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Intergenerational Mobility in Latin America

Inequality is widely regarded as one of the main problems facing Latin American countries both historically and today. The 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.[1]

To better understand the causes of high inequality in the region and to inform policy choices that might affect the problem, it would be useful to know whether inequality is mainly driven by the absence of opportunities for large segments of the population stemming from individual family backgrounds or by differences in individual characteristics that are separate from family backgrounds. Two different societies with the same level of 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, then 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.

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1. See, for example, Berry (1997); Birdsall and de la Torre (2001).

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 either in the region as a whole or in particular countries. Public opinion surveys show that most of the region's inhabitants believe that opportunities are very limited for large sectors of the population.[2] These opinions have not been confirmed by systematic quantitative analysis, however, 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 on socioeconomic outcomes.

We follow two different strategies to circumvent the lack of longitudinal data sets that hampers previous attempts to study intergenerational mobility in Latin America. First, we rely on household surveys that include retrospective questions about parental socioeconomic characteristics. After a thorough search, we were able to gather information on parental characteristics for adults in 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. These four countries account for 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 nineteen Latin American and Caribbean countries and the United States to study these connections for more recent generations. We focus on teenagers coresiding with their par-

2. Eighty percent of respondents to the Latinobarómetro, a public opinion survey carried out every year in seventeen Latin American countries, state that connections are the most important mechanism for succeeding in life. In addition, 55 percent state that hard work doesn't guarantee success.

ents, and we examine the effects of family background on their relative schooling success. We document the existence of large differences in current mobility within Latin America and between Latin America and the United States. We also show that mobility tends to be higher in countries where teens have more years of schooling and in countries that spend more money on education, which confirms our earlier results.

The paper is organized as follows. The next section presents a brief overview of the literature on cross-national comparisons of intergenerational mobility. The paper then examines the differences across countries in the intergenerational correlations of schooling and occupational status, as well as the connection between mobility and mean schooling attainment. We subsequently address the effects of family background on schooling of teenagers living with their parents. The final section presents some general conclusions.

International Comparisons of Intergenerational Mobility: A Brief Overview

Economists and sociologists have long been interested in cross-national comparisons of social mobility. Karl Marx and Friedrich 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 advanced nations for its high levels of social mobility. Such conjectures had to wait a long time to be formally tested, however. Only very recently have researchers had access to the data required for comparing 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 defy the general belief that the United States is an extremely mobile country.[3] These papers use longitudinal data to represent longer-run income rather than annual income with its large transitory components; they show that the correlation of earnings between fathers and sons in the United States is at least twice as large as previ-

3. Behrman and Taubman (1990); Solon (1992); Zimmerman (1992).

ously estimated. Provoked by these findings, social scientists began to wonder about the extent of mobility in Europe vis-à-vis the United States, which gave rise to a 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. Intergenerational correlation of earnings appears to be very similar in Canada, Finland, Germany, Sweden, and the United States.[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 Latin America and the Caribbean, suggests that mobility can be lower (and perhaps much lower) in developing countries than in the developed ones. Little data analysis has been undertaken to confirm this conjecture, however.

A few recent papers attempt 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 that they are still coresident 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 and Dahan and Gaviria use multiple household surveys to assess the extent of intergenerational schooling mobility in Latin America.[5] Behrman, Birdsall, and Székely define intergenerational mobility as the extent to which school gaps of children who coreside with their parents are not associated with parental characteristics, primarily schooling. Dahan and Gaviria define mobility as the fraction of the total variance in schooling success explained by differences among siblings; they use data on siblings who are coresiding with their parents and define success as not lagging more than a grade below the median for each age level.

4. See Bjorklund and Jänti (1997) for an overview of international comparisons on intergenerational mobility. See also Hauser and Grusky (1988); Osterberg (2000).

5. Behrman, Birdsall, and Székely (2000b); Dahan and Gaviria (2001).

These studies unambiguously show that mobility is much higher in the United States than in Latin America as a whole. The results are much less definitive, however, with regard to comparisons among Latin American countries. Different mobility measures produce very different country rankings. Even so, there appears to be a systematic relationship between mean schooling attainment and mobility.[6] That is, countries where mean attainment is higher are generally more mobile, in that parental characteristics explain a smaller fraction of the differences among siblings in schooling success.

How Is Social Mobility Statistically Modeled and Measured?

The way social mobility is modeled and measured varies depending on the specific aspects of social mobility under scrutiny and the available data.[7] A common statistical characterization of mobility is given by a first-order Markov model in which the relevant socioeconomic indicator 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:

$$S_{i,t} = \alpha + \beta S_{i,t-1} + w_{i,t} \tag{1}$$

In the present context, each period can be a generation, and i refers to a family dynasty. The indicator of the previous generation thus carries all relevant past information about family i, including past experience regarding transitory shocks. 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 β affects the relative position in the distribution and $\beta < 1$ implies regression toward the mean, which is more rapid for smaller values of β. In other words, the parameter β is a measure of immobility. Estimates of equation 1 may be used to characterize intergenerational 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 between generations among segments of the distribution (for example, relevant categories,

6. Dahan and Gaviria (2001).
7. Behrman (2000).

terciles, and deciles). In certain respects, transition matrices allow greater flexibility in characterizing mobility than do the usual approaches based on continuous variables because they allow asymmetries and other nonlinearities. For example, transition matrices may easily capture a situation in which the probability of moving in a large jump from the bottom of the schooling distribution to the top is 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.[8] In general, the sum of elements in each column of the matrix need not be one. If the categories contain equal numbers and if there is relative or exchange mobility, such that distribution does not change between generations, then the sum of the elements in each column is one.[9]

An important branch of the literature is concerned with how to infer the extent of intergenerational mobility (or other types of social mobility) from transition probability matrices. In essence, the problem is how to reduce such a probability matrix to a scalar that characterizes the extent of mobility. A number of possibilities have been proposed in the literature and are summarized by Dardanoni.[10] 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 making progress in such cases may require explicit assumptions about welfare functions. Even with such assumptions, however, complete orderings of transition matrices may not be possible.

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 develop-

8. A transition probability matrix (**P**) is an $n \times n$ 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. 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.

9. The term exchange mobility is frequently used by sociologists concerned with social mobility to contrast with 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 bistochastic.

10. Dardanoni (1993).

ing countries in general and in Latin American and Caribbean countries in particular. For Latin America and the Caribbean, a few surveys include some questions about parental characteristics of household heads, their spouses, and other adults living in the household. A thorough search yielded comparable data on parental characteristics, and hence comparable information on intergenerational mobility, for four different Latin American countries: Brazil, Colombia, Mexico, and Peru.

For Brazil, we use 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 their spouses. The data are representative of the population as a whole and cover 331,263 individuals. For Colombia, we use 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 eighteen years of age. The data are also representative of the population as a whole and cover 38,518 individuals.

For Mexico, we use a module on family conditions administered as an addendum to the National Urban Employment survey for 1994. This module contains a myriad of information about the family of origin of respondents aged eighteen and older, including parental schooling and occupation. The module was administered in six Mexican cities, which together represent one-third of Mexico's urban population.[11] The data cover 16,273 individuals and 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 it 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 carried out regularly 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 include several questions about parental schooling and occupational status. Here we pool all individuals from the

11. These cities are Mexico City, Monterrey, Guadalajara, Veracruz, Orizaba, and Mérida. See Binder and Woodruff (1999) for a thorough description of this survey.

1990–97 waves to enlarge the sample.[12] The pooled data contain 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 as a result of measurement error, this bias should not hinder cross-country comparisons under the reasonable assumption that individuals' power of recall does not differ substantially from one country to another.

To ensure 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 twenty-three and sixty-nine years of age. This restriction aims both at removing individuals who have not completed their schooling and at preventing selection bias stemming from different survival rates among 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 the 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 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, which represents a difference of 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. In contrast, intergenerational differences in schooling attainment are much smaller—though still with a discernible upward

12. Alesina and La Ferrara (2000) and Borjas (1992), among others, use the GSS to study distinct aspects of intergenerational mobility in the United States.

TABLE 1. Mean of Parental and Respondent's Schooling, by Country

Category	*Brazil*	*Colombia*	*Mexico*	*Peru*	*United States*
Full sample					
Respondent's schooling	5.47	6.95	n.a.	6.80	13.49
Male respondents	5.51	6.93	n.a.	7.79	13.62
Female respondents	5.43	6.97	n.a.	5.86	13.38
Parental schooling[a]	2.39	4.64	n.a.	4.80	12.11
Urban sample					
Respondent's 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[a]	2.72	5.19	4.84	5.39	12.28

Source: Authors' calculations, based on survey data.
n.a. Not available.
a. Years of schooling of the most educated parent of the family.

trend—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 American countries: children have consistently surpassed the schooling attainment of their parents. We want to focus, however, not so much on absolute as on relative mobility. The distinction is important. While the former may simply reflect the rise in average schooling that usually accompanies economic development, the latter is not mechanically affected by economic growth. It is thus more closely related to the distribution 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, where S_{it-1} refers to the educational attainment of the most educated parent. 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 interpret β as a measure of the extent to which family background influences socioeconomic outcomes, and thus as a measure of inequality of opportunity.[13]

13. If the variance of schooling does not change much over time, β can be also interpreted as the correlation between parents' and children's schooling.

Equation 1 should be seen as a first-order, linear approximation of the process by which schooling is transmitted 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 countries regardless of its causes, we do not attempt to decompose β into 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 nonweighted results do not differ substantially from those in the figure. We show separate estimates for the full and the urban samples for all countries except Mexico, where only urban data are available. Estimates are around 0.7 for Brazil and Colombia, 0.5 for Mexico and Peru, and 0.35 for the United States; this indicates the presence of both huge differences in mobility between Latin America and the United States and sizable differences within Latin America.[14] The results also suggest that mobility tends to be higher for the overall population than for people living in urban areas, but these differences are generally slight with the exception of Peru.

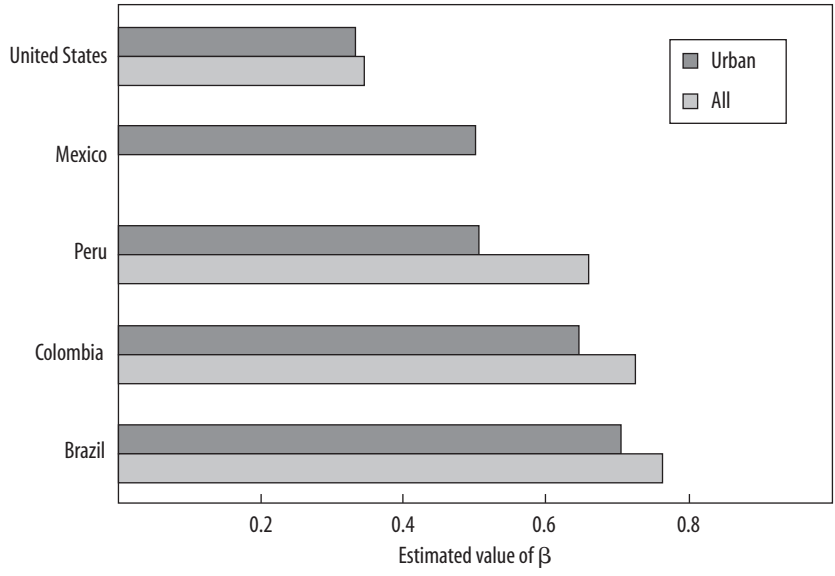
Figure 2 shows the differences in the estimates of β for men and women. For Brazil and Colombia the estimates are slightly higher for men than for women. The opposite is true for Mexico and Peru, where the estimates are substantially higher for women. This points to the presence of higher rates of mobility 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.

The estimated cross-national differences in β imply large 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.[15] These are by no means small effects; quite to the contrary, they suggest the presence of huge differences in the chances for disadvantaged individuals to move up the economic ladder.

14. The scant evidence available suggests that intergenerational mobility is much higher in Asia 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 Willis (1994).

15. This assumes that the distribution of schooling in each generation is normally distributed.

FIGURE 1. Correlation of Schooling between Parents and Children

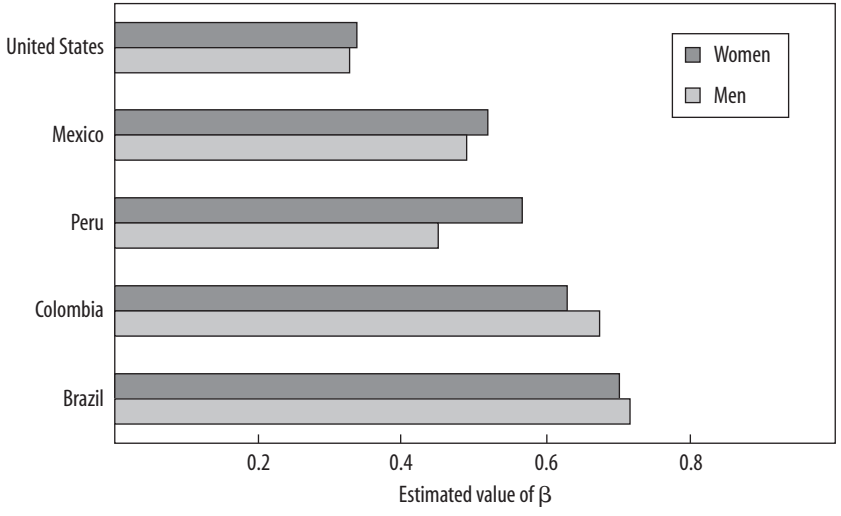


Source: Authors' calculations.

The implications are even starker with regard to the probability of getting a college education. 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 moving from rags to riches in one generation is virtually impossible in Brazil and Colombia, it is a remote but by no means impossible occurrence in the United States.

As discussed in the previous section, one drawback of this type of analysis is that it imposes linearity on the relationship between the years of schooling of parents and that of children. One can argue, for example, that intergenerational ties tend to be stronger at the ends of the distribution or that they are asymmetric, with a stronger correlation in one direction than in the other. To shed some light on these issues, we compute mobility matrices for Brazil and Colombia, the least mobile countries in our sample. We first distinguish four educational categories: primary schooling or less; some high school; completed high school; and some college.

FIGURE 2. Gender Differences in Intergenerational Mobility, Urban Populations



Source: Authors' calculations.

We then compute the probability that an individual is in each category conditional on his or her parents' category. As before, we select the parent who has the highest years of schooling attainment.

The results, which are presented 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 upwardly mobile children from the bottom of the distribution is substantially higher than the proportion of downwardly mobile children from the top. In Colombia, 10 percent of the people moved from elementary to college in one generation, whereas scarcely 2 percent moved in the opposite direction. For Brazil, the same percentages are 5 and 4 percent, respectively. Of course, these asymmetries reflect, in part, the secular trends in schooling attainment noted above with respect to table 1.

The schooling attainment of children is thus highly correlated with that of their parents in Latin America. 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,

TABLE 2. Mobility Matrices, Brazil and Colombia
Percent

Country and education of parents	Education of children			
	Primary or less	Some secondary	Secondary	At least some higher
Brazil, 1996				
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
Colombia, 1997				
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
At least some higher	2.2	6.5	14.2	77.1
Total	41.7	23.2	16.2	18.8

Source: Authors' calculations, based on survey data.

the results suggest very high intergenerational correlations 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. This suggests that the intergenerational correlation of earnings can be even higher than that of schooling.[16]

To test the latter hypothesis, we examine the changes in returns to schooling by parental schooling in Brazil, based on the same schooling categories identified 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 percent, while 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.

16. See, for example, Lam and Schoeni (1993) for Brazil.

A few important elements are conspicuously absent from our analysis, however. We have not said anything about the quality of schooling, although this is arguably an important mechanism through which parental wealth can affect the socioeconomic prospects of children.[17] Nor have we said anything about race and ethnicity, which can also play a prominent role in the transmission of economic status across generations.[18] The availability of new data sets with information on school quality and ethnicity may allow the verification of these connections in the future.

Occupational Mobility

Sociologists have long been interested in the transmission of occupational status from parents to children. This interest derives, at least partially, from the belief that schooling or income does not completely capture the socioeconomic status of an individual. The problem, however, is that the status of an occupation is not only difficult to measure but may vary considerably from one generation to the next.

The five surveys used 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 the definitions used and the quality of the information vary considerably across surveys. 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,

17. See Behrman and Birdsall (1983) for an extension of the standard model of schooling investment to include school quality, in which years of schooling and school quality are positively associated because better public school quality induces more time in school. Their estimates for Brazil are consistent with the model presented here. The implication is that school quality differentials are likely to reinforce the intergenerational immobility indicated by years of schooling.

18. See Borjas (1992) for an empirical study of the effects of so-called ethnic capital on intergenerational mobility in the United States. Behrman and Taubman (1990) also report black-white racial differences in intergenerational mobility in the United States.

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 workers) includes professionals, advanced technicians, business owners, and top and middle managers; the second (blue-collar workers) covers all other occupations. Although this division is not always clear-cut, it captures fundamental differences in occupational prestige for the countries under analysis. To ensure comparability, we imposed the same sample restrictions as before. In addition, we exclude rural areas and constrain samples to pairs of fathers and sons. After imposing these restrictions, the portion of white-collar workers is 35 percent in the United States, 16 percent in Mexico, and around 25 percent in the other countries. 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 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. This link is not the same across countries, however.

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 white-collar occupation. The ratio between these two probabilities provides some 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.

This evidence suggests that the United States has the highest intergenerational 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.

TABLE 3. Intergenerational Occupational Mobility, Urban Population
Percent

Country and father's occupational status	*Son's occupational status*	
	Blue collar	*White collar*
Brazil		
Blue collar	79.7	20.2
White collar	47.2	52.8
Total	75.2	24.8
Colombia		
Blue collar	78.1	21.9
White collar	57.9	42.1
Total	72.5	27.6
Mexico		
Blue collar	89.7	10.3
White collar	64.1	35.9
Total	84.1	15.9
Peru		
Blue collar	80.0	20.0
White collar	47.3	57.8
Total	75.9	24.1
United States		
Blue collar	70.5	30.0
White collar	53.4	46.6
Total	65.5	34.5

Source: Authors' calculations, based on survey data.

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 fifty and sixty-nine years of age, the second includes respondents between forty and forty-nine, the third respondents between thirty and thirty-nine, and the fourth respondents between twenty-three and twenty-nine. We restricted the fourth cohort to a minimum age of twenty-three to filter out most respondents still in school, for whom their ultimate schooling attainment is still uncertain.

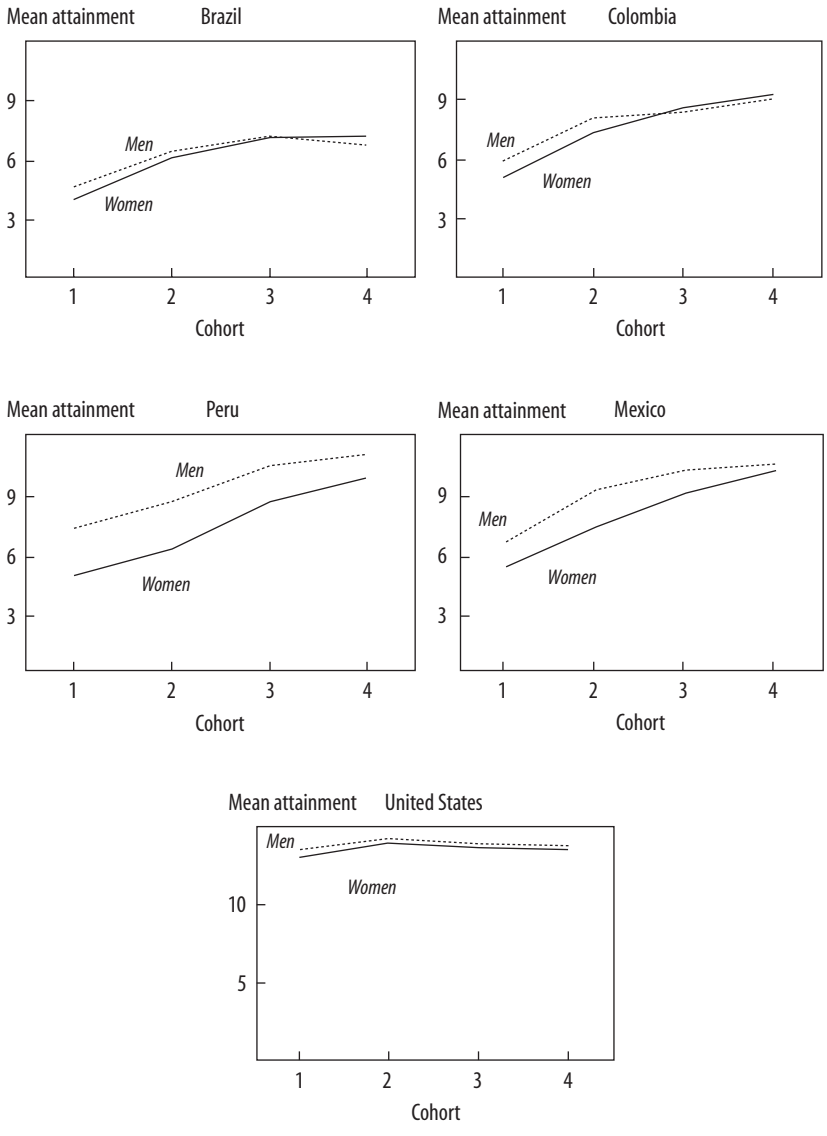
As mentioned earlier, our data for Brazil, Colombia, Mexico, and the United States are from the mid-nineties, and our data for Peru are from the mid-eighties. This means that we are able to analyze similar cohorts for all countries except Peru. In the first group of countries, the first age group entered 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 America 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 remained almost unchanged during the period under consideration. This evidence suggests that diminishing returns create an upper bound for schooling, and this bound was basically achieved several decades ago in the United States.

Mean attainment increases slowed substantially for the youngest cohort in all Latin American countries except Peru.[19] This pattern, which is clearly apparent in Brazil, Colombia, and Mexico, again suggests diminishing marginal returns to schooling. For the younger cohorts, mean differences between men and women are very small everywhere with the exception of Peru, where a substantial gender gap remains despite the substantial absolute gains of women. In the period under 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, the most important message of figure 3 is the substantial

19. Behrman, Duryea, and Székely (1999) document this in detail.

FIGURE 3. The Expansion of Schooling across Countries, Urban Populations



Source: Authors' calculations.

gain in mean attainment experienced by Latin American women over the last five decades.

Figure 4 presents the evolution of intergenerational schooling correlations across cohorts. We estimated equation 1 for each cohort in each country and then plotted the estimated coefficients for 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.

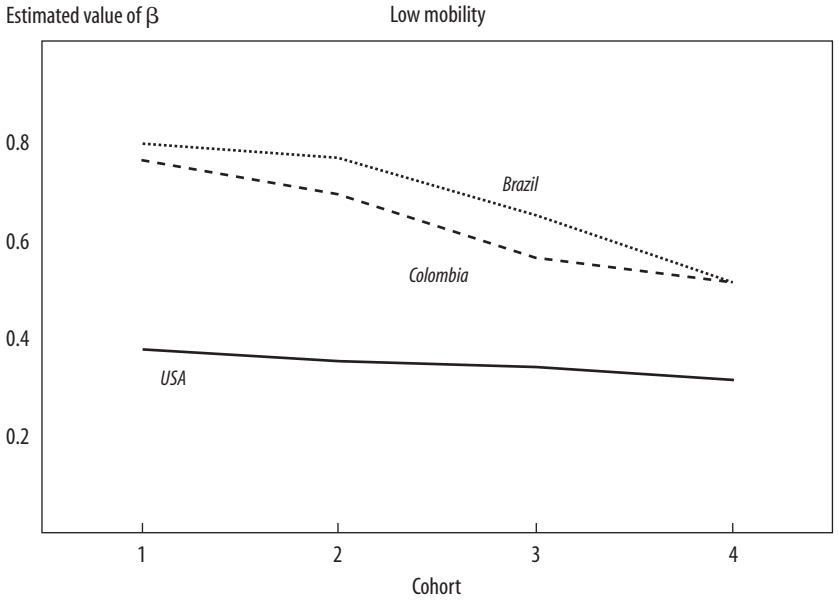
The low-mobility countries show similar patterns of change in intergenerational schooling relations. In these countries, immobility was very high for the older cohorts, but it fell steadily for the younger cohorts. In both countries, the value of β in equation 1 dropped by almost 0.3, indicating huge gains in mobility during the period under consideration. The gains in mobility did not slow down for recent cohorts in these countries, despite the slowing of increases in mean schooling attainment.

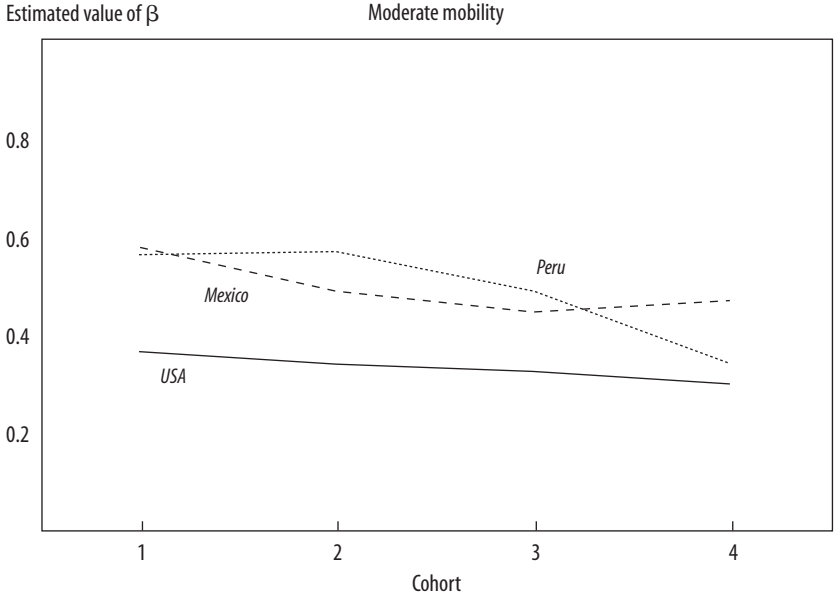
The moderate-mobility countries show a somewhat different pattern. They started at lower levels of immobility, but mobility progressed more slowly. This pattern is broken by the puzzling gain of the youngest Peruvian cohort, which boasts a drop in the estimated value of β of almost 0.15—the single largest drop in our sample.[20] 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 more slowly in the United States, where the estimated value of β dropped by 0.07 during the fifty years under analysis.

Do these patterns mean that increasing mean schooling attainment is the key to enhancing intergenerational schooling mobility? As a first step to addressing this question, we regress the estimated value of β for a cohort-country cell on the mean schooling attainment for the same cell. The first set of regression 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 relation between mean schooling and mobility applies both across countries and over time within countries. This evidence thus hints at a strong positive correlation between schooling attainment

20. This result holds if we restrict this cohort to include only individuals aged twenty-five and older. The result also holds for men and women considered separately.

FIGURE 4. Mobility by Cohorts





and intergenerational mobility (that is, 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, such as economic growth. Furthermore, the estimates in the second set of regression in table 4 show that when we regress changes in β on changes in mean attainment, the association is not significant. Improvements in attainment from one cohort to the next do not appear to spur mobility in the younger cohort.

The latter 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, such that improvements in mean attainment do translate to higher relative mobility. Distributing opportunity is not just a matter of expanding schooling, however. Additional factors seem to influence 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 toward children from families in which parents have relatively low schooling.

TABLE 4. Mobility and Mean Educational Attainment[a]

Explanatory Variable	*(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
R^2	0.80	0.65	0.80
No. observations	20	20	20
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
R^2	< 0.00	0.01	0.09
No. observations	15	15	15

Source: Authors' calculations.

a. The dependent variable is the coefficient β for the first set of regressions and changes in the coefficient β for the second set of regressions. Negative coefficients indicate positive effects on mobility, since larger values for β mean lower mobility; *t* statistics in parentheses.

Family Background and Schooling Attainment for Teenage Children

The previous section looks, as it were, at the light coming from somewhat distant stars. It provides a picture of what life was like a few decades ago, but it does not say much about the extent of social mobility more recently, which is the most relevant issue from the policy point of view. This section fills the 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 exercise brings intergenerational schooling mobility estimates up to date.

We use information on parental and children's characteristics for children aged sixteen to twenty. The sample is restricted to these ages because in Latin America a high proportion of young adults in this age range still live in the parental household. Going above this age group would imply substantial losses of information and probably biases: standard household surveys, such as the ones used 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 sixteen in our sample because schooling differences start becoming apparent precisely around this age.[21]

Restricting the sample to children between sixteen and twenty years of age allows us to estimate current mobility, but this comes at a cost. Looking at schooling achievements at age twenty tells us only part of the story. If after age twenty the connection between family background and socioeconomic performance is altered in some important way, this will be missed in our data.

Our analysis is based on data from ninety-four household surveys for nineteen Latin American countries, as well as eighteen waves of the Current Population Survey for the United States. We thus use a total of 112 household surveys to generate a database on intergenerational schooling relations spanning most of two continents and a quarter of a century. A list of survey names and the years conducted is presented in appendix 1. We have data for the late or mid-1990s for all twenty countries and

21. See Attanasio and Székely (2001).

data for the early or mid-1980s for eleven 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 also for previous cohorts. For the United States, Mexico, and Panama, information is also available for the 1970s.

The data used in this section are of high quality relative, for instance, to income data, which vary considerably across surveys in terms of coverage, definitions, and quality. The data are not without problems, however. In particular, household surveys do not always include information on whether the children residing in the households are children of the household heads. In the cases in which the data permit verification, the proportion of children who are children of the household heads is about 80 to 90 percent of the total. Table 5 shows the proportions of children between thirteen and nineteen years of age that are 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 both their parents is around 77 percent. 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, then the 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 may overstate intergenerational mobility, particularly if true intergenerational schooling links and assortative mating on schooling are not strong.

We use the methodology proposed by Dahan and Gaviria to measure the extent to which family background affects the schooling attainment of children.[22] This methodology involves two main steps. First, we compute

22. The methodology used by Dahan and Gaviria (2001) has the advantage over that used by Behrman, Birdsall, and Székely (2000b) that it does not rely on income variables. Income measures in household surveys have low comparability across countries and are subject to measurement error, especially in the tails of the distribution. However, Behrman and others (1980, pp. 224–32) show that sibling correlations are not an unbiased estimate of intergenerational correlations, but rather give an upper bound on such correlations. The sibling correlations are considerably greater than the parent-child correlations, at least with their U.S. data.

TABLE 5. Relationship of Coresiding Children to Head of Household
Percent, share of children aged 13 to 19

Country	*Children of head*	*Children of head (two parents)*	*Other relationship to head*	*Not related to head*	*Own household head or spouse*
Argentina[a]	88.7	83.7	7.5	1.2	2.5
Bolivia	84.8	73.1	9.4	2.2	3.7
Chile	84.1	83.3	13.5	1.0	1.4
Brazil	83.7	81.6	10.3	1.4	4.6
Venezuela	78.6	76.6	17.6	1.6	2.2

Source: Duryea, Edwards, and Ureta (2000).
a. Greater Buenos Aires only.

an index of schooling attainment that shows whether a child is above some cutoff point (g). In particular, g distinguishes between children who are above and below the median schooling of their cohort. Second, we 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 coresiding with their parents and the lower the rate of mobility in the country in question.

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

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

where g_{sf} is a dummy variable showing whether individual s of family f has more years of schooling than the median individual of his or her cohort, $\overline{g}_f$ is the average value of g_{sf} in family f, B_f is the number of teenage siblings in family f, $\overline{g}$ is the average value of g in the entire sample, B is the number of individuals, and F is the number of families. This index corresponds to the R–squared obtained by regressing g_{sf} on a set of dummy variables for all families in the sample.[23] Since ρ_g could yield positive values even if family background is inconsequential, as is the case, for instance, when children are assigned to families randomly, we use a modified version of the previous index, as follows:

23. Kremer and Maskin (1996).

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

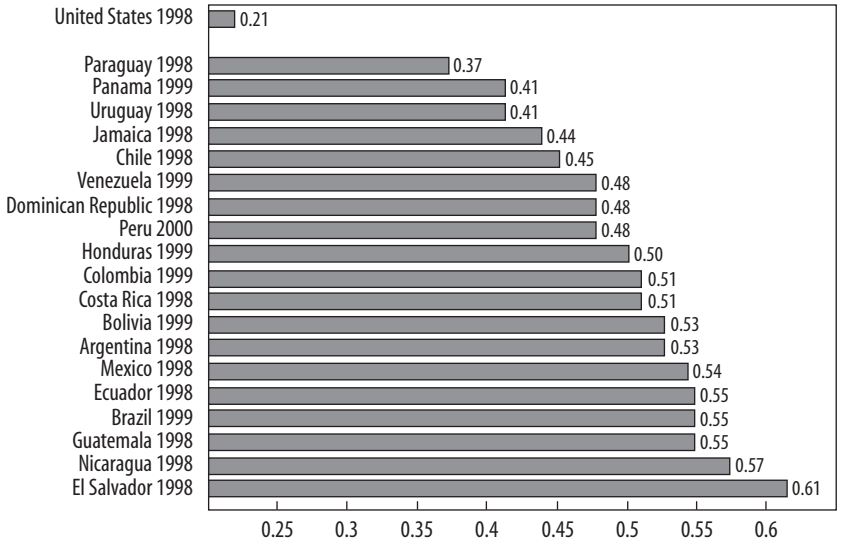
The new index, ρ_a, will yield positive values only if the previous index, ρ_g, is greater than would be expected purely by chance. Positive values of ρ_a can thus be unambiguously interpreted as evidence that family background does play a role in determining schooling success. To implement this approach, 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 a tradeoff between quantity and quality, the excluded low fertility households are likely to have relatively high child schooling. However, it is not clear that this exclusion biases the estimates of intergenerational schooling mobility or affects cross-country comparisons.

Figure 5 shows the estimated values of ρ_a for the twenty countries under analysis, 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 0.50, 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.[24] The value of ρ_a undergoes substantial changes during the period under analysis. In the 1980s the value of ρ_a declined in Latin

24. Trends are presented only from 1980 on because our data set contains only a few earlier observations for Latin America. To compute the Latin American average, we use the panel of countries that have observations in the 1980s and 1990s to estimate a fixed effects regression in which 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.

FIGURE 5. Intergenerational Schooling Mobility in Latin America and the United States



Source: Authors' calculations, based on household survey data.

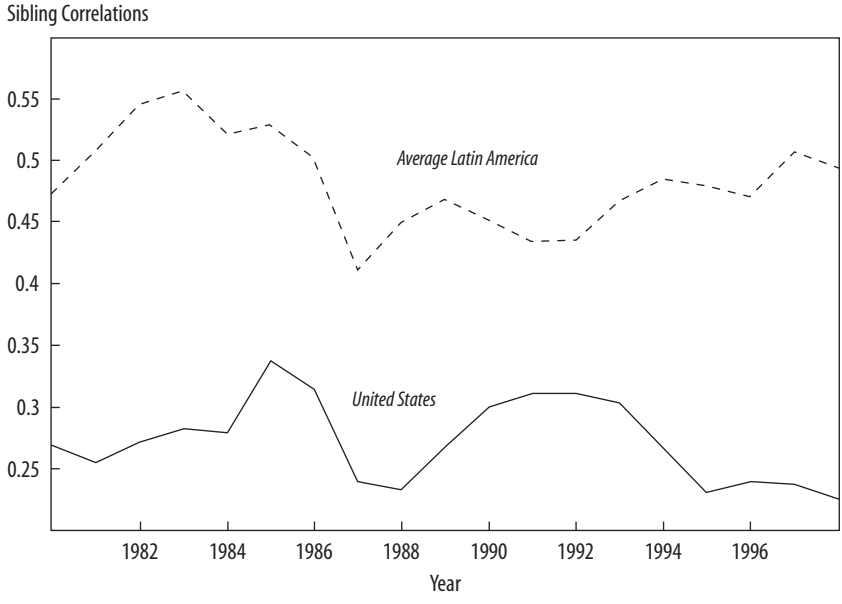
America and the United States. This was reversed in the 1990s, especially for Latin America, where the value of the coefficient ρ_a reached mid-1980 levels. In the United States, mobility declined during the first years of the decade, but it increased substantially after 1993 to reach the highest level in recent decades.

Mobility and Schooling for Current Generations

Are countries that have higher levels of mean schooling attainment also more mobile, in the sense that family background explains a smaller fraction of schooling success? To explore this question, we regress our index of mobility on mean schooling for individuals between sixteen and twenty years of age. Negative values of the parameter of interest indicate that higher levels of schooling are associated with higher levels of mobility.

Mean attainment among teenagers varies widely across countries. It is highest in the United States, where it is above eleven years, and the lowest in Brazil, Honduras, and Nicaragua, where it hardly surpasses six

FIGURE 6. Intergenerational Mobility in Latin America and the United States, 1980–98



Source: Authors' calculations.

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.

Table 6 presents the estimates 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 column 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; this result is almost identical to that obtained above. It is driven, however, 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 it does not necessarily increase as mean attainment progresses over time within a country.

TABLE 6. Sibling Correlation and Mean Attainment[a]

Explanatory variable	*(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
R^2	0.512	0.033	0.516

Source: Authors' calculations.

a. The dependent variable is the coefficient ρ. Negative coefficients indicate positive effects on mobility, since larger values for ρ mean lower mobility; *t* statistics in parentheses.

Intergenerational Schooling Mobility and Public Policy

The strong correlation between schooling and mobility documented above suggests that education is a powerful tool for enhancing intergenerational mobility, which in turn suggests a role for public policy. Policy can affect education in two ways. First, it can focus on the supply side, by increasing public expenditures on education or otherwise improving the quality of public schools. Second, it can focus on the demand side, by removing the constraints (mainly financial) that thwart household investments in human capital. This section explores both possibilities.

We use public expenditures in education as a share of GDP as a proxy for educational policies focusing on the supply side. We use a measure of GDP per capita adjusted for purchasing power parity (PPP) as a proxy for educational policies focusing on the demand side, which is partly justified by the positive association between economic and financial development. We regress our index of mobility on educational expenditures and GDP per capita. We use the same set of surveys as above, excluding the United States. This leaves us with an unbalanced panel of ninety-four observations. All specifications include country fixed effects.

Table 7 presents the main results. The first column shows that there is a negative association between mobility and the years of schooling of the working age population (WAP), implying that the higher the schooling level of the population as a whole, the higher the mobility rate. The second column shows that greater expenditures in education are associated with substantially lower values of our mobility index, which suggests that devoting more resources to public education increases intergenerational mobility. Specifically, doubling the share of public expenditures on edu-

TABLE 7. Sibling Correlation and Macroeconomic Variables[a]

Macroeconomic variable	*(1)*	*(2)*	*(3)*
Years of schooling (WAP)	–0.034	–0.040	–0.041
	(3.13)	(3.55)	(3.50)
Public expenditures on education		–0.327	–0.322
as percent of GDP		(2.98)	(4.89)
PPP-adjusted GDP per capita			–6E–06
			(0.33)
Constant	0.74	0.54	0.66
R^2	0.119	0.217	0.219
No. observations	94	94	94

Source: Authors' calculations.

a. The dependent variable is the coefficient ρ. Negative coefficients indicate positive effects on mobility, since larger values for ρ mean lower mobility. Fixed effects included in all specifications; *t* statistics in parentheses.

cation in GDP would increase mobility by 25 percent. The third column shows that the level of development is not substantially associated with mobility. To achieve the same effect as doubling expenditures on education, GDP per capita would have to increase seven fold—the difference between the United States and Colombia in 1998.

Conclusions

This paper presents estimates of intergenerational mobility for Latin America and the United States. The results, which are based on surveys with retrospective questions that capture parental characteristics and on the analysis of over a hundred household surveys spanning two decades and twenty 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. The results also show that economic growth by itself will not equalize opportunities, and that improving education can be an expeditious way to do just that.

All in all, the results do not draw a positive picture of the distribution of opportunity in Latin America. Socioeconomic success in the region, whether indicated by schooling attainment or occupational status, hinges heavily on family background. Future research on the topic should concentrate on the mechanisms through which socioeconomic outcomes are transmitted from parents to children. Informal evidence suggests that bor-

rowing constraints, discrimination, spatial segregation, and marital sorting are among the most important of these mechanisms.[25] It remains 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.

Appendix A: Data Sources

TABLE A1. Household Surveys

Country	*No. surveys*	*Years conducted*	*Survey title*
Argentina	3	1980, 1996, 1998	Encuesta Permanente de Hogares
Bolivia	7	1986	Encuesta Permanente de Hogares
		1990, 1993, 1995	Encuesta Integrada de Hogares
		1996, 1997	Encuesta Nacional de Empleo
		1999	Encuesta Continua de Hogares (condiciones de vida)
Brazil	11	1981, 1983, 1986, 1988, 1992, 1993, 1995–99	Pesquisa Nacional por Amostra de Domicílios
Chile	6	1987, 1990, 1992, 1994, 1996, 1998	Encuesta de Caracterización Socioeconómica Nacional
Colombia	6	1991, 1993, 1995, 1997–99	Encuesta Nacional de Hogares—Fuerza de Trabajo
Costa Rica	10	1981, 1983, 1985,	Encuesta Nacional de Hogares—Empleo y Desempleo
		1987, 1989, 1991, 1993, 1995, 1997, 1998	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, 1998	Encuesta de Condiciones de Vida
El Salvador	3	1995, 1997, 1998	Encuesta de Hogares de Propósitos Múltiples
Guatemala	1	1998	Encuesta Nacional de Ingresos y Gastos Familiares
Honduras	6	1989, 1992, 1996–99	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, 1989, 1992, 1994, 1996, 1998	Encuesta Nacional de Ingreso y Gasto de los Hogares

25. See Becker and Tomes (1986) for the connection between mobility and borrowing constraints; see Behrman and others (1980) and Fernandez, Guner, and Knowles (2001) for the connection between mobility and assortative mating.

TABLE A1. Continued

Country	*No. surveys*	*Years conducted*	*Survey title*
Nicaragua	2	1993, 1998	Encuesta Nacional de Hogares sobre Medición de Niveles de Vida
Panama	6	1979	Encuesta de Hogares—Mano de Obra (EMO)
		1991, 1995, 1997–99	Encuesta Continua de Hogares
Paraguay	2	1995	Encuesta Nacional de Empleo
		1998	Encuesta Integrada de Hogares
Peru	5	1985, 1991, 1994, 1997, 2000	Encuesta Nacional de Hogares sobre Medición de Niveles de Vida
		1996	Encuesta Nacional de Hogares sobre Niveles de Vida y Pobreza
United States	23	1976–98	Current Population Survey
Uruguay	6	1981, 1989,	Encuesta Nacional de Hogares
		1992, 1995, 1997, 1998	Encuesta Continua de Hogares
Venezuela	8	1981, 1986, 1989, 1993, 1995, 1997, 1998, 1999	Encuesta de Hogares por Muestra