 35,284 individuals.

All these surveys rely on retrospective questions to collect the data on parental characteristics. Although this practice can bias some of our estimates due to measurement

[9] These cities are México City, Monterrey, Guadalajara, Veracruz, Orizaba and Merida. See Binder and Woodruff (1999) for a thorough description of this survey.
[10] The GSS has been used previously to study distinct aspects of intergenerational mobility in the United States by Alesina and La Ferrara (2000) and Borjas (1992), among others.

error, this bias should not hinder cross-country comparisons under the reasonable assumption that individuals' "powers of recall" do not differ substantially from one country to another.

To assure as much comparability as possible for our estimates of intergenerational mobility, we impose the same sample restrictions on all data sets. We restrict all samples to individuals between 23 and 69 years of age. This restriction aims both at removing individuals who haven't completed their schooling and at preventing selection bias stemming from different survival rates between individuals with different family backgrounds. We present separate estimates of mobility for individuals living in urban and rural areas and for men and women, not only because we are interested in these differences per se, but because we want to know the extent to which cross-country differences in intergenerational mobility are driven by gender gaps and urban-rural differentials.

Table 1 presents means of the main variables of interest for the five countries under analysis. Parental schooling refers to the years of schooling of the most educated parent of the family. Mean schooling attainment is the lowest in Brazil, and the highest in the United States. By and large, attainment increases as one moves from left to right in the table. Attainment is also consistently higher in urban areas, especially so in Colombia and Peru. Average gender differences in schooling are high in Peru and Mexico and slight in the other countries. In Peru average schooling is almost two years greater for men than for women.

Table 1 shows that mean schooling attainment in Latin America has increased dramatically from one generation to the next. In urban Brazil, children have three years of schooling more than their parents: a difference well over 100 percent. The same difference is 2.7 (or 52 percent) for Colombia, 3.7 (or 76 percent) for Mexico and 3.2 (or 59 percent) for Peru. By contrast, intergenerational differences in schooling attainment are slight in the United States, which suggests the presence of limited marginal gains to further schooling at the much higher levels of schooling of this country.

These results suggest that absolute schooling mobility has been a distinct characteristic of Latin-America countries: children have consistently surpassed the schooling attainment of their parents. We want to focus here, however, not so much on absolute as on relative mobility. The distinction is important because while the former can be just a reflection of the rise in average schooling that usually accompanies economic development, the latter is not mechanically affected by economic growth and is thus more related to the distributions of opportunities and, therefore, to the line of inquiry of this paper.

To study the transmission of schooling from parents to children, we estimate the simple linear model in equation (1). Again, estimates of β close to unity suggest very limited intergenerational mobility, while estimates of β close to zero suggest that schooling outcomes are not closely related across generations. In general, we will interpret β as a measure of the extent to which family background influences socioeconomic outcomes, and thus as a measure of inequality of opportunity.[11]

Equation (1) should be seen as a first-order, linear approximation of the process of transmission of schooling across generations. Many causal components enter in the determination of β, including wealth constraints, and cultural and genetic endowments. Because our goal is to compare the extent of mobility across counties regardless of its causes, we do not attempt to decompose β in its causal components.

Figure 1 shows the estimates of β for the five countries under analysis. Population weights were used for all estimates, but the non-weighted results don't differ substantially from those in the figure. For all countries with the exception of Mexico, where only urban data is available, we show separate estimates for the full and the urban samples. Estimates are around 0.7 for Brazil and Colombia, 0.5 for Mexico and Peru and 0.35 for the United States, indicating the presence of both huge differences in mobility between Latin America and the United States and sizable differences within Latin

[11] If the variance of schooling doesn't change much over time, β can be also interpreted as the correlation between parent's and children's schooling.

America.[12] In addition, the results indicate that mobility tends to be higher for the overall population than for people living in urban areas, but these differences are in general slight with the exception of Peru.

Figure 2 shows the differences in the estimates of β for men and women. For Brazil and Colombia the estimates are slightly higher for men than for women. The opposite is true for Mexico and Peru where the estimates are substantially higher for women, pointing to the presence of higher rates of mobility among men in these two countries, which also exhibit relatively large gender differences in attainment. Finally, gender differences in β are virtually zero for the United States.

It should be noted that the estimated cross-national differences in β imply huge differences in the extent of educational mobility in the countries under analysis. Given the estimated parameters, the probability that a Colombian whose parents have only two years of schooling will complete at least secondary schooling is 8.6 percent. But this probability would almost double, shifting from 8.6 to 16.1 percent, if Colombia had the mobility rates of Peru.[13] These are by no means small effects; quite to the contrary, they suggest the presence of huge differences in the chances of disadvantaged individuals to move up the economic ladder.

If we repeat the experiment described above looking at the probability of getting a college education rather than at the probability of getting at least a high school diploma, the implications are even starker. Given the estimated parameters, this probability is below one percent in Colombia, but it would be five times larger if this country had the estimated mobility rate of Peru. Once again, the parameters imply very different probabilities of moving from the bottom to the top of the educational distribution: whereas in Brazil and Colombia moving from "rags to riches" in one generation is

[12] The scant evidence available suggests that intergenerational mobility in Asia is much higher than in Latin America. A recent study shows that the correlation between the years of schooling of fathers and sons is below 0.2 in Malaysia (see Lillard and Wills, 1994).

[13] This assumes that the distribution of schooling in each generation is normally distributed.

virtually impossible, in the United States this is a remote but by no means impossible occurrence.

As discussed in Section I, one drawback of the previous analysis is that it imposes linearity on the relationship between the years of schooling of parents and children. One can argue, for example, that intergenerational ties tend to be stronger at the ends of the distribution, or asymmetric in that they are stronger in one direction than in another. To shed some light on these issues, we compute mobility matrices for Brazil and Colombia, the less mobile countries in our sample. We first distinguish four educational categories: (1) primary schooling or less, (2) some high school, (3) completed high school, (4) and some college. Then we compute the probability that an individual is in each category conditional on her parent's category. As before, we select the parent who has the highest years of schooling attainment.

The results, which are resented in Table 2, hint at the presence of substantial absolute mobility in the lower ends of the distributions. In Colombia, for example, 24 percent of the children whose parents have at most primary schooling were able to complete at least one year of high school (second column). The results also suggest that the proportion of upward mobile children from the bottom of the distribution is substantially higher than the proportion of downward mobile children from the top. In Colombia ten percent of the people moved from elementary to college in one generation, whereas scarcely two percent moved in the opposite direction. For Brazil, the same percentages are five and three percent, respectively. Of course, this reflects in part the secular trends in schooling attainment noted above with respect to Table 1.

All in all, the previous results indicate that in Latin America the schooling attainment of children is highly correlated with that of their parents. But what does this mean in terms of intergenerational mobility of earnings and ultimately of socioeconomic status? Although we do not know for certain the answer to this question, we think that the results suggest very high intergenerational correlation of incomes and earnings. First, the returns to schooling are very high in Latin America, which implies that big differences in

schooling eventually translate into big differences in earnings. Second, there is some evidence that in Latin America the returns to schooling increase with parental schooling, which suggests that the intergenerational correlation of earnings can be even higher than that of schooling.[14]

To test the latter hypothesis, we examine the changes in returns to schooling by parental schooling in Brazil. We consider the same schooling categories used above. For each category, we estimate a standard Mincer equation that controls for experience, gender and regional differences. The results show, first, that the returns are very high irrespective of parental schooling, and, second, that there is a positive connection between returns and parental schooling. Individuals whose parents have at most primary schooling have an average return to schooling of 13.2%, and individuals whose parents completed at least some high school, finished high school and completed some tertiary schooling have average returns of 16.4, 17.4 and 17.1 percent, respectively.[15]

It is worth noting, however, that a few important elements are conspicuously absent from our analysis. We haven't said anything about quality of schooling, arguably an important mechanism through which parental wealth can affect the socioeconomic prospects of children. Nor have we said anything about race and ethnicity, which can also play a prominent role in transmission of economic status across generations.[16] The availability of new data sets with information on school quality and ethnicity may allow verifying these connections in the future.

Occupational Mobility

Sociologists long have been interested in the transmission of occupational status from parents to children. This interest derives, at least partially, in the belief that schooling (or income, for that matter) does not completely capture the socioeconomic status of an

[14] See, for example, Lam and Schoeni (1993) for Brazil.
[15] These differences would be even larger if the returns were corrected for ability bias and the children of uneducated parents who go to college have higher ability than the children of educated parents who do the same (i.e., the former have to beat much longer odds).

individual. The problem is, however, that the status of an occupation is not only difficult to measure, but it may vary considerably from one generation to the next.

All surveys describe above include some information on the occupations of the parents of the heads of households and their spouses--information that can be used to study the intergenerational transmission of occupational status across generations. The problem is that this information varies considerably across surveys in terms of definitions and quality. While some surveys allow many occupational categories, others are much less thorough in this respect. These differences make it difficult to compare the extent of occupational mobility among countries, even if we assume that most occupations have similar status from country to country.

In spite of these differences, a common ground that allows cross-country comparisons of occupational mobility can be found. This implies, of course, that the comparison must be based on broad categories that can be consistently defined for all countries. Here we distinguish between two broad categories. The first ("white collar") includes professionals, advanced technicians, business owners and top and middle managers, and the second ("blue collar") includes all other occupations. Although this division is not always clear-cut, we think that it captures fundamental differences in occupational prestige for the countries under analysis.

In order to assure comparability, we imposed the same sample restrictions as before. Additionally, we exclude rural areas and constrain samples to pairs of fathers and sons. After imposing these restrictions, the fraction of white-collar workers is 35 percent in the United States, 16 percent in Mexico and around 25 percent in the other countries. Of course, these differences may reflect not only differences in labor markets but also differences in the definitions of the categories across countries.

Table 3 shows the occupational mobility matrices for the same five countries. Each cell shows the percentage of sons in the occupational category for that column conditional on

[16] See Borjas (1992) for an empirical study of the effects of "ethnic capital" on intergenerational mobility.

their father's category for that row. For all countries the sons of white-collar fathers are much more likely to be white-collar themselves than the sons of blue-collar fathers, pointing to the existence of an intergenerational link in occupational status. But this link is not the same across countries.

We can gauge the extent of intergenerational links in occupational status by looking at how the probability of having a white collar occupation changes depending on whether one's father had a blue- or a white-collar occupation. In particular, the ratio between these two probabilities provides a clear indication of the benefit of having a father who held a more prestigious occupation. The value of this ratio for Brazil is 2.6, which means that the probability of having a white-collar occupation is 2.6 times higher if one's father had a similar occupation than if one's father had a blue-collar occupation. The same ratio is around 2.0 for Colombia, 3.5 for Mexico, 2.8 for Peru, and 1.5 for the United States.

Thus, this evidence suggests that the United States has the highest inter-generational occupational mobility, followed by Colombia, Brazil, Peru and Mexico. It is interesting to note that occupational mobility and educational mobility are somewhat at odds in Latin America. Colombia, for example, has a relatively high mobility in terms of occupational status, but a relatively low mobility in terms of schooling attainment. The same is true for Brazil, and the converse for Mexico and Peru.

Schooling and mobility: a cohort analysis

Although the rapid expansion of schooling attainment in Latin America is well documented, its implications for intergenerational mobility have not been investigated much. Here we explore the connection between the changes in mean schooling attainment and the changes in mobility for the same set of countries included above.

Our main hypothesis is that progress in mean schooling attainment increases intergenerational schooling mobility because diminishing marginal returns to schooling limit the extent to which schooling expands at higher levels of development, as suggested

by the intergenerational comparisons for the United States versus the other countries in Table 1. To examine this hypothesis, we divide the sample into four different cohorts (age groups). The first cohort includes respondents between 50 and 69 years of age, the second includes respondents between 40 and 49, the third respondents between 30 and 39, and the fourth respondents between 23 and 29. We restricted the fourth cohort to a minimum age of 23 to filter out most respondents still in school for whom there is still uncertainty about their ultimate schooling attainment.

As mentioned earlier, our data for Brazil, Colombia, Mexico and the United States are from the mid-nineties, and our data for Peru are from the mid-eighties. This means that we are able to analyze similar cohorts for all countries with the exception of Peru. In the first group of countries, the first age group entered primary school in the 1930s and 1940s, the second in the 1950s, the third in the 1960s and the last in the 1970s. In Peru, each age group entered primary school about a decade earlier. This difference should be kept in mind when interpreting the results.

Figure 3 presents the progression of mean schooling attainment for these countries. We distinguish between men and women and focus on urban samples (full samples exhibit very similar trends). The difference between Latin America and the United States is striking. Mean attainment in Latin American started at very low levels and progressed steadily from one cohort to the next. By contrast, mean attainment in the United States started at very high levels and remain almost unchanged during the period under consideration. This evidence suggests that there is an upper bound for schooling due to diminishing returns, and that this bound was basically achieved several decades ago in the United States.

A substantial slowing of mean attainment increases for the youngest cohort is apparent in all Latin American countries with the exception of Peru.[17] This pattern, clearly apparent in Brazil, Colombia and Mexico, also suggests diminishing marginal returns to schooling. For the younger cohorts, mean differences between men and women are very small

[17] Behrman, Duryea and Székely (1999) document this in detail.

everywhere with the exception of Peru, where a substantial gender gap remains in spite of the substantial absolute gains of women. In the period of analysis, the largest average gains in schooling took place among Peruvian women (4.8 years), followed by Mexican and Colombian women (4.7 and 4.2 years, respectively). Indeed, an important message of Figure 3 is the important gain in mean attainment experienced by Latin American women over the last five decades.

Figure 4 presents the evolution of intergenerational correlation across cohorts for these countries. We estimated equation (1) for each cohort for each country and then plotted the estimated coefficients against the corresponding cohorts. We divided the Latin American countries in two groups: countries with low mobility (Brazil and Colombia) and countries with moderate mobility (Mexico and Peru). For comparative purposes, we also plot the results for the United States with both groups.

The low mobility countries show similar patterns of change in intergenerational schooling relations. In these countries, immobility was very high for the older cohorts, but it fell steadily for the younger cohorts. In both countries, the β in equation (1) dropped almost 0.3, pointing to huge gains in mobility in the period under consideration. It is interesting to note that the gains in mobility did not seem to slow down for recent cohorts in these countries despite the slowing of increases in mean schooling attainment (more on this later).

The moderate mobility countries show a somewhat different pattern. They started at lower levels of immobility but mobility progressed more slowly. This pattern is broken by the puzzling gain of the youngest Peruvian cohort, which boasts a drop in the estimated value of β of almost 0.15--the single largest drop in our sample.[18] For its part, Mexico is the only one of the five countries in which immobility increased slightly between the third and fourth cohorts. Finally, mobility progressed steadily, but much

[18] This results holds if we restrict this cohort to include only individuals older than 25. The result also holds for men and women taken separately.

more slowly in the United States, where the estimated value of β dropped 0.07 in the 50 years under analysis.

Do these patterns mean that increasing mean schooling attainment is the key to enhance intergenerational schooling mobility? As a first step to address this question we regress the estimated value of β of a cohort-country cell on the mean schooling attainment for the same cell. The first panel in Table 4 presents the estimates. On average, an increase of one year in mean attainment is associated with a drop of 0.05 in β. This result remains unaltered after controlling for either country or cohort effects, implying that the relationship between mean schooling and mobility applies both across countries and over time within countries. In sum, this evidence hints at a strong positive correlation between schooling attainment and intergenerational mobility (i.e., a negative correlation between attainment and β).

The results do not imply, however, that there is a causal connection between mean attainment and mobility, as they both can be driven by a third variable (e.g., economic growth). Further, the estimates in the second panel of Table 4 show that when we regress changes in β on changes in mean attainment the association is not significant, implying that improvements in attainment from one cohort to the next don't appear to spur mobility in the younger cohort.

We stress, nevertheless, that these results do not necessarily mean that schooling is not an instrument of social mobility. After all we still observe a powerful connection between attainment and mobility, both across cohorts and across countries. We believe that our results indicate that improvements in mean attainment do translate to higher relative mobility. But perhaps the main message is that distributing opportunity is not just a matter of expanding schooling and that additional factors seem to play out in the complex equation that determines the transmission of status across generations. In particular, policies may need to direct significant aspects of the schooling expansion directly towards children from families in which parents have relatively low schooling.

III. Family Background and Schooling Attainment for Teenage Children

The previous section looks, as it were, at the light coming from somewhat distant stars. It provided a picture of what life was like in the past-- a few decades ago. But it does not say much about the extent of social mobility today, which is the question that is most relevant from the policy point of view. This section intends to fill this void by examining the effects of family background on the schooling attainment of teenage children still living with their parents at the time of the last household surveys available to us for various countries in the region. This will bring intergenerational schooling mobility estimates up to date.

In this section we use information on parental and children's characteristics for children ages 16 to 20. The sample is restricted to these ages because a high proportion of young adults in this age range in Latin America still live in the parental household. Going above this age group would imply substantial losses of information and probably biases because standard household surveys, such as the ones we use in this section, do not include a longitudinal dimension and young adults may leave their parental households selectively in a way that is related to intergenerational school mobility. In most household surveys we lose track of the family background of young adults when they leave their parental households. We do not include children under 16 in our sample because there is evidence that schooling differences start becoming apparent precisely around this age.[19]

Restricting the sample to children between 16-20 year of age allows us to estimate current mobility, but this comes at a cost because life is a long race. Looking at schooling achievements at age 20 tells us only part of the story. If after age 20 the connection between family background and socio economic performance is altered in some important way, this will be missed in our data.

[19] See Attanasio and Székely (2001).

To perform our analysis we use data from 94 household surveys for 19 Latin American countries, as well as 18 waves of the Current Population Survey for the United States. All in all, we use 112 household surveys to generate a database on intergenerational schooling relations spanning a whole continent and a quarter of a century. A list of survey names and years is presented in Appendix Table A1. We have data for the late or mid-1990s for all 20 countries, and data for the early or mid-1980s for 11 countries: Argentina, Bolivia, Brazil, Chile, Costa Rica, Mexico, Panama, Peru, Uruguay, Venezuela and the United States. For the latter set of countries, we can produce estimates of mobility not only for the current cohort of teenage children, but for previous cohorts as well. For the United States, Mexico and Panama, information is also available for the 1970s.

The data used in this section is of high quality relative, for instance, to income data, which varies considerably across surveys in terms of coverage, definitions, and quality. But the data that we use are not without problems. In particular, household surveys do not always have information on whether children residing in households are children of the household heads. In the cases in which the data permit verification, the proportions of children who are children of the household heads are about 80 to 90% of the total. Table 5 shows the proportion of children between 13 and 19 years of age that is children of the heads for a selected group of countries. In Venezuela, for example, this proportion is around 79 percent, and the proportion of children who reside in the same household as their two parents is only around 77 percent. On the other hand, most of the children who are not children of household heads are children of relatives--all but 2 percent in the Venezuelan case. If intergenerational schooling linkages and assortative mating on schooling are strong, schooling of the household head may be a good proxy for parental schooling of those children who are relatives. Nevertheless, not being able to identify which children are children of household heads means that our estimates will overstate intergenerational mobility – the more so the less strong are true intergenerational schooling links and assortative mating on schooling.

To measure the extent to which family background affects the schooling attainment of children, we use the methodology proposed by Dahan and Gaviria (2001).[20] This methodology involves two main steps. First, compute an index of schooling attainment that shows whether a child is above some cutoff point. In particular, this index distinguishes between children who are above and below the median schooling of their cohort. Second, compute the correlation among siblings for this index of attainment. The higher this correlation, the higher the importance of family background in explaining schooling success among teenagers co-residing with their parents, and so the lower the rate of mobility in the country in question.

Following Dahan and Gaviria (2001), we use a version of the following correlation index:

$$\rho_g = \frac{\sum_{f=1}^{F} B_f (\bar{g}_f - \bar{g})^2}{B\bar{g}(1-\bar{g})}, \qquad (2)$$

where g_{sf} is a dummy variable showing whether individual s of family f has more years of schooling than the median individual of her/his cohort, $\bar{g}_f$ is the average value of g in family f, $\bar{g}$ is the average value of g in the entire sample, B is the number of individuals, F the number of families, and B_f the number of teenage siblings in family f. This index corresponds to the R^2 obtained by regressing the g_{sf} on a set of dummy variables for all families in the sample (see Kremer and Maskin, 1996). Since ρ_g could yield positive values even if family background is inconsequential, as will be the case, for instance, when children are assigned to families randomly, we use a modified version of the previous index, as follows:

[20] This method has some advantages over the one used by Behrman, Birdsall and Szekely (2000). The main one is that the Dahan-Gaviria measure does not rely on income variables. Income measures in household surveys have low comparability across countries and are subject to measurement error, especially at the tails of the distribution. A second advantage is that the procedure does not require econometric estimations with potential endogeneity problems – which are hard to avoid in regressions of children's schooling attainment on parent's characteristics if, for example, genetic endowments affect both schooling and earnings and are correlated intergenerationally. A third advantage is that the Dahan-Gaviria measures controls for all non-observable family characteristics in the estimation of mobility.

$$\rho_a = 1 - (1 - \rho_g)\frac{B-1}{B-F}. \qquad (3)$$

The new index, ρ_a, will yield positive values only if the previous index, ρ_g, is greater than would be expected purely by chance. Positive values of ρ_a can thus be unambiguously interpreted as evidence that family background does play a role in the determination of schooling success. To implement this approach we must further restrict the sample to households that have at least two children in the specified age range. This reduces the number of observations in each household survey, which may reduce the degree of precision of our estimates. There also may be a risk that households are excluded selectively. Namely, low fertility households are more likely to be excluded than are high fertility households. If there is "quantity-quality" tradeoff, the excluded low fertility households are likely to have relatively high child schooling. However it is not clear whether this exclusion will bias the estimates of intergenerational schooling mobility and will affect cross-country comparisons.

Figure 5 shows the estimated values of ρ_a for the 20 countries under analysis by using the most recent household survey available for each country. The results show, once again, the existence of large differences in mobility between Latin America and the United States. Whereas the average value of ρ_a for Latin America is around 0.5, the value for the United States is about 0.21. Sizable differences within Latin America are also apparent. El Salvador and Nicaragua have the least intergenerational schooling mobility in the sample, and Paraguay, Panama and Uruguay have the most. In general, mobility seems to be lower in Central America and higher in South America, with the exceptions of Brazil and Ecuador, which have relatively low mobility.

Figure 6 presents the aggregate trends in mobility for Latin America and the United States.[21] There are substantial changes in the value of ρ_a over the period under analysis.

[21] Trends are presented only from 1980 on because our data set contains only few observations for Latin America for years before 1980. To compute the Latin American average we use the panel of countries that

During the 1980s there was a decline in the value of ρ_a in Latin America and the United States. But this was reversed in the 1990s, especially for Latin America where the value of the coefficient ρ_a increased again, and reached mid-1980 levels. In the United States mobility declined during the first years of the decade, but increased substantially after 1993 to reach the highest level experienced in recent decades. Figure 6 shows that the recent rise in inequality observed throughout Latin America has occurred in a context of lower intergenerational mobility.[22]

Are countries that have higher levels of mean schooling attainment also more mobile countries in the sense that family background explains a smaller fraction of schooling success? To explore this question, we use the collection of 112 household surveys to estimate the following linear model:

$$\rho_{ct} = c + \delta S_{ct} + \lambda_c + \zeta_t + \varepsilon_{ct}, \qquad (4)$$

where ρ_{ct} is the mobility index of country c in year t, S_{ct} is the mean schooling for individuals between 16 and 20 years of age in country c, and λ_c and ξ_t are country and year dummies, respectively. Negative values of δ will indicate that higher levels of schooling are in general associated with higher levels of mobility.

Mean attainment among teenagers varies widely across countries, being the highest in the United States where it is above 11 years and the lowest in Brazil, Honduras and Nicaragua where it hardly surpasses 6 years. Most countries exhibit an upward progression in mean attainment among teenagers, but while this progression is very accentuated in Brazil, Colombia and Mexico, it is almost imperceptible in Argentina and Bolivia.

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have observations in the 1980s and 1990s, and estimate a fixed effects regression where the dependent variable is the Dahan-Gaviria mobility index, and the independent variables are year dummies. Interpolations are performed when there is no data between two household surveys. The graph plots the predicted value of the mobility index for each year, based on the coefficient estimates.

[22] See Székely and Hilgert (2001) for the recent evolution of inequality in Latin America.

Table 6 presents the estimated values of δ for several alternative specifications. The first column shows the estimates after pooling all countries and all years, the second column includes country dummies, and the third includes year dummies. The results confirm, the positive connection between social mobility and schooling. On average, an additional year of schooling is associated with a drop in ρ of approximately 0.05; a result almost identical to that obtained in Section 2. But this result is driven not so much by differences over time within countries as by differences across countries. That is, mobility is higher in countries with higher mean attainment, but doesn't necessarily increase as mean attainment progresses over time within a country.

IV. Conclusions

This paper presents estimates of intergenerational mobility for Latin America and the United States. The results, based upon surveys with retrospective questions on parental characteristics and on the analysis of over 100 household surveys spanning two decades and 20 countries, show that mobility is much higher in the United States than in Latin America, that there are sizable differences in mobility within Latin America, and that these differences are associated with schooling in a predictable fashion.

All in all, the results do not show a positive picture about the distribution of opportunity in Latin America. Socioeconomic success, whether that is schooling attainment or occupational status, hinges heavily on family background in the region. We believe that future research on the topic should concentrate on studying the mechanisms whereby socioeconomic outcomes are transmitted from parents to children. Informal evidence suggests that borrowing constraints, discrimination, spatial segregation and marital sorting are among the main of such mechanisms. It remains, of course, to determine their relative importance and their interconnections. This information would lay stronger foundations for informing and evaluating concrete policy recommendations and their probable impact on inequality.

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Table 1

Mean of Parental and Respondent's Schooling by Countr

	Brazil	Colombia	Mexico	Peru	United States
Full Sample					
Respondent Schooling	5.47	6.95	--	6.80	13.49
Male Respondents	5.51	6.93	--	7.79	13.62
Female Respondents	5.43	6.97	--	5.86	13.38
Parental Schooling	2.39	4.64	--	4.80	12.11
Urban Sample					
Respondent Schooling	6.11	7.91	8.91	8.59	13.65
Male Respondents	6.24	8.07	9.47	9.53	13.82
Female Respondents	6.00	7.78	8.33	7.71	13.52
Parental Schooling	2.72	5.19	4.84	5.39	12.28

Source: Authors' calculations from survey data.

Table 2

Table 2. Mobility matrices

Colombia – 1997

	Education of Children			
Education of Parents	Primary or Less	Some Secondary	Secondary	At Least Some Higher
Primary or Less	51.2%	24.2%	14.1%	10.5%
Some Secondary	12.6%	26.2%	25.4%	35.9%
Secondary	9.1%	17.3%	25.4%	48.2%
Higher Education	2.2%	6.5%	14.2%	77.1%
Total	41.7%	23.2%	16.2%	18.8%

Brazil – 1996

	Education of Children			
Education of Parents	Primary or Less	Some Secondary	Secondary	At Least Some Higher
Primary or Less	60.2%	23.9%	10.8%	5.1%
Some Secondary	13.2%	32.0%	29.2%	25.7%
Secondary	5.5%	19.0%	32.7%	42.9%
At Least Some Higher	3.5%	11.9%	19.9%	64.7%
Total	54.6%	24.0%	12.8%	8.8%

Table 3

Table 3. Intergenerational Occupational Mobility
Urban Population

	Son Blue Collar	Son White Collar
	Brazil	
Father Blue Collar	79.7%	20.2%
Father White Collar	47.2%	52.8%
Total	75.2%	24.8%
	Colombia	
Father Blue Collar	78.1%	21.9%
Father White Collar	57.9%	42.1%
Total	72.5%	27.6%
	Mexico	
Father Blue Collar	89.7%	10.3%
Father White Collar	64.1%	35.9%
Total	84.1%	15.9%
	Peru	
Father Blue Collar	80.0%	20.0%
Father White Collar	47.3%	57.8%
Total	75.9%	24.1%
	United States	
Father Blue Collar	70.5%	30.0%
Father White Collar	53.4%	46.6%
Total	65.5%	34.5%

Table 4

Table 4. Mobilty and Mean Educational Attainment

Dependent Variable: Coefficient β			
	(1)	(2)	(3)
Mean schooling	-0.045	-0.050	-0.043
	(8.67)	(5.11)	(7.78)
Constant	0.933	0.973	0.913
Country Fixed Effects	No	Yes	No
Cohort Fixed Effects	No	No	Yes
Nobs	20	20	20
R2	0.8	0.65	0.8

Dependent Variable: Changes in Coefficient β			
	(1)	(2)	(3)
Changes in mean schooling	-0.004	0.008	-0.024
	(0.25)	(0.37)	(1.046)
Constant	-0.056	-0.069	-0.037
Country Fixed Effects	No	Yes	No
Cohort Fixed Effects	No	No	Yes
Nobs	15.000	15.000	15.000
R2	<0.00	0.015	0.090

Table 5

Share of Teenagers (age 13-19)

	Children of Head	Related to Head	Other non-relative	Own household head or spouse	Children of Head (Two Parents)
Arg*	88.71	7.59	1.22	2.47	83.72
Bol	84.84	9.40	2.12	3.65	83.06
Chl	84.11	13.52	0.99	1.39	83.26
Bra	83.70	10.29	1.42	4.59	81.60
Ven	78.63	17.56	1.58	2.22	76.61

*GBA only

Source: Duryea, Edwards and Ureta 2000. "Adolescents and Youth in Latin America"

Table 6

Table 6. Sibling Correlation and Mean Attainment

Dependent Variable: Coefficient ρ

	(1)	(2)	(3)
Mean Schooling	-0.049	-0.029	-0.047
	(10.98)	(1.79)	(9.89)
Constant	0.863	0.691	0.8538
Country Dummies	No	Yes	No
Year Dummies	No	No	Yes
Nobs	117	117	117
R2	0.512	0.033	0.516

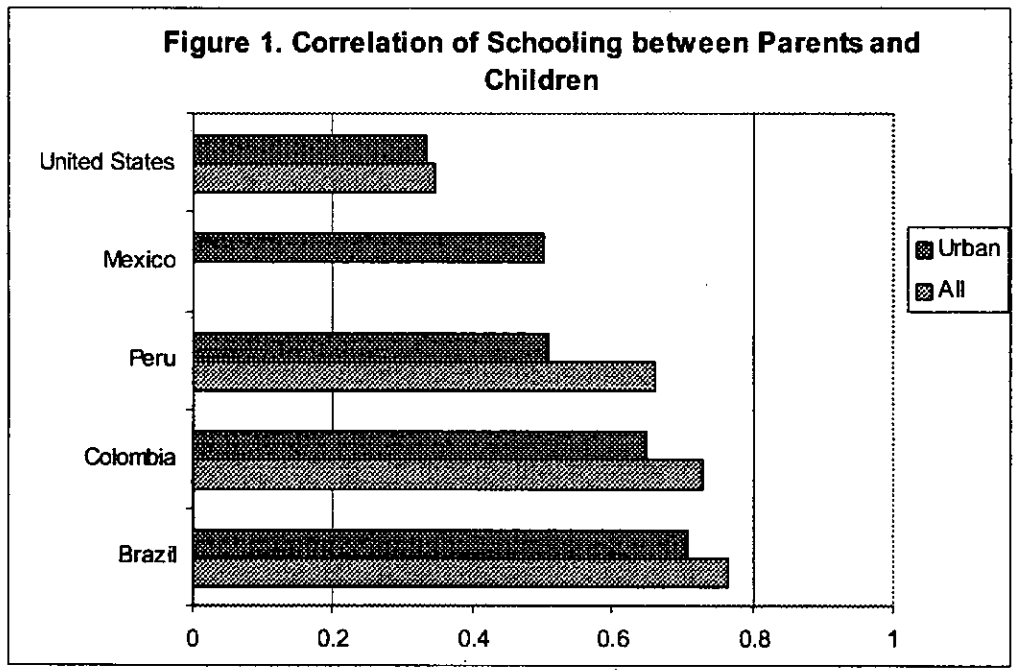


Figure 2. Gender Differences in Intergenerational Mobility (Urban Populations)

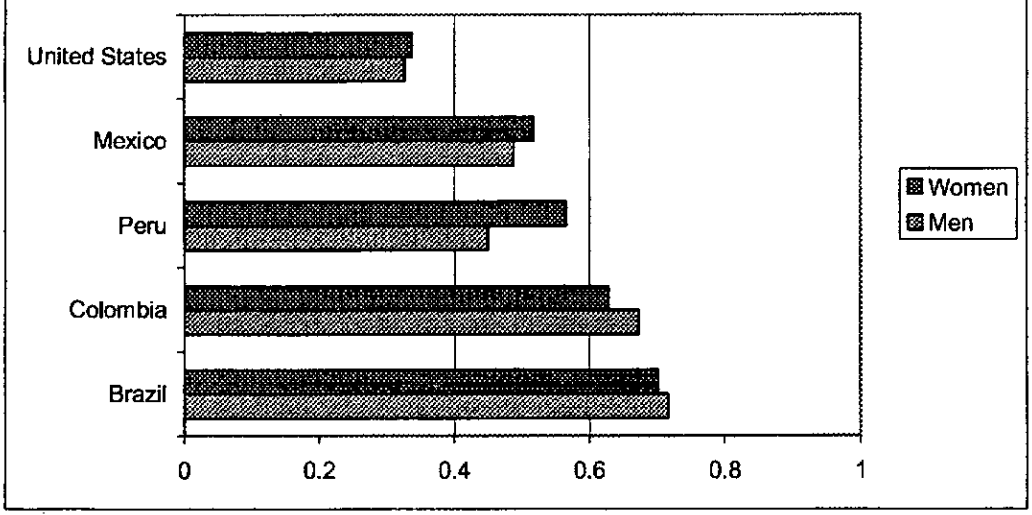


Figure 3. The Expansion of Schooling across Countries

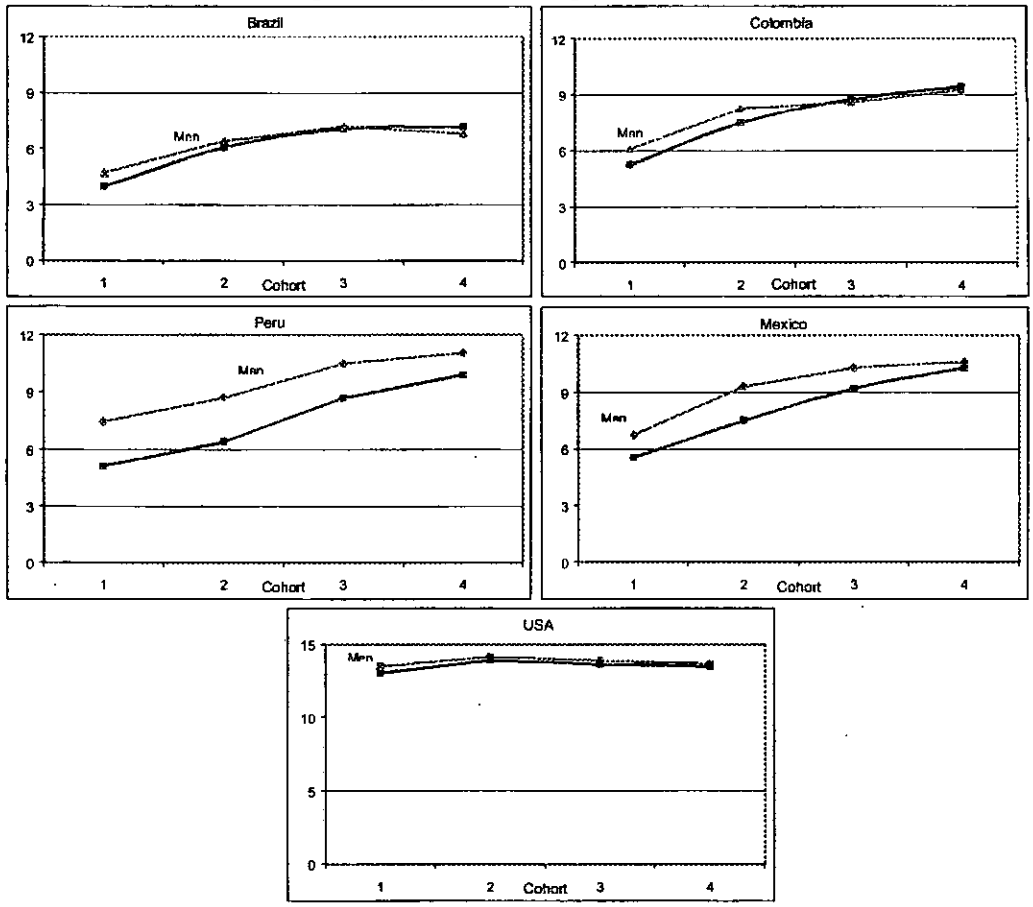


Figure 4. Mobilty by Cohorts

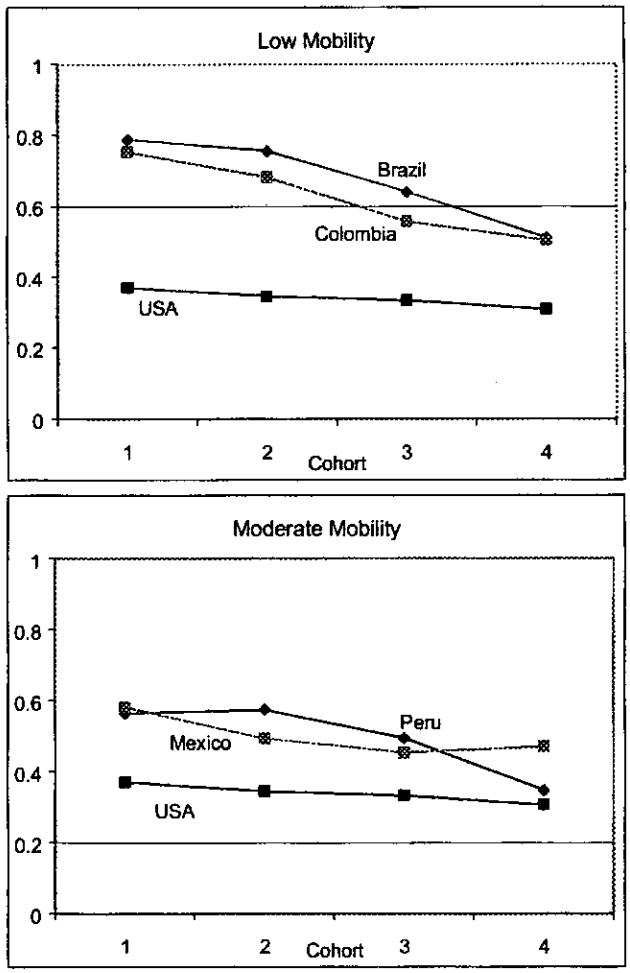
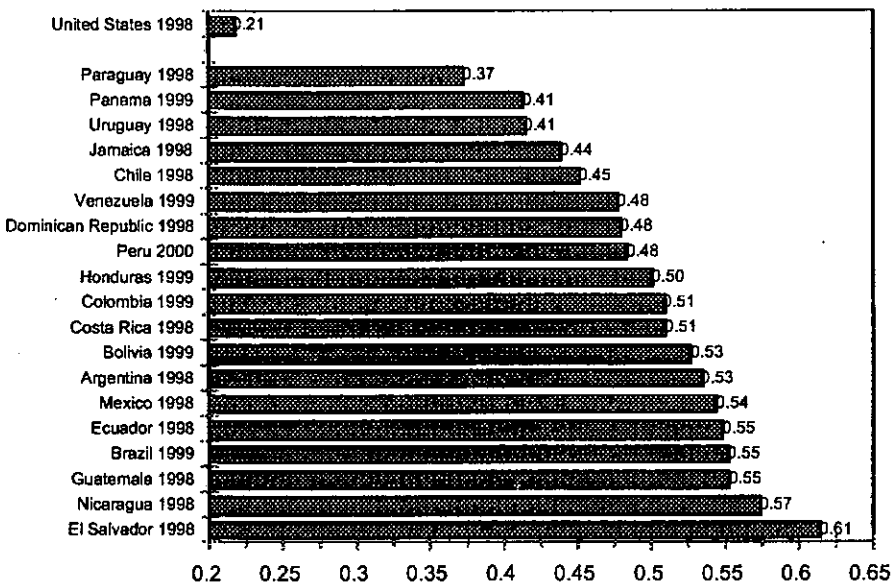


Figure 5

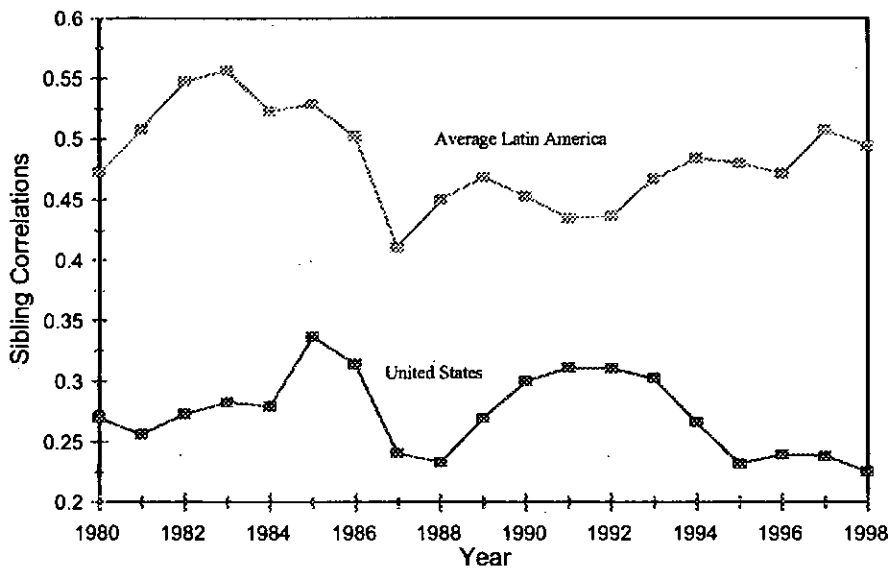
Intergenerational Schooling Mobility
in Latin America and the USA



Source: Authors'calculations from household survey data.

Figure 6

Intergenerational Mobility in Latin
America and the USA, 1980-1998



Appendix
Table A1

Household Surveys

Country	# Surveys	Years	Survey
Argentina	3	1980, 96,98	Encuesta Permanente de Hogares
Bolivia	7	1986	Encuesta Permanente de Hogares
		1990, 93, 95	Encuesta Integrada de Hogares
		1996, 97	Encuesta Nacional de Empleo
		1999	Encuesta Continua de Hogares (condiciones de vida)
Brazil	11	1981, 83, 86, 88	Pesquisa Nacional por Amostra de Domicilios
		1992, 93, 95, 96, 97,98,99	Pesquisa Nacional por Amostra de Domicilios
Chile	6	1987, 90, 92, 94, 96, 98	Encuesta de Caracterización Socioeconómica Nacional
Colombia	6	1991, 93, 95, 97, 98,99	Encuesta Nacional de Hogares - Fuerza de Trabajo
Costa Rica	10	1981, 83, 85	Encuesta Nacional de Hogares - Empleo y Desempleo
		1987, 89, 91, 93, 95, 97, 98	Encuesta de Hogares de Propósitos Múltiples
Dominican Republic	2	1996	Encuesta Nacional de Fuerza de Trabajo
		1998	Encuesta Nacional Sobre Gastos e Ingresos de los Hogares
Ecuador	2	1995, 98	Encuesta de Condiciones de Vida
El Salvador	3	1995, 97, 98	Encuesta de Hogares de Propósitos Múltiples
Guatemala	1	1998	Encuesta Naional de Ingresos y Gastos Familiares
Honduras	6	1989, 92, 96, 97, 98,99	Encuesta Permanente de Hogares de Propósitos Múltiples
Jamaica	2	1996, 1998	Living Standards Measurement Survey
Mexico	7	1977	Encuesta de Ingreso y Gasto de los Hogares
		1984, 89, 92, 94, 96,98	Encuesta Nacional de Ingreso y Gasto de los Hogares
Nicaragua	2	1993, 98	Encuesta Nacional de Hogares Sobre Medicion de Niveles de Vida
Panama	6	1979	Encuesta de Hogares - Mano de Obra (EMO)
		1991, 95, 97, 98,99	Encuesta Continua de Hogares
Paraguay	2	1995	Encuesta Nacional de Empleo
		1998	Encuesta Integrada de Hogares
Peru	5	1985, 91, 94, 97, 2000	Encuesta Nacional de Hogares sobre Medición de Niveles de Vida
		1996	Encuesta Nacional de Hogares sobre Niveles de Vida y Pobreza
Uruguay	6	1981, 89	Encuesta Nacional de Hogares
		1992, 95, 97,98	Encuesta Continua de Hogares
Venezuela	8	1981, 86, 89, 93, 95, 97,98,99	Encuesta de Hogares por Muestra
United States	23	1976 - 1998	Current Population Survey