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Intragenerational Income Mobility in Latin America

L atin American countries have experienced substantial macroeconomic instability over the last few decades. While the region as a whole experienced economic growth during most of the 1990s and 2000s, there were also years of stagnation and economic decline. Furthermore, most of the countries in the region experienced quite varied episodes of growth, crisis, and recession. Economists have traditionally assessed the welfare impact of these fluctuations on the population by studying the evolution of economic inequality and poverty. Questions regarding who benefits from economic growth and who is hurt by economic decline have been answered by examining the changes in cross-sectional inequality or poverty associated with these episodes. While it is important to know the evolution of inequality or poverty per se, this type of analysis fails to measure one important aspect of welfare, namely, the evolution of the well-being of given economic units through time. The goal of mobility analysis is precisely to study this dynamic evolution of well-being for units identified through time.

The following example demonstrates the difference between cross-sectional analyses of inequality (or poverty) and mobility analysis. Take an imaginary economy with two individuals whose initial incomes are $1 and $3. Suppose the economy grows and the new incomes are $1 and $5. Inequality has clearly increased in the course of economic growth, but what has happened to the destinies of specific individuals? Anonymous data provide no indication. Panel data, however, reveal two underlying possibilities. The result of adopting the notational convention that individuals (denoted by Greek letters) are ordered

from lowest initial income to highest initial income in the initial income vector was either

$$\text{Case I: } \begin{pmatrix} 1, & 3 \\ \alpha & \beta \end{pmatrix} \rightarrow \begin{pmatrix} 1, & 5 \\ \alpha & \beta \end{pmatrix},$$

or

$$\text{Case II: } \begin{pmatrix} 1, & 3 \\ \alpha & \beta \end{pmatrix} \rightarrow \begin{pmatrix} 5, & 1 \\ \alpha & \beta \end{pmatrix}.$$

In the first case, the income of the poorest individual remained unchanged, while the income of the initially richer individual grew. In the second case, the initially poor individual experienced a substantial income gain, while the other individual recorded an income loss.

As this brief example illustrates, simply comparing anonymous distributions of income across time cannot answer questions like whether the (initially) poor are getting poorer and the (initially) rich richer or whether economic growth is benefiting individuals who were initially poor. Mobility analysis addresses such issues by tracking the evolution of individual incomes over time and identifying the winners and losers of the growth process. In other words, the crucial difference between mobility studies and dynamic comparisons of cross-sectional measures of inequality and poverty is that mobility studies can unveil the intertemporal anonymity that accompanies cross-sectional studies.

Economic mobility has not been widely studied in developing countries until very recently owing to the lack of suitable data. Studying mobility requires longitudinal data tracking economic units (that is, individuals, households, or firms) over time. Collecting this type of data is expensive, and historically few Latin American countries carried it out. Now, however, such data sets are available for a number of Latin American and Caribbean countries; table A-1 in the appendix provides a list of available panel data sets that can be used for income mobility studies for these countries. In this paper, we discuss how the knowledge gleaned from mobility studies differs from comparable cross-sectional analysis.

The structure of the paper is as follows. The next section discusses what mobility is, how it can be measured, and how it differs from inequality. The subsequent section reviews previous mobility studies in Latin American countries. The paper then summarizes the contribution of our own recent work, and

the final section discusses what lies ahead in mobility research for Latin American economies.

As indicated by the title, this paper deals only with the study of intragenerational mobility. Intergenerational mobility is an important area of research, but we do not address it for the sake of brevity. Readers interested in this literature applied to Latin America should refer to the authoritative paper by Behrman, Gaviria, and Székely.[1]

Defining Mobility and How It Differs from Inequality

As used in this paper, an income distribution is the entire vector of incomes—for example, (1, 3) and (1, 5) in the example above. Income mobility and income inequality are two different aspects of the income distribution. The raw data for a random variable that measures income or some other measure of economic well-being can be processed to obtain measures of the location (for example, the mean) and dispersion (for example, the variance) of the distribution of that variable. Similarly, a sample of income observations can be handled so as to measure different aspects of its distribution such as growth, poverty, inequality, polarization, or mobility.

Inequality is an aspect of the distribution that has drawn special attention in the literature, particularly because of the path-breaking work of Kuznets.[2] Researchers have formulated a set of criteria that allows us to determine whether one income distribution is more or less unequal than or equally unequal to another. Comparing Lorenz curves is perhaps the most influential of these criteria.[3] Any given Lorenz curve involves arraying a given population from lowest to highest income (or any other measure of well-being) and graphing the cumulative percentage of the population against the cumulative percentage of income. To compare the inequality of one income distribution with the inequality of another, draw the two Lorenz curves. If the Lorenz curve of income distribution A is below the Lorenz curve of income distribution B for all cumulative percentages of the population and never above it, then distribution A is said to be more unequal than distribution B.

The problem with Lorenz curve comparisons is that they only provide ordinal rankings of income inequality for two distributions and, in some cases, not

1. Behrman, Gaviria, and Székely (2001).
2. Kuznets (1955, 1963).
3. Lorenz curves were first suggested by Lorenz (1905).

even that. When two Lorenz curves intersect, it is not possible to tell which distribution is more unequal. This incompleteness of the Lorenz ordering led to the development of a series of inequality indexes that provide cardinal measures of inequality for any given distribution and therefore complete rankings of inequality for any two distributions or more. An inequality index that possesses four properties—anonymity, income homogeneity, population homogeneity, and the transfer principle—is said to be Lorenz consistent. Any such index can provide a cardinal inequality ranking, even if an ordinal ranking using Lorenz curves is not possible. Different indexes provide different notions of inequality, so a thorough knowledge of their properties is required for an adequate measure of inequality.

A large literature explores the theory of measuring inequality and its intricacies.[4] In parallel, a venerable literature empirically measures inequality across countries and over time. Inequality has been related to economic growth in two ways: how inequality changes when economic growth takes place, and how the level of inequality affects the rate of economic growth.[5] Theoretical justifications for an association between these two variables, with different causation directions, have also mushroomed.[6]

This literature includes a focus on Latin America because, together with Africa, it is one of the most unequal regions in the world.[7] Several recent studies summarize the evolution of inequality in Latin America over several decades. Wodon and others, and De Ferranti and others, despite their different methods and scope, identify the following general trends in inequality in the region.[8] First, income inequality declined in the 1970s, increased in the 1980s, and increased again in the 1990s. Second, the levels of inequality among Latin American countries became more homogeneous in the 1990s. This reflects a slight decline in inequality in one of the most unequal countries of the region, Brazil, and perhaps also in Mexico, together with a remarkable increase in inequality in countries originally characterized by low inequality, such as Argentina and Venezuela. A number of other studies coincide in establishing that Latin America has the highest levels of inequality in the

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4. See, for example, Lambert (1993); Cowell (1995); Foster and Sen (1997).
5. Fields (2001) reviews both literatures.
6. For a recent summary, see Bertola, Foellmi, and Zweimuller (2006).
7. See World Bank (2005, chapter 2). The comparison of inequality indexes between these two regions is problematic because consumption data are generally used to measure inequality in Africa, whereas income data are the norm in Latin America. Nevertheless, these two regions are considered the most unequal in the world.
8. Wodon (2000); Morley (2001); Székely (2001); De Ferranti and others (2004).

world.[9] These studies also remark that, as far as data are available, Latin America has always been the most unequal region of the world. Additionally, inequality in the region is different from inequality in other parts of the world, because while the lower-income and middle-income people in Latin America have incomes comparable to those in other middle-income regions, the rich in Latin America are considerably richer than the rich elsewhere.

All these studies analyze the evolution of income inequality over time by comparing measures of inequality for different periods. Since these measures of inequality use anonymous individuals, no insight can be drawn on the changes in income or position for specific individuals in the income distribution. To study specific individuals rather than anonymous individuals, we turn to mobility studies.

Mobility

Mobility analyses rely on panel data, also called longitudinal data, in which the same income recipients are followed over time. Mobility studies analyze how specific individuals move through the income distribution, be it in terms of income, position, or some other measure.

Mobility studies are of two basic types. Macro-mobility studies ask how much mobility there is in a country and compare it over time and across countries. As with inequality studies, a large array of mobility measures is available to the researcher. In the case of inequality studies, however, nearly all the commonly used measures focus on the same conceptual entity (namely, relative inequality), whereas the mobility measures capture different underlying notions of mobility. The various notions of macro-mobility and the measures of those notions are described later in this section. Micro-mobility studies investigate which individuals have larger changes than others. The dependent variables used in micro-mobility studies are income change, positional change, or some function of these.

MACRO-MOBILITY. Since the economic well-being of income recipients evolves over time, studying the income distribution at a point of time may present a partial and perhaps mistaken picture of long-term inequality. For instance, young individuals, who generally lack experience and accumulated human capital, often start at the lower end of the income distribution. If these same individuals gain skill and experience as the study progresses, their posi-

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9. Deininger and Squire (1996); Székely and Hilgert (2001); Milanovic (2002); Bourguignon and Morrison (2002); Bourguignon, Ferreira, and Leite (2002).

tion in the long-term income distribution will be higher than it was in the spot income distribution when they were young. If these youngsters are unable to accumulate human capital, however, their initial low position would not differ much from their position in the longer-term income distribution.

Early mobility studies thus focused on how permanent an individual's position is in the income distribution. Shorrocks presents the following operational definition of mobility: "In essence, mobility is measured by the extent to which the income distribution is equalized as the accounting period is extended."[10] Shorrocks himself proposes an index to measure this concept of mobility:

$$1 - \frac{I\left(\sum_{t=1}^{T} y^t\right)}{\sum_{t} w^t I\left(y^t\right)},$$

where $I(.)$ stands for an inequality measure, y^t is a measure of economic well-being in period t, and w^t is a yearly weight. In effect, if the inequality of the over-time average income is smaller than the weighted average of the income inequalities in each period, then there is mobility toward equality. If the inequality of average income is close to the year-by-year inequalities, then there is little mobility toward equality.

The Shorrocks index does not distinguish between equalizing and disequalizing changes in income distribution, so Fields proposes another index of "mobility as equalization of longer-term incomes."[11]

$$1 - \frac{I\left(\sum_{t=1}^{T} y^t\right)}{I\left(y^t\right)}.$$

In Fields' index, mobility toward equality depends on the relation between inequality of average income and inequality of initial income: if average income is distributed more (less) equally than initial income, mobility is judged to have equalized (disequalized) longer-term income relative to initial income.

10. Shorrocks (1978a, p. 378).
11. Fields (1999).

Interest in mobility has broadened in scope. It is no longer limited to gauging the distributional impact of income changes, but also encompasses the nature and origin of changes in economic well-being. As Fields puts it, "Economic mobility studies are concerned with quantifying the movement of given recipient units through the distribution of economic well-being over time, establishing how dependent one's current economic position is on one's past position, and relating people's mobility experiences to . . . various influences."[12] Changes in economic well-being can be interpreted and thus measured in a wide variety of ways. Fields categorizes these different interpretations into five notions of mobility (in addition to mobility toward equality): time dependence, positional movement, share movement, symmetric income movement, and directional income movement. Some of the indexes of these different mobility notions are listed in table 1.

Mobility as time dependence refers to the extent to which an individual's current economic well-being is determined by his or her economic well-being in the past. Time dependence is sometimes studied in an intergenerational context, so the incomes (or the education or any other variable) of a given generation are predicted by the incomes of a previous generation. In an intragenerational context, however, an individual's final income is explained by his or her own base income. Early studies of this type of mobility rely on aggregate data such as transition matrices, whereas more recent studies make use of microeconomic data. In any case, time dependence is gauged by measures of association such as Cramer's V or Pearson's correlation coefficient:

$$\frac{\text{cov}\left(Y_j^f, Y_j^i\right)}{\sqrt{\text{var}\left(Y_j^f\right)}\sqrt{\text{var}\left(Y_j^i\right)}}.$$

In this case, the farther from zero the correlation between initial income (Y^i) and final income (Y^f), the less mobility-as-time-dependence there is.

Mobility as positional movement indicates changes in an individual's position in the income distribution. For this purpose, position is measured by quantiles of the income distribution (such as quintiles, deciles, centiles, or even ranks). Other types of categorical mobility include changes among occupations, industries, social classes, and fixed real income categories, but

12. Fields (2001).

T A B L E 1 . A Summary of Mobility Indexes[a]

Mobility notion and index	Formula
Mobility toward equality	
Shorrocks' equalization index	$1 - \left[I\left(\sum_{t=1}^{T} y^t \right) \Big/ \sum_{t=1}^{T} w^t I\left(y^t \right) \right]$
Fields' equalization index	$1 - \left[I\left(\sum_{t=1}^{T} y^t \right) \Big/ I\left(y^1 \right) \right]$
Mobility as time dependence	
Pearson's correlation coefficient	$\text{cov}\left(Y_j^f , Y_j^i \right) \Big/ \left[\sqrt{\text{var}\left(Y_j^f \right)} \sqrt{\text{var}\left(Y_j^i \right)} \right]$
Pearson's chi square test	$\sum_c \sum_r \dfrac{\left(n_{c,r} - m_{c,r} \right)^2}{m_{c,r}}$
Mobility as positional movement	
Mean absolute quantile change	$\dfrac{1}{n} \sum_{j=1}^{n} \left| P_j^f - P_j^i \right|$
Mobility ratio	$1 - \text{Trace}\,(\mathbf{M})$
Mobility as symmetric income movement	
Average absolute income change	$\dfrac{1}{n} \sum_{j=1}^{n} \left| Y_j^f - Y_j^i \right|$
Relative absolute income change	$\sum_{j=1}^{n} \left| Y_j^f - Y_j^i \right| \Big/ \sum_{j=1}^{n} Y_j^i$
Mobility as directional income movement	
Average income change	$\dfrac{1}{n} \sum_{j=1}^{n} \left(Y_j^f - Y_j^i \right)$
Average logarithmic income change	$\dfrac{1}{n} \sum_{j=1}^{n} \left[\ln\left(Y_j^f \right) - \ln\left(Y_j^i \right) \right]$

a. The variables are defined as follows:
   $Y_j^{f,i}$: income of individual j in period f (final) or period i (initial)
   $P_j^{f,i}$: income position (for example, quantile) of individual j in period f (final) or period i (initial)
   $\mathbf{M}$: transition matrix
   $n_{c,r}$: number of observations in column c, row r, of a quantile mobility matrix
   $m_{c,r}$: number of expected observations in any cell of a quantile mobility matrix under the hypothesis on time independence (that is,
the inverse of the squared number of quantiles times the total number of observations)
   $\mathbf{y}^t$: population vector of individual incomes for period t
   n : number of individuals in the population
   w^t : factor weights (the ratio of average income in period t to the sum of average incomes over time)

whether such movements constitute positional movement is debatable. An example of positional movement is the average quantile change:

$$\frac{1}{n}\sum_{j=1}^{n}\left|P_j^f - P_j^i\right|,$$

where P^f, P^i stand for quantile position of individual j in the final and initial periods, respectively. For this index, the larger the number of average quantile changes, the more positional movement there is.

Mobility as share movement is concerned with changes over time in the individual's share of total income. Share movement usually is not explicitly measured in empirical studies. The average share movement has no descriptive content because it always equals zero. The average absolute value of share changes, or the average of squared share changes, could serve as an aggregate measure of this mobility notion, but neither has been used to date in Latin America. However, the correlation between initial income share and final income share equals the correlation between initial income and final income, so whenever mobility as time dependence is measured using the correlation coefficient, mobility as share movement is also measured.

The last two notions of mobility are symmetric and directional income movement. In a large population, individual income shares and their changes may be very small and share movement may not be too meaningful. Changes in actual incomes, however, convey an appealing measure of income change. Two mobility notions have been used in this case. A researcher who is only interested in the size of income changes may draw on the notion of mobility as symmetric income movement. On the other hand, a researcher who is interested in the size and direction of income changes will need to focus on the notion of directional income movement.

Mobility as symmetric income movement gauges the absolute value of income changes, while mobility as directional income movement distinguishes between upward and downward movements. Both symmetric and directional income movement can be measured in real currency terms and can also be measured in total, per capita, or even logarithmic per capita terms. Fields and Ok provide indexes for measuring symmetric and directional income movement, including the following:[13]

$$\frac{1}{n}\sum_{j=1}^{n}\left|Y_j^f - Y_j^i\right| \text{ and } \frac{1}{n}\sum_{j=1}^{n}\left|\log Y_j^f - \log Y_j^i\right|$$

13. Fields and Ok (1996, 1999a).

for symmetric income movement and

$$\frac{1}{n}\sum_{j=1}^{n}\left(Y_j^f - Y_j^i\right) \text{ and } \frac{1}{n}\sum_{j=1}^{n}\left(\log Y_j^f - \log Y_j^i\right)$$

for directional income movement.

The diversity of macro-mobility notions and measures recalls the variety of inequality indexes. In very much the same way as for inequality, it calls for an axiomatic foundation of the different measures, so that mobility indexes can be adequately chosen and interpreted. Such an axiomatic foundation (such as properties of normalization, relativity, and translation invariance) has been formulated over the last two decades, but much remains to be done.[14]

MICRO-MOBILITY. As previously mentioned, micro-mobility studies identify which individuals (or households) have larger income changes than others and explore the determinants of these changes. In particular, economists have devoted much of their attention to estimating two types of mobility, namely, unconditional and conditional mobility.

Studies of unconditional mobility estimate the extent to which the incomes of rich and poor individuals converge over time. Questions of unconditional mobility have traditionally been answered by focusing on the bivariate relationship between income changes and initial income. In particular, many studies estimate a model in which the income change of individual i at time t, ΔY_{it}, depends linearly on lagged income, $Y_{i,t-1}$. That is,

(1) $$\Delta Y_{i,t} = \alpha + \beta Y_{i,t-1} + u_{i,t}.$$

The β parameter in this model measures the extent to which unconditional convergence takes place. If $\beta < 0$, there is such convergence; if $\beta > 0$, there is divergence between rich and poor; and if $\beta = 0$, earnings change is unaffected by initial earnings (that is, rich and poor individuals gain or lose the same amount in local currency units over time).

This convergence (or the lack thereof) can be influenced by many factors, such as the individuals' human capital characteristics, local market conditions, aggregate economic shocks, and state dependence. However, the main goal of unconditional mobility studies is not to explore these factors, but rather to document whether this convergence process has taken place. Documenting this process is relevant because convergence between the incomes of initially rich and initially poor individuals would equalize the long-term dis-

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14. Fields and Ok (1999b).

tribution of income, and it would be indicative of the possibilities for equality of opportunity in an economy.

Studies of conditional mobility, in turn, estimate a different type of convergence—namely, the convergence of incomes to a conditional mean. The presence of conditional convergence means that individual incomes are converging to their predicted individual level. This predicted level is usually determined by a set of observable and unobservable characteristics like gender, age, education level, and ability. In practice, many conditional mobility studies estimate linear models in which income mobility depends on initial income, as well as on a set of observable time-invariant characteristics, Z_i, and time-varying characteristics, $X_{i,t}$. That is,

$$(2) \qquad \Delta Y_{i,t} = \Delta X_{i,t}\phi + Z_i\gamma + \rho Y_{i,t-1} + \varepsilon_{i,t}.$$

If there are many observations for each individual over time, the estimation of equation 2 could control for unobserved fixed characteristics as in the literature on dynamic panel models.

In equation 2, ρ captures the degree of conditional convergence. This parameter does not capture the extent to which initially poorer individuals are catching up with the initially richer ones. Instead, it estimates the extent to which poorer and richer individuals who are observationally equivalent (in terms of age, education, gender, and so forth) have income patterns that converge over time.

Estimating equation 2, or some modified version of it, can help elucidate the underlying determinants of income change. In particular, it can estimate the impact of socioeconomic characteristics like education, age, gender, or sector of employment on mobility, conditional on the initial income level. Also, if the number of observations for each individual is moderately large, it can help clarify whether the impact of lagged income on mobility is due to state dependence, to unobserved ability, or some other possible factor.[15]

In both equations 1 and 2, income can be measured in currency units or in logarithms. The interpretation of the parameters is different in the two cases. In particular, taking logarithms of income will give less weight to the income changes of richer individuals and a greater weight to the income changes of poorer individuals. The logarithmic transformation will also approximate proportionate changes instead of changes in currency units.

15. Equations in the form of equation 2 could be derived from Mincerian earnings equations, depending on the assumptions made about the unobservable error terms; see, for instance, Duval Hernández (2006a).

Economists have explored other types of micro-mobility models in addition to conditional and unconditional mobility. Four of these models deserve mention: tests for nonlinear income dynamics as evidence of poverty traps; analyses of the determinants of transitions into and out of poverty; estimates of the negative effects of volatility and risk on individual welfare; and estimates of reduced-form determinants of income mobility. The search for nonlinearities on income dynamics can be thought of as an extension of the unconditional approach outlined in equation 1, where a poverty trap might arise from the nonlinear impact of lagged income on current income.[16] Models estimating the determinants of transitions into and out of poverty, in turn, focus on the mobility that takes place in one particular part of the income distribution (around the poverty line), and they often look at discrete transitions (into and out of poverty) instead of changes in currency units.

Income mobility can have negative effects by bringing volatility and risk to risk-averse individuals. This is particularly relevant if the economies under consideration lack functioning credit markets that could insure individuals against such shocks and help them smooth their consumption patterns. Gottschalk and Spolaore present a theoretical framework to analyze the trade-off between the equalizing effects of mobility and the intertemporal volatility that might be associated with it.[17] A number of papers tackle this question for Latin American countries from an empirical perspective, as described below.

Finally, some authors estimate reduced forms of the determinants of income mobility. In particular, they estimate a model like equation 2 without lagged income on the right-hand side of the equation. Some vulnerability studies use this approach to analyze the distribution of income shocks, conditional on a set of observable characteristics.[18]

Methodological Issues with Mobility Measurement

In an ideal world, the longitudinal data used to perform mobility studies would also serve to address static questions on inequality and poverty and to analyze the dynamics of income by tracking the same individuals over time, thus eliminating the anonymity implicit in the comparison of cross-sectional data over time. Reality is more problematic, however.

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16. These models are usually estimated by extending an equation like equation 1 with a low-order polynomial of lagged income, $Y_{i,t-1}$, on the right-hand side of the equation and controlling for unobserved fixed effects; see, for example, Jalan and Ravallion (2004).

17. Gottschalk and Spolaore (2002).

18. Examples include Cunningham and Maloney (2000); Maloney, Cunningham, and Bosch (2004); World Bank (2004).

Longitudinal data have many problems in practice, and their use requires caution. Since longitudinal studies are expensive to collect, the sample size of these surveys is considerably smaller than for cross-sectional surveys. More importantly, problems like measurement error in the income variable and attrition of individuals from the original sample can create serious biases in the estimation of the mobility parameters of interest. Measurement error in the income variable can create serious biases in mobility studies precisely because this mismeasured variable appears both on the right- and left-hand sides of the mobility regression models.[19] In the case of unconditional and conditional mobility models, measurement error in the income variable can bias the mobility parameters, giving the impression of high levels of convergence.[20] Attrition of individuals from the sample, in turn, may lead to serious losses of information, especially if this attrition is nonrandom (that is, if it is related to the underlying income mobility process under study). For instance, positive mobility would be overstated if individuals who would otherwise experience a large negative income shock move to another location to get another job, thereby avoiding the shock and disappearing from the panel.

The use of pseudo-panels has recently been proposed as a potential solution to problems of measurement error and attrition in mobility studies.[21] These pseudo-panels are constructed from cross-sectional surveys, and they track cohorts of individuals instead of particular individuals or households. These cohorts are usually created based on age, gender, and sometimes education. In this case, the mobility analyzed is change in average cohort incomes, not changes in individual or household incomes.

The principal advantage of pseudo-panels is that they allow the researcher to extend the time dimension of mobility studies, since they are constructed from cross-sectional surveys. The disadvantages, however, are several. The pseudo-cohort method might still lead to biases if there is time-varying cohort-level measurement error. Also, the pseudo-panel analysis can entail certain biases when it fails to track a consistent group of individuals over time as a result of events like migration, death, and household dissolution and creation. Finally, switching the analysis from individual or household income to the average cohort income eliminates the possibility of studying any intracohort income mobility.

19. The extent to which measurement error in the income variable biases macro-mobility indexes depends on the nature of this error and on the particular index under consideration.

20. See, for instance, Fields, Cichello, and others (2003a); Duval Hernández (2006a, 2006b); Gottschalk and Huynh (2006).

21. See, for instance, Antman and McKenzie (2007, forthcoming).

We use an alternative method of eliminating the effects of measurement error in our joint comparative study reviewed below.[22] This method relies on estimating mobility with respect to a predicted measure of permanent income. While doing this eliminates the measurement error component, it also eliminates some transitory components of earnings and the mobility associated with them. In practice, in the absence of validation data, it is virtually impossible to separate measurement error in income (or earnings) from true transitory income shocks.

While panels and pseudo-panels complement each other to provide a better picture of the income mobility existing in an economy, in practice nothing works better than collecting good-quality panel data that follow individuals even when they migrate out of their households, that obtain second measurements on income variables (like administrative records), and that cover long periods of time.[23]

The Literature on Economic Mobility in Latin America

For reasons of data availability, empirical studies of income mobility began with work on developed countries.[24] Further research was carried out in developing countries as panel data became available.[25] A number of studies are now available for Latin American countries. These studies are mainly country-specific and in some cases have limited coverage, but each illustrates the potential richness of economic mobility analysis. We review these studies below and also list them by country in tables A-2 and A-3 in the appendix.

Argentina

The research on income mobility in Argentina is growing in response to the availability of new data from panel surveys. The major studies are those by Wodon; Corbacho, García-Escribano, and Inchauste; Gutierrez; McKenzie;

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22. Fields, Duval Hernández, and others (2006).
23. Efforts such as the new Mexican Family Life Survey are important steps in this direction.
24. See Atkinson, Bourguignon, and Morrison (1992) and Gottschalk (1997) for summaries.
25. See the special issue of the *Journal of Development Studies* (vol. 36, August 2000) and Fields (2001) for summaries of mobility research in the developing world at the turn of the millennium. Another closely related literature is the study of chronic poverty in the developing world. For a summary of recent research in this area, see the special issue of *World Development* (vol. 31, no. 3, 2003).

Albornoz and Menéndez; Sánchez Puerta; Fields and Sánchez Puerta; Beccaria and Groisman; Navarro; and Cruces and Wodon.[26]

Wodon analyzes income (wages and self-employment) macro-mobility and risk throughout the business cycle in Argentina and Mexico.[27] He uses a new measure of time dependence—namely, the Gini index of mobility, which is a function of the covariance between individuals' incomes and their income ranks. Time independence gauged by this index turns out to be higher in Argentina than in Mexico during recessions and lower during expansions. Mexican labor markets seem to adjust to negative macroeconomic shocks through price adjustments (that is, real wage cuts), whereas Argentine labor markets adjust through quantities (in particular, a rise in unemployment). Since layoffs usually lead to more reranking of individuals in the earnings distribution, Argentina experienced less time dependence in ranks during economic downturns. Furthermore, young uneducated workers experienced less time dependence than the rest of the population.

Corbacho, García-Escribano, and Inchauste use panel data from Argentina for the period 1999–2002 to analyze the determinants of changes in household income and draw inferences on socioeconomic characteristics and vulnerability.[28] They find that households whose heads were male, less educated, and employed in the construction sector were more vulnerable to the crisis, experiencing larger-than-average declines in income and higher dispersion.

Gutierrez examines occupational and wage mobility in urban Argentina in 1998–2002.[29] The author constructs panels for both employed and economically inactive individuals. He studies the determinants of wage mobility (using the concept of time dependence, as measured by the correlation coefficient between wages at two points in time) and the determinants of finding or losing a job. He finds that individuals with low earnings have more wage volatility and more movement into and out of employment than individuals with high earnings. Also, men, the least educated, and younger individuals show more time independence than the other groups.

In a very comprehensive paper on the 2002 financial crisis in Argentina, McKenzie constructs panels and assesses the adjustments of household and

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26. Wodon (2001); Corbacho, García-Escribano, and Inchauste (2007); Gutierrez (2004); McKenzie (2004); Albornoz and Menéndez (2004); Sánchez Puerta (2005); Fields and Sánchez Puerta (2007a, 2007b); Beccaria and Groisman (2006); Navarro (2006); Cruces and Wodon (2003, 2006).

27. Wodon (2001).

28. Corbacho, García-Escribano, and Inchauste (2007).

29. Gutierrez (2004).

individual incomes and the labor market response.[30] McKenzie studies changes in nominal wages, entry into and exit from the workforce, hours worked, household labor supply, and work program participation separately. The mobility analysis consists of an ordinary least squares (OLS) regression of change in individuals' log earnings on individual characteristics and regions, with dummy variables for the crisis period with interactions. McKenzie concludes that the largest earnings declines were for men, managers, and job changers. Women in Cuyo did better than before, while women with tertiary education did worse.

Albornoz and Menéndez use panel data from Argentina in the 1990s and analyze the changes in the logarithm of per capita household income to determine the principal observed socioeconomic factors driving income dynamics.[31] For this purpose, they perform multiple regression analysis to test, ceteris paribus, whether similar structural patterns in the variables explain income changes over time in their five one-year panels.[32] They do not find any structural patterns for the determinants of income change and conclude that shocks affect different types of people over time.

Sánchez Puerta uses a series of rotating panels for twenty-eight cities in Argentina to examine the level of aggregate mobility in Argentina and how it has evolved under different macroeconomic scenarios from 1995 to 2003.[33] The most important finding from this examination of mobility indexes in Argentina is that comparisons of mobility experiences through time or across groups depend on the index (and thus the notion) of mobility chosen. On comparing genders, education levels, age ranges, regions, initial quintiles, and initial sector of employment, Sánchez Puerta finds that some groups have higher earnings mobility for some mobility notions and lower earnings mobility for others.

Sánchez Puerta also compares determinants of changes in positions with determinants of changes in pesos and finds that those determinants are generally the same.[34] Nonparametric regressions on around eighty percent of the sample reveal a linear relationship between changes in positions and changes in pesos. Furthermore, the author studies four different definitions of upwardly mobile and downwardly mobile individuals based on concepts of absolute

30. McKenzie (2004).
31. Albornoz and Menéndez (2004).
32. A mobility pattern is said to be structural when the groups that gain the most when the economy is growing also gain the most (or lose the least) when the economy is contracting.
33. Sánchez Puerta (2005).
34. Sánchez Puerta (2005).

movement, relative movement, positional movement, and a hybrid notion of mobility that combines the previous three concepts. Although the four classifications divide individuals in different ways, the unconditional and conditional determinants of upward (downward) mobility are almost the same across all classifications. The centile of initial reported earnings is the only determinant of upward (downward) mobility that has the same sign and significance in both the unconditional and the conditional analyses, both in growth and recessionary periods.

Fields and Sánchez Puerta deepen the analysis of the determinants of directional earnings changes at the microeconomic level.[35] In both unconditional and conditional analyses, the variables that are found to be both statistically and economically significant determinants of earnings change are initial earnings and sector transition.[36] In addition, gender, age, and education are mostly statistically significant but economically insignificant. And geographic region is mostly statistically insignificant and always economically insignificant. Given the importance of sector transitions, both statistically and economically, the authors also look for the determinants of sector change for initially unemployed, initially informal, and initially formal individuals. They find some statistically significant variables (namely, gender, age, education, and region), but these variables do a poor job of explaining the variance of sector transitions. In a companion study, Fields and Sánchez Puerta explain in detail how convergent mobility is consistent with increasing inequality in Argentina.[37] The reconciliation is achieved through examples, simulations, and actual data.

Beccaria and Groisman are also concerned with quantifying the volatility of income in Greater Buenos Aires between late 1987 and 2001.[38] The authors calculate coefficients of variation for each individual using their labor incomes over time. They interpret these coefficients as a measure of income instability. The authors also propose a methodology for quantifying the instability associated with transitions into and out of employment, as well as the instability associated with changes in earnings (holding constant employment transitions). While the authors find that the degree of instability in the region remained more or less constant in the period analyzed, they interpret this as a product of two offsetting forces—namely, the reduction in inflation in the mid-1990s (which reduced income instability) and the increase in employment

35. Fields and Sánchez Puerta (2007a).
36. A variable is judged to be economically significant if it explains at least 1 percent of the variance in earnings changes; it is economically insignificant otherwise.
37. Fields and Sánchez Puerta (2007b).
38. Beccaria and Groisman (2006).

volatility (which increased instability). Also, individuals with low education register the highest levels of instability. The authors also estimate measures of time dependence and positional movement and find that the region generally became more immobile by the end of the period under study.

Navarro estimates a dynamic pseudo-panel for Argentina for the period 1985 to 2004, to make up for the lack of long panel data.[39] The author finds that absolute mobility in incomes is quite high in Argentina. Navarro compares her results with those in Albornoz and Menéndez and in Fields and Sánchez Puerta; she finds similarities with the latter.[40]

Cruces and Wodon analyze the relationship between poverty and income mobility in the Greater Buenos Aires area between 1995 and 2002.[41] Their 2003 paper follows Jalan and Ravallion in estimating a decomposition of the squared poverty gap into a transient and a permanent component.[42] The authors also estimate the determinants of these components. Their results show that chronic poverty grew in the region, while transient poverty remained more or less constant during the period. Households with young heads or with members who are employers or who are self-employed are prone to experience high levels of transient poverty. In general, the authors find that the determinants of transient and chronic poverty are different.

The second paper by Cruces and Wodon estimates risk-adjusted measures of household income and uses these estimates to compare risk-adjusted measures of poverty with standard poverty measures.[43] The authors also estimate the difference in the determinants of income and its risk-adjusted version. They find that the risk-adjusted measures of poverty are generally higher than the standard measures. They also find that households with elderly members and members with more education are prone to less risky income trajectories, while the presence of a recent migrant or a member who has experienced episodes of unemployment or inactivity is associated with risky trajectories.

In summary, many papers exploit the panel features of the Argentine Permanent Household Survey from 1995 to date. Some authors construct

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39. Navarro (2006).
40. Albornoz and Menéndez (2004); Fields and Sánchez Puerta (2007a, 2007b).
41. Cruces and Wodon (2003, 2006).
42. See Jalan and Ravallion (2000).
43. Cruces and Wodon (2006). The risk adjustment uses the certainty equivalent of income and thus penalizes income trajectories that are very volatile.

repeated short-term panels, and some rely on pseudo-panel techniques. Most studies on (household or individual) income or earnings mobility in Argentina over time find substantial mobility, especially in periods of recession.

Chile

The first income mobility studies for Chile were conducted by Scott and Litchfield and by Scott.[44] Both papers are based on a small longitudinal study of rural households between 1968 and 1986. The authors analyze mobility of per capita household income, with and without government transfers. The panel consists of only two observations in time, but they capture the impact of Chile's liberalization reforms after 1974.

Scott and Litchfield examine income mobility and the evolution of inequality over time.[45] The authors start by presenting a transition matrix between absolute income classes. This matrix shows that in the years considered, half of the households in the survey moved to a higher income class, while only 26 percent dropped into lower income classes. Furthermore, the initially poor experienced the greatest upward mobility: 92 percent of these households moved to higher income classes.[46] However, while many households changed income classes, they did not move very far. Income mobility was only one-fourth of the maximum possible mobility. The study also shows that not only were there more upward than downward movers, but the extent of upward mobility (in terms of the number of classes transited) was greater than the extent of downward mobility.[47] Finally, the authors model the determinants of directional income movement using a linear regression and an ordered logit model (in which the dependent variable is whether the household moved to a higher income class, stayed in the same income class, or moved to a lower income class). The variables found to be significant determinants of upward income movement are the age and education of the household head, the amount of land owned, and per capita household income

44. Scott and Litchfield (1994); Scott (2000).
45. Scott and Litchfield (1994).
46. These households could not fall further, since they were in the lowest income class. At worst, they remained in the same class.
47. While the evidence of upward mobility of the poor seems solid, its magnitude needs to be taken with caution. According to the authors, the 1986 survey did a better job than the 1968 survey of measuring transfers like pensions and child allowances. Since these transfers are likely to go to poorer households, this difference could lead to an overestimation of the income gains of the poor.

in the base year (the richer the household in 1968, the smaller the growth of income from 1968 to 1986).

Scott complements the previous findings by analyzing the extent of movements out of poverty for the households in the sample.[48] The results show that while there was upward mobility during those years, around 70 percent of initially poor households were below the poverty line in 1986. Similarly, 64 percent of nonpoor households remained above this line eighteen years later.

Two recent papers on poverty dynamics and relative income mobility draw their data for 1996 and 2001 from the Socioeconomic Characterization Survey (CASEN) panel, which covers 60 percent of the country. First, Contreras and others examine poverty dynamics using a two-by-two transition matrix and logistic regressions.[49] They study relative income mobility primarily based on a ten-by-ten transition matrix. The authors report "significant short-term positional mobility across the first seven deciles of the income distribution," from which they conclude that "a large percentage of non-poor households are at risk of falling into poverty." They show too that statistically significant determinants of entering and exiting poverty are the number of children in the household under the age of fifteen, the education level of the household head, the amount of technical education received, rural residence, residence in the capital region, health problems of household members, among other variables.

The second paper, by Contreras, Cooper, and Neilson, uses both cross-sectional and panel data methods to determine the distributional effects of Chilean growth.[50] This review is limited to the panel data analysis in their paper. They perform three estimations across the income distribution; all involve percentage income change from 1996 to 2001 as the dependent variable. The first is a linear regression of percentage change in income on initial reported income, the second is a nonparametric regression of percentage change in income on initial reported income, and the third is a nonparametric regression of percentage change in predicted income on initial predicted income.[51] The linear regression shows convergent mobility in logs, whereas both nonparametric regressions show convergent mobility in logs only in the lower

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48. Scott (2000).
49. Contreras and others (2006).
50. Contreras, Ryan, and Neilson (2006).
51. Income is predicted using household composition variables, regional variables, and human and physical capital variables.

deciles. The finding of log convergence is consistent with either convergence or divergence in pesos.

Paredes and Zubizarreta also use the CASEN data to study transitions between extreme poverty, poverty, and nonpoverty.[52] After calculating the Shorrocks rigidity index, the authors estimate a transition matrix among the three income groups. Fully 80 percent of those who started in extreme poverty were out of extreme poverty five years later, with half escaping into (non-extreme) poverty and half into nonpoverty. Next, the authors examine mobility among the ten income deciles. The same patterns were found in Chile as in other countries: the highest frequencies appear in the 1/1 and 10/10 cells, and movement among the deciles is substantial. Finally, the paper explores the determinants of movement among the three categories. The determinants of movement out of poverty differ from the determinants of movement into poverty. The role of women as household heads and the quality of housing were particularly important for movements out of poverty.[53]

In summary, the Chilean studies demonstrate substantial movement between deciles of the income distribution, as well as into and out of poverty.

El Salvador

In El Salvador a representative sample of rural households have been interviewed every second year to create a panel dataset running from 1995 to 2001. Three papers make use of these panel data. All of them are concerned with income mobility as an explanation of poverty persistence, but they use different methods for exploring this relation.

Beneke de Sanfeliu and Shi provide a general description of the characteristics of the rural poor in El Salvador.[54] They define some measures of movement among deciles, which reveal a lot of mobility: fewer than 21 percent of the households remain in the same decile after two years. The authors characterize households by the number of poverty spells and find that 25 percent of households are poor in the four waves of the panel, while 13 percent are never poor. They then construct poverty profiles and estimate logit models to identify the household characteristics that are associated with these poverty

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52. Paredes and Zubizarreta (2005).
53. Similar work is in progress by Castro (2006), but so far only preliminary results are available.
54. Beneke de Sanfeliu and Shi (2003).

spells. They conclude that those with large dependency ratios, low schooling, and few assets and remittances are most likely to be poor in the four waves of the panel.

Rodríguez-Meza and González-Vega investigate the presence of poverty traps by testing nonlinearities in an income-generating function.[55] They find econometric evidence in favor of nonlinearities and conclude that idiosyncratic shocks may leave poor families in a position from which they cannot recover. Sosa-Escudero, Marchioni, and Arias study the persistence of poverty by testing a variance-covariance model.[56] They find that the persistence of low income is largely explained by low productive endowments, as well as by unfavorable shocks that linger over time.

All three papers agree that despite serious shocks like hurricanes, earthquakes, and falling export prices, El Salvador has enjoyed important reductions in poverty as a result of economic growth and structural reforms. However, households that display persistent poverty are those that have been unable to recover from the shocks because of their low initial conditions in terms of endowments.

Mexico

Two papers study aggregate income mobility in Mexico by analyzing time dependence in individual ranks: Wodon compares urban Mexico with Argentina, while Yitzhaki and Wodon focus on rural Mexico.[57] We discussed Wodon above in the literature review for Argentina. Yitzhaki and Wodon use a dataset related to the rural subsidies program, PROCAMPO. The study was conducted in rural areas of Mexico in 1994 and 1997. The authors capture time dependence in ranks using the Gini index of mobility for four welfare measures: per capita income, per capita land owned, per capita land cultivated, and PROCAMPO transfers. Time dependence in ranks is generally quite high in these rural samples, meaning that individuals stay in the same ranks over time. Also, time dependence is smaller using land measures than using per capita income. Finally, PROCAMPO caused limited reranking in the distribution.

Several studies analyze micro-mobility in urban Mexico. Antman and McKenzie create pseudo-panels in which the incomes of specific age-education

55. Rodríguez-Meza and González-Vega (2004).
56. Sosa-Escudero, Marchionni, and Arias (2006).
57. Wodon (2001); Yitzhaki and Wodon (2002).

cohort groups are tracked from 1987 to 2001.[58] They report little convergence between the earnings of rich and poor households (what the authors call *absolute mobility*) and rapid and increasing conditional convergence of the household's earnings to its own average level (what the authors call *conditional mobility*). In a companion study, Antman and McKenzie exploit those pseudo-panels to test the existence of poverty traps in Mexico and to study the possibility of nonlinearities in household labor income dynamics.[59] The authors conclude that Mexican urban households are not subject to poverty traps. Unfortunately, they do not analyze rural areas, where the incidence of poverty is greater.

The papers by Cunningham and Maloney; Maloney, Cunningham, and Bosch; and World Bank focus on vulnerability and the distribution of income shocks in Mexico.[60] In particular, they study the conditional earnings mobility distribution, where the conditioning factors are a set of socioeconomic variables. The periods covered by these studies include before, during, and after the 1994 peso crisis, as well as 1998–2002. The authors find a substantial amount of heterogeneity in the distribution of shocks across population groups. They also find that, holding everything else constant, the least educated and the poor suffered slightly less than their more educated and richer counterparts in terms of earnings changes during the 1994 peso crisis, but this probably occurred at the cost of having to add other members of the household to the labor force. Finally, the authors show that the structure of the determinants of earnings changes is quite stable regardless of whether the economy is in recession, although more educated households experience larger earnings losses during recessions than less educated groups in the population, holding everything else constant. The World Bank reaches somewhat different conclusions after analyzing consumption shocks, using the Education, Health, and Nutrition Program (PROGRESA) dataset to evaluate poverty alleviation between 1998 and 2000.[61] Less educated households in rural areas seem to suffer larger shocks than more educated households.

Duval Hernández uses the ENEU surveys to analyze issues of macromobility in urban Mexico between 1987 and 2002.[62] In particular, he studies

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58. Antman and McKenzie (2007a).
59. Antman and McKenzie (2007b).
60. Cunningham and Maloney (2000); Maloney, Cunningham, and Bosch (2004); World Bank (2004).
61. World Bank (2004).
62. Duval Hernández (2006a). See the data description below.

the evolution of directional mobility and mobility as an equalizer of longer-term incomes both for the whole economy and for several groups of the population.[63] Average earnings change (a measure of directional mobility) generally fluctuates around zero, with the exception of the late 1980s and early 2000s, when, on average, individuals experienced gains, and the years following the 1994 peso crisis, when they experienced large losses. These patterns are shared by the majority of the population groups, with the exception of quintile of initial earnings and sector groups. For these groups, the most advantaged individuals experienced the largest losses, while the most disadvantaged experienced the largest gains. Furthermore, mobility equalized longer-term earnings for the entire population in most of the periods studied, and it helped reduce longer-term earnings inequality within groups. Mobility only sometimes equalized longer-term earnings between groups, however.

Duval Hernández also analyzes the segmentation of Mexican labor markets between formal and informal sectors.[64] He shows that individuals identified as having been rationed out of formal sector jobs experienced important positive earnings mobility once they managed to enter this sector in later periods.

The second paper by Duval Hernández presents a detailed analysis of the relationship between earnings mobility and initial advantage.[65] It presents results similar to those included in this paper (see below), and it tests the robustness of these findings under a wide variety of specifications. Among other things, it tests their robustness to different types of measurement error in earnings and to the presence of attrition in the data. Simulations of the impact of measurement error show that this error needs to be quite large in order to be the sole factor underlying the convergence findings in the study. The amounts of attrition in the panel and the nonreporting of the earnings variable are large, which calls for caution in generalizing the results found in the sample to the overall population.

In summary, the papers studying income mobility in Mexico reveal a high degree of earnings mobility. The majority of these changes seem to be transitory, however, and they have largely failed to alter the long-term position of individuals in the income distribution.

63. The groups considered are based on age, education, gender, quintile of initial earnings, sector, and region.
64. Duval Hernández (2006a).
65. Duval Hernández (2006b).

Peru

Studies on income mobility in Peru have been carried out by Glewwe and Hall, Herrera, and Grimm.[66] Glewwe and Hall use panel data from the World Bank's Living Standards Measurement Survey for Lima to study changes in consumption of urban households during the recessionary period 1985–90.[67] The authors use multiple regression to analyze the determinants of vulnerability to macroeconomic shocks and estimate the determinants of the change in the logarithm of the per capita household consumption. The more negative (or less positive) are the changes, the more vulnerable the household is said to be. Their main results are that households headed by relatively well-educated persons or by women and households with fewer children are the least vulnerable.

Herrera exploits a panel of 421 households in Lima in 1990, 1994, and 1996 matched with an earlier panel of 721 households from 1985–86 to 1990.[68] He analyzes the evolution of various concepts of macro-mobility and estimates microeconometric models of poverty persistence. The variables found to be significant determinants of chronic poverty are the household's demographic composition, the education level of the head of household, and initial wealth. Insignificant variables include ethnic origin, the gender of the head of household, and the place of residence. Herrera later extends this exercise for the period from 1997 to 1999, while Herrera and Roubaud provide a comparative perspective.[69]

Grimm makes use of panel data for urban and rural Peru collected between 1997 and 1999.[70] The study compares measures of pro-poor growth proposed by Ravallion and Chen with the author's own measures of mobility and pro-poor growth to measure whether the income changes are favorable to the poor.[71] Grimm finds that the annual growth rate of household consumption is higher for those in the bottom percentiles of the distribution than those in the higher percentiles for both urban and rural areas of Peru. However, the poverty headcount in this country increased by 1.4 percentage points in the period

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66. Glewwe and Hall (1998); Herrera (1999, 2001); Herrera and Roubaud (2005); Grimm (2007). Graham and Pettinato (1999, 2001) present studies on mobility and subjective welfare (for example, happiness) in Peru. The relationship between this literature and the mobility literature is still in its infancy, however, and only the Peruvian case has been studied in Latin America.

67. Glewwe and Hall (1998).

68. Herrera (1999).

69. Herrera (2001); Herrera and Roubaud (2005).

70. Grimm (2007).

71. The comparison is based on Ravallion and Chen (2003).

because although a sizable share of the population escaped poverty (10.6 percent), an even larger group entered poverty (12.0 percent).

Venezuela

Studies of income mobility in Venezuela have been conducted by Freije individually and jointly with collaborators.[72] These contributions are reviewed below.[73]

Freije makes use of a long series of year-to-year panel data (from 1979 to 1998) to compute several macro-mobility indexes for per capita household labor earnings for Venezuela.[74] The study draws a picture of rising economic insecurity, since indexes for positional mobility and time independence rise over the years. It also shows declining standards of living, because earnings flux decreased and directional mobility remained negative for most years. The paper also assesses the determinants of income, positional, and poverty dynamics in Venezuela from 1994 to 1998. Based on a decomposition of the indexes and multivariate analysis, the author finds that labor earnings of the household head and other family members are the principal variables explaining household income dynamics.

The study by Fields, Cichello, and others documents the relative importance of several variables in explaining the dynamics of per capita household income using longitudinal data for Venezuela and for Indonesia, South Africa, and Spain.[75] Univariate and multivariate regressions for a single panel for Venezuela indicate that changes in the employment status of the head of household, changes in family type, and changes in the number of children are significant determinants of household income changes. The authors find that initial reported income is significantly and negatively related to income change, but this significance vanishes when they use household durables as instrumental variables to address a concern about measurement error in this variable. Further, the authors employ the Fei-Ranis-Kuo and Shorrocks decompositions to gauge the relative importance of different variables in explaining the dispersion of income changes.[76] For the majority of the Venezuelan households, more than 50 percent of the change in per capita family income is explained by changes

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72. Freije (2001); Fields, Cichello, and others (2003a, 2003b); Fields, Duval Hernández, and others (2006).

73. Márquez and Ruiz-Tagle (2004) study employment mobility in Venezuela as an input for contrasting job search models in Latin America.

74. Freije (2001).

75. Fields, Cichello, and others (2003b).

76. Fei, Ranis, and Kuo (1978); Shorrocks (1982).

in incomes rather than changes in household size. Moreover, around 90 percent of the changes in income can be ascribed to changes in labor earnings and only around 10 percent to changes in other income sources. The results for Venezuela are similar to the results for the other countries studied in terms of the relative importance of labor earnings for explaining household income dynamics, but they differ in that it is not possible to establish a relationship between initial income and income change in Venezuela.

The companion study by Fields, Cichello, and others searches further for a relationship between income changes and initial per capita household income.[77] To test whether the poor have larger or smaller income changes than the nonpoor, the authors run univariate regressions in which per capita household income change is regressed on initial income (with and without instrumental variables). Linear and nonparametric regression models are used. For the case of Venezuela, they find a significant negative relationship when using reported initial income, but no significant relationship when using predicted (instrumented) initial income. The authors model the possible structure of the measurement error and indicate that, despite its presence, measurement error is not likely to overturn the results for Venezuela. They conclude that the poor do at least as well as the nonpoor in Venezuela.[78]

These studies suggest that household income mobility in Venezuela is fundamentally driven by changes in the household head's labor earnings and family demographics. At the same time, no clear relationship between income changes and initial income can be ascertained.

Comparative Studies of Three Latin American Countries

Two comparative studies assess income mobility for Latin America as a region. We review one—our 2006 paper—in detail here. The second comparative mobility study is by Calonico.[79]

Our paper relates income mobility to economic growth and decline and to income inequality in Argentina, Mexico, and Venezuela.[80] In essence, we find that the mobility results paint a very different picture of distributional change in the course of economic growth and decline from that obtained using comparable cross-sections.

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77. Fields, Cichello, and others (2003a).
78. The same conclusion is reached for South Africa, but not for Indonesia or Spain.
79. Calonico (2006).
80. Fields, Duval Hernández, and others (2006).

We selected these three countries both for reasons of data availability and for inherent interest. On the data side, each of the three countries has available repeated panels that enable us to study one-year mobility during periods of macroeconomic growth and decline. The data sets available—the Encuesta Permanente de Hogares (Permanent Household Survey) for Argentina, the Encuesta Nacional de Empleo Urbano (National Urban Employment Survey) for Mexico, and the Encuesta de Hogares por Muestreo (Household Sample Survey) for Venezuela—are so similar to one another that we could use virtually identical methods for each of the three countries. Unlike nearly all of the preceding literature, we use multiple panels for each country: seven in the case of urban Argentina, fifty-six in the case of urban Mexico, and six in the case of Venezuela.

These three countries are of inherent interest for an unfortunate reason: they have each experienced both positive and negative growth episodes, as shown in figure 1. Given these macroeconomic ups and downs, the study investigates

F I G U R E 1 . Per Capita GDP in Argentina, Mexico, and Venezuela[a]

PPP (constant 2000 international dollars)
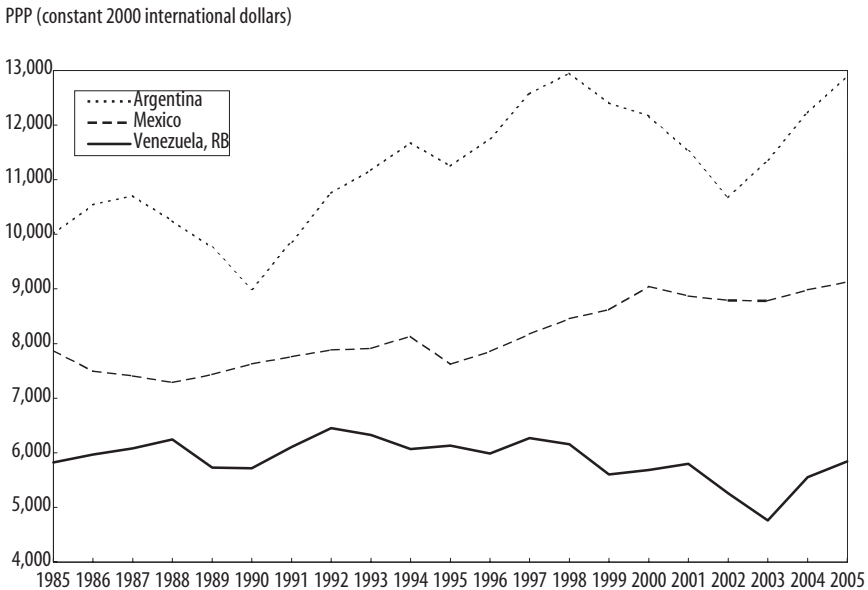
Source: World Bank, *World Development Indicators* database.

a. PPP = purchasing power parity; GDP per capita, PPP (constant 2000 international dollars) is gross domestic product converted to constant international dollars using PPP rates.

who gains the most income when economies grow, whether the groups that gain the most income in good times are the same groups that lose the most income in bad times, and whether these patterns of mobility are related to changes in inequality over time.

We look first at inequality. Figure 2 depicts the Gini coefficients for the three countries for the years covered by the panel. Earnings inequality trended upward in Argentina and Mexico and followed an inverted-V pattern in Venezuela.

More often than not, economic growth has been positive in Latin American countries, and income inequality has been rising. In such times, the anonymous individuals at the top end of the income distribution benefited as much or more in proportionate terms, and therefore much more in terms of pesos or bolivares, than lower income groups. In times of macroeconomic decline, if inequality is declining somewhat, then those anonymous individuals at the top end of the income distribution would have lost more in pesos or bolivares than others would have.

It is now only a small step to formulate two hypotheses for panel people. The first finding suggests that when the same people are followed over time, those at the top end of the income distribution will gain more in pesos or bolivares in periods of economic growth than those lower in the income distribution. We term this the divergent mobility hypothesis and test it in our panels both for income itself and for the income of groups that differ in terms of economic position (for example, those with more education versus those with less and men versus women). The divergent mobility hypothesis is reinforced by three economic factors: cumulative advantage, poverty traps, and labor market twist. These three factors exemplify positive feedback, which Meade defines as "self-reinforcing influences which help to sustain the good fortune of the fortunate and the bad fortune of the unfortunate."[81] Another factor—regression to the grand mean—works in the opposite direction.[82]

The two findings taken together led us to hypothesize that symmetry would hold for particular individuals: specifically, when we follow the same people over time, those groups for whom earnings changes are the most positive when the economy is growing experience the most negative earnings changes when the economy is contracting. We term this the symmetry hypothesis and test it in our panels both unconditionally and conditionally.[83] We denote the average

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81. Meade (1976, p. 155).
82. See Galton (1889).
83. We would expect this hypothesis to hold if the forces that lead an economy into a recession are similar to the forces that take it out of the slump, by acting in the opposite direction.

F I G U R E 2 . Evolution of the Gini Coefficient in Argentina, Mexico, and Venezuela

A. Argentina

Gini coefficient

B. Mexico[a]
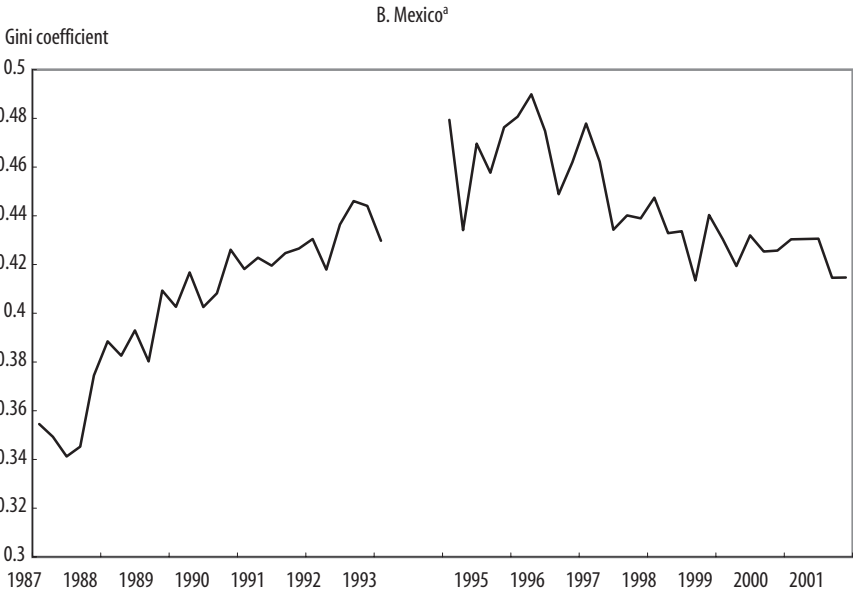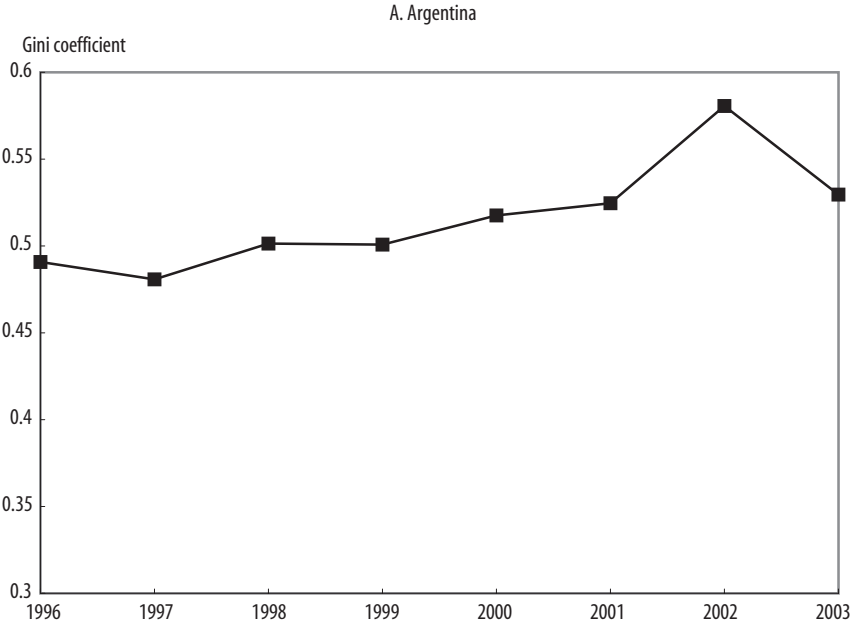
Gini coefficient

a. The data for Mexico are a quarterly rolling panel, starting with 1987, quarter 1–1988, quarter 1 and ending in 2001, quarter 4–2002, quarter 4.

F I G U R E 2 . **Evolution of the Gini Coefficient in Argentina, Mexico, and Venezuela (*continued*)**

C. Venezuela
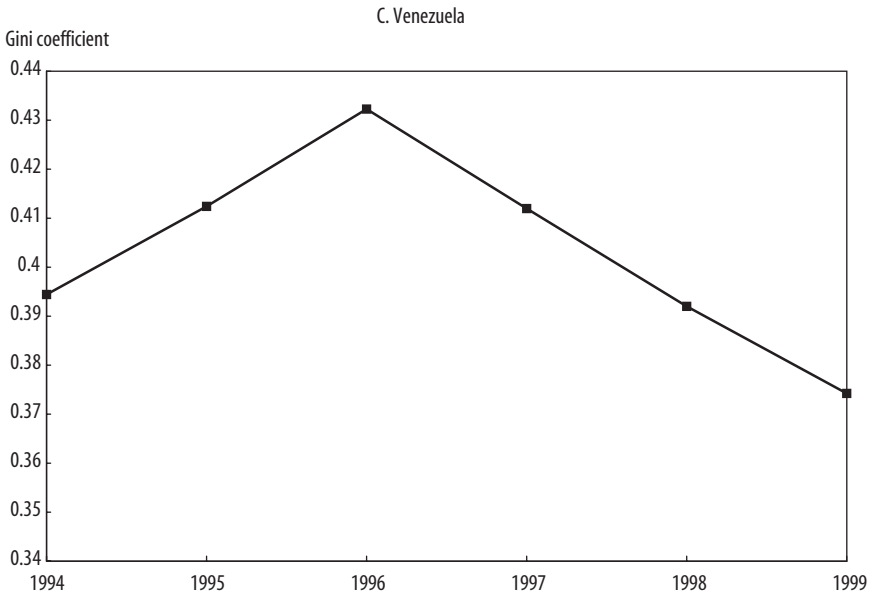
Source: Authors' calcuations.

earnings change of group g as $\Delta \bar{Y}_t^g$. The (unconditional) symmetry hypothesis then states that if $\Delta \bar{Y}_{t-1}^j \geq \Delta \bar{Y}_{t-1}^k$ during periods of growth, we should expect to see $\Delta \bar{Y}_{t-1}^j \leq \Delta \bar{Y}_{t-1}^k$ during periods of recession.[84]

To test the (unconditional) divergence hypothesis, we estimated a regression like equation 1 and also estimated the same regression using a measure of predicted earnings, $\hat{Y}_{i,t-1}$, as a regressor. That is,

$$(3) \qquad \qquad \Delta Y_{i,t} = \alpha + \beta \hat{Y}_{i,t-1} + u_{i,t}.$$

Our reasons for using a measure of (initial) predicted earnings in addition to the earnings reported by the individuals in the survey are twofold. First, by predicting initial earnings with a set of characteristics that are permanently attached to the individual (such as age, gender, and education), we obtain an estimate of a more permanent aspect of well-being, one that is less affected

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84. To test this hypothesis conditionally, the parameters of conditional mobility regressions like equation 2 are compared over periods of growth and recession.

by transitory fluctuations in income. Second, using this proxy of well-being as an independent variable in the mobility regressions gives us results that are robust to the presence of several types of measurement error in the earnings variable.

An alternative method is to approximate the individual longer-term earnings by averaging individual earnings over all the periods observed in the panel. This method would capture advantages arising from both observable factors (like age, education, and gender) and unobservable time-invariant characteristics (such as ability and social capital). This method works best if the panel has many observations per individual (that is, if T is large) and if these observations are spaced widely over time. Under these conditions, the effects of transitory income fluctuations and measurement error would be averaged out, and their impact would be minimal. We chose not to follow this route because in our case T is not very large and the time observations are closely spaced.[85]

The actual results surprised us. The divergent mobility hypothesis and the symmetry hypothesis were borne out in only a very small percentage of the cases. Figures 3, 4, and 5 display, for each of the three countries, the coefficients of regressions based on equation 1 (that is, of earnings change on initial reported earnings) and the coefficients of regressions based on equation 3 (that is, of earnings change on predicted income).[86] Each graph displays the point estimate for a given panel, along with the corresponding 95 percent confidence interval. A negative parameter indicates convergence between the earnings of rich and poor, a positive parameter indicates divergence (and would support the divergent mobility hypothesis), and a statistically insignificant parameter indicates that the earnings changes (in pesos or bolivares) were the same, on average, for individuals with different initial earnings.

As the figures illustrate, the divergent mobility hypothesis receives no support at all when reported earnings are used and very scant support for only a few years when predicted earnings are used. The results that use predicted

85. We have five quarterly observations per individual for Mexico (leaving aside attritors in the intermediate quarters) and four semiannual observations for Argentina. In both countries, the aforementioned exercise produces virtually the same results as the regression-based approach. For details, see Duval Hernández (2006a, 2006b); Sánchez Puerta (2005), respectively. For Venezuela, an experiment using the average income over the two-semester panel yielded qualitatively the same results as using predicted income.

86. We used six methods for predicted earnings, and all generated similar results. The figure displays the results for one of the methods. For a full list of the regressors used to predict earnings in the first stage, see Fields, Duval Hernández, and others (2006).

F I G U R E 3 . Argentina: Regression Coefficients of Income Change on Initial Earnings

A. Initial reported earnings

B. Predicted earnings (method 1)
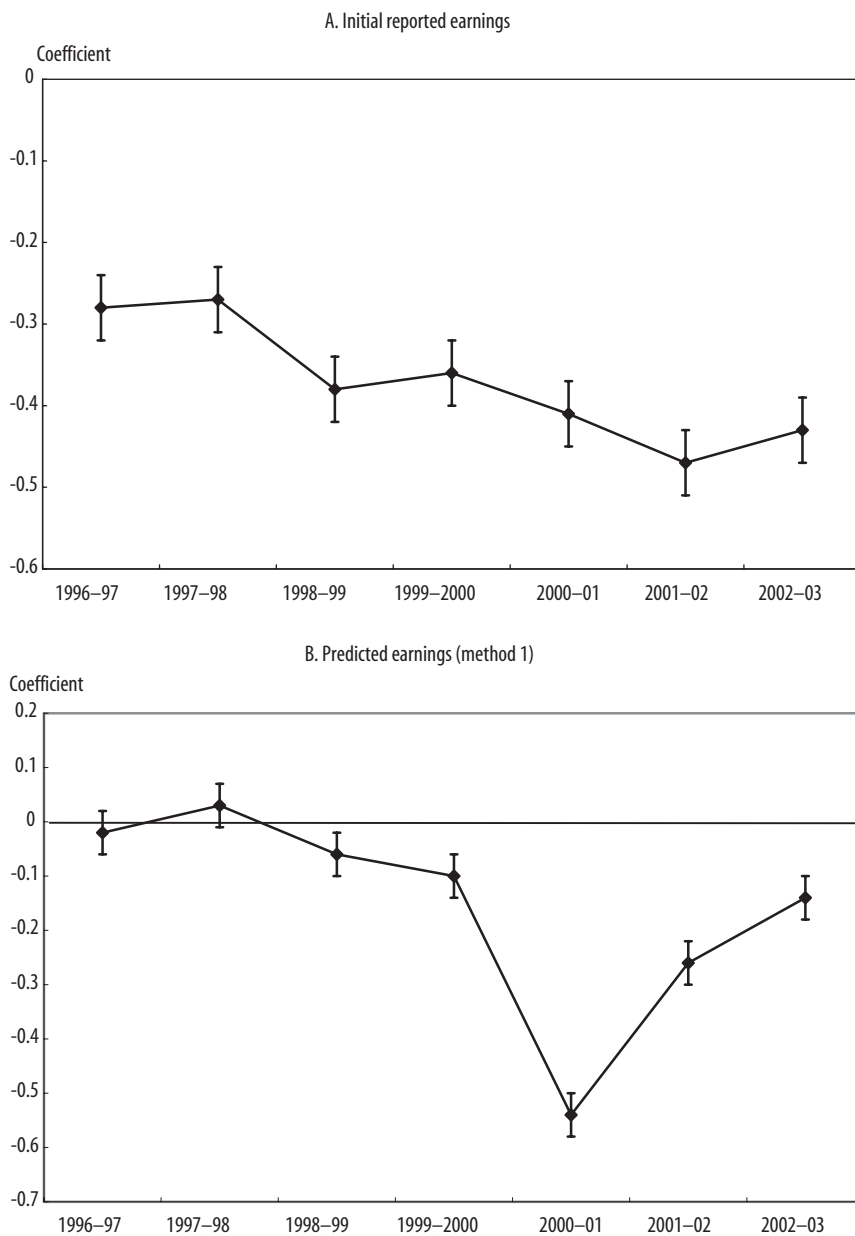
Source: Authors' calcuations.

F I G U R E   4 .   Mexico: Regression Coefficients of Income Change on Initial Earnings

A. Initial reported earnings

B. Predicted earnings (method 1)
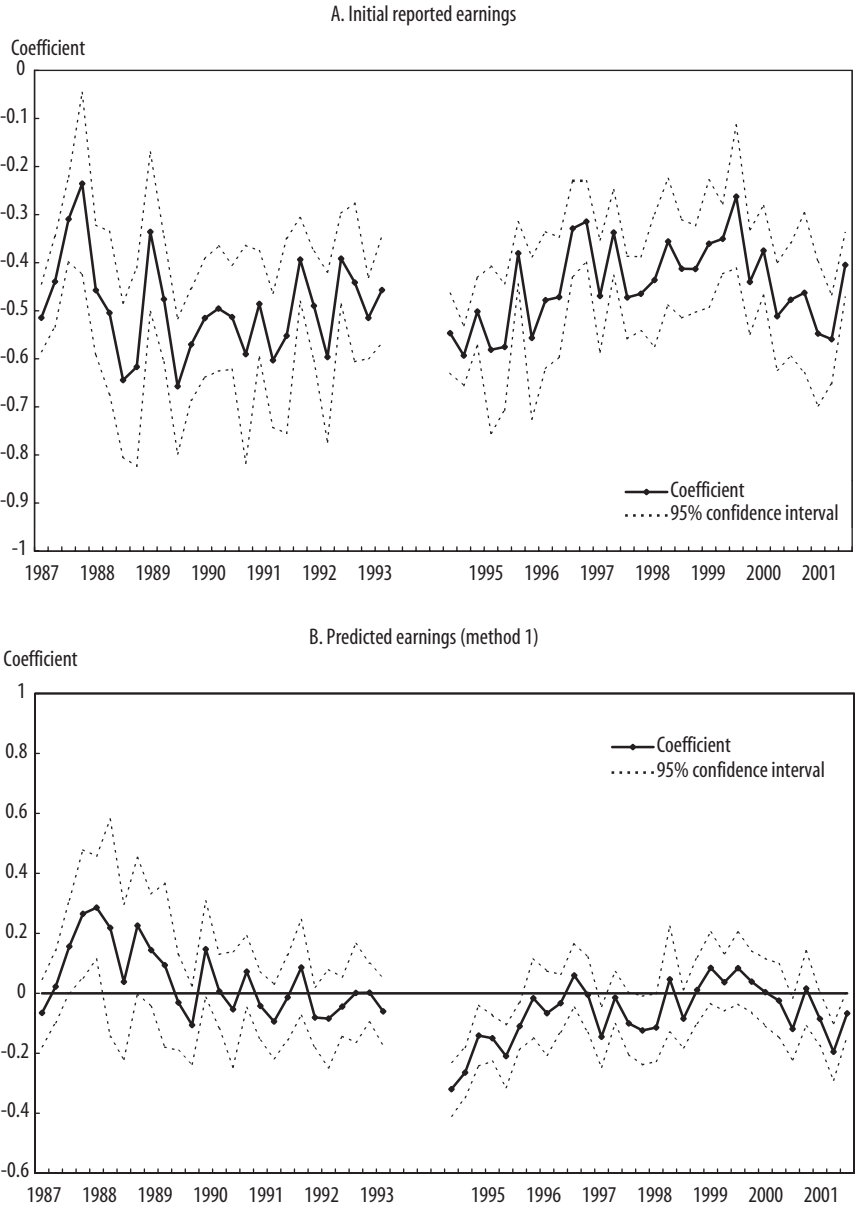
Source: Authors' calcuations.

F I G U R E 5 .   Venezuela: Regression Coefficients of Income Change on Initial Earnings

A. Initial reported earnings

B. Predicted earnings (method 1)
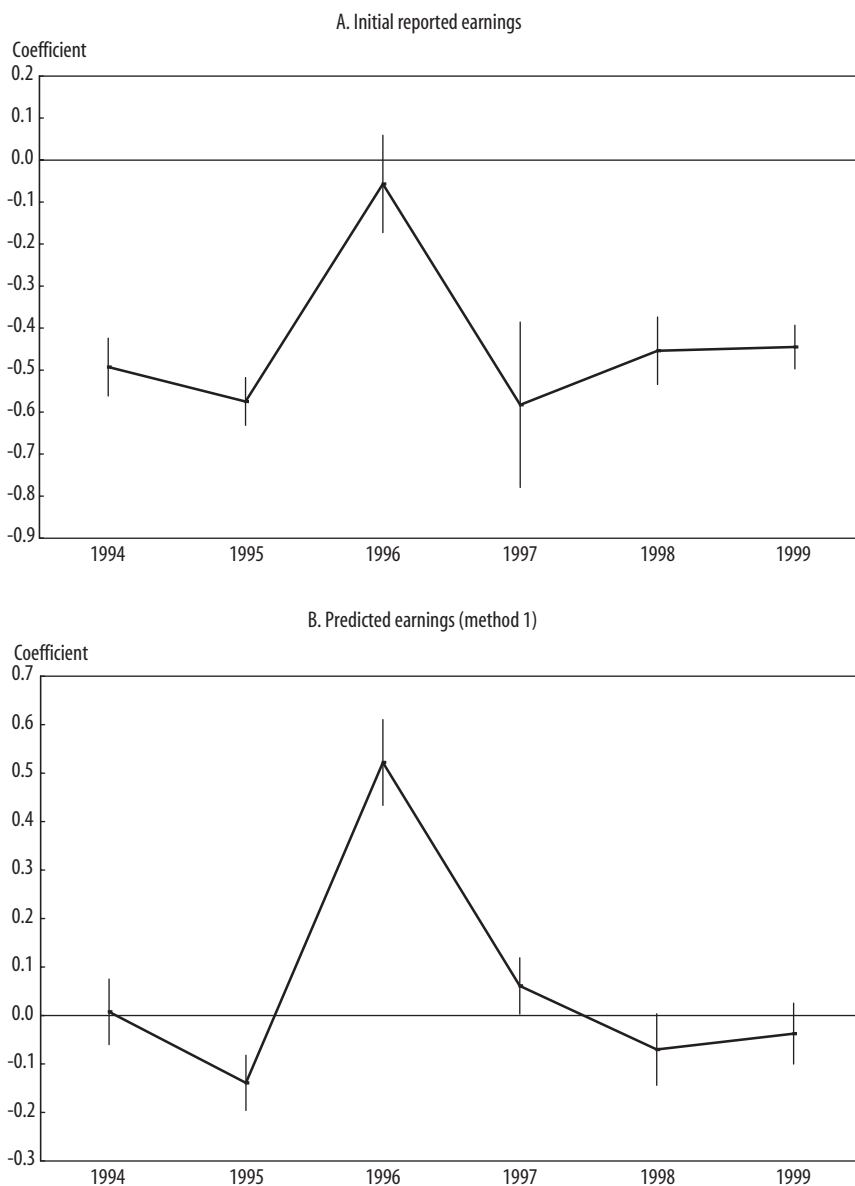
Source: Authors' calcuations.

earnings as a measure of initial advantage generally show much less convergence than the results based on reported earnings.[87] As previously mentioned, this is because predicted earnings are less sensitive to transitory fluctuations in earnings and more robust to the presence of measurement error than initial reported earnings are. One example of convergence with predicted earnings occurred during the 1994–96 tequila crisis in Mexico, when almost everybody lost, but the individuals with high permanent advantage lost the most in pesos.

In a comparison of earnings changes for different groups in the population, the divergence hypothesis would be said to hold if the earnings changes for more advantaged groups (men, for example) are significantly greater than the earnings changes for less advantaged groups (such as women). Empirically, though, we find that the divergence hypothesis is rejected in all cases in Argentina and Mexico, while Venezuela displays divergent mobility for two indicators only (namely, education and economic sector). The symmetry hypothesis, in turn, would hold if the group that gains the most when the economy is growing loses the most when the economy is contracting. We find this to be the case in only one instance: in Venezuela, men gained more than women when growth was positive and lost more than women when growth was negative. Symmetry was rejected for all other variables in Venezuela and for all variables in Argentina and Mexico. For the particular case of initial earnings, figures 3, 4, and 5 show that the coefficients do not change sign according to growth performance.

When divergent mobility was rejected, the pattern was either convergent or statistically insignificant. Convergent mobility means that low earners gained more in pesos or bolivares than middle earners and high earners. Statistical insignificance means that low earners, middle earners, and high earners all experienced about the same changes in pesos or bolivares. Our panel data analysis thus presents a picture of economic growth and decline in which high earners do not gain more than middle earners and low earners.

The panel data results and the cross-section results demonstrate quite different things. The panel data results show that, in general, mobility is neither divergent nor symmetric. Cross-section analysis, however, shows that inequality is trending upward in Argentina and Mexico and has an inverted-V shape

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87. The result for 1996 in Venezuela is the only exception. Venezuelan household surveys have two different rotation patterns: six of the eight regions are rotated every six semesters, while the other two regions are rotated every four semesters. We could only match two regions in the panel for the period 1996–97, so this panel does not have observations from every region of the country, as the other panels do. Consequently, the panel for this period is systematically different from others, and this result should be interpreted as an artifact of the data.

in Venezuela. How can these two sets of results be reconciled? Many individuals experienced large changes within the earnings distribution, while the anonymous earnings distribution was changing less.[88] For each panel in each of the three countries, we calculated how much of the percentage change in the variance could be accounted for by the convergent central tendency and how much by the inequality of earnings changes. In the great majority of panels, the central tendency accounted for no more than 15 percent of the change in variance and often considerably less, meaning that 85 percent or more of the change in the variance was accounted for by the inequality of earnings changes. This large variance in individual changes from one year to the next—in which some low-income individuals move way up in an earnings distribution that is often becoming more unequal and some high-income individuals move way down in the distribution—reconciles the mobility and inequality results.

We conclude this section with a brief summary of the study by Calonico.[89] This study uses pseudo-panels to analyze micro-mobility in Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico, Uruguay, and Venezuela from 1992 to 2003. Calonico estimates both unconditional and conditional mobility equations. He finds that Uruguay, Argentina, and Brazil are very immobile, while Chile, Mexico, and Venezuela are the most mobile countries of those considered. Conditional mobility is usually higher than unconditional mobility, and the patterns across countries are similar to those of unconditional mobility. Pseudo-panels are not panels, and therefore the results cannot be compared directly with those arising from true panel data.

Conclusions and Suggestions for Further Work

The extensive literature reviewed in this paper presents a large array of results on mobility for Latin America, owing to the use of different mobility concepts, databases, and methodologies. The literature produces five major findings. First, income mobility is not the same as inequality changes. Mobility studies reveal different trends and processes than the changes in inequality in comparable cross-sections. Rising inequality is compatible with mobility that is neither divergent nor symmetric.

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88. In the example of case II in the introduction, individual α experienced an increase in income from \$1 to \$5, while individual β saw income fall from \$3 to \$1, but the whole anonymous distribution only changed from (1, 3) to (1, 5).

89. Calonico (2006).

Second, Latin American income distributions are not rigid from one year to the next. All studies show that individuals and families move from one income class to another and into and out of poverty. This raises the question of the extent of income mobility. Each of the countries where income mobility has been studied presents both a lot of mobility and a lot of immobility.

Third, some income groups exhibit more positive earnings changes than others. Surprisingly, however, in all of the Latin American countries where the issue has been studied, the lowest earners have gained at least as much as middle and high earners, with few exceptions. A high convergence between high and low earners is found when initial reported earnings are used, whereas low convergence occurs when predicted earnings are used (with the exception of Argentina in its crisis years). This might reflect the fact that, while there is a lot of transitory mobility in the short run, this mobility does little to alter the long-term positions of individuals in the income distribution.

Fourth, income mobility appears to be structural, not symmetric, over the business cycles in Argentina, Mexico, and Venezuela. Put differently, the same factors that are important determinants of income changes when the economy is growing are also important and act in the same direction, not the opposite direction, when the economy is contracting. We thus find scant evidence for divergence or symmetry in these three countries.

Finally, the mobility patterns confirm that countries differ in the mechanisms by which they adjust to macroeconomic shocks. Mexico appears to have relied more on price adjustments than Argentina, which relied more on quantity adjustments. Venezuela displays wide oscillations of the unemployment rate, and it registered the highest inflation rate on the continent in the 1990s; at the same time, the labor code is quite restrictive with respect to firing employees.

These results offer insight to policymakers. The findings of longer-term panel studies could lead to different policy interventions than snapshot results. For example, if our analysis had uncovered little mobility in Latin America, such that the low earners in one year were the same people as the low earners in another, then interventions targeted at a fixed group of people would have been in order. In reality, however, the target populations are not composed of the same people over time. Much more movement within the earnings distribution is reported than had been thought.[90] Programs such as Oportunidades in Mexico, Bolsa Familia in Brazil, and Puentes in Chile need to take into account both the substantial fixity of the low-earning population and the sub-

90. "Reported" because some of the apparent mobility is due to measurement error.

stantial movement into and out of low earnings—for example, by including mechanisms to mitigate risk. Growth is necessary, but it is not enough.

Too many of the policy implications drawn from the earnings mobility field, and from the analysis of Latin American labor markets more generally, are not implications at all. These implications are based on empirical evidence that is too limited; they are not supported by well-formulated theoretical models; and they lack an explicit criterion for making social-welfare judgments. Careful social cost-benefit analysis is needed.[91]

Despite all that has been learned, much remains to be done. First, many of the panels used to gauge mobility in Latin America are restricted to urban areas or are not necessarily representative of the whole economy. Panels with national coverage are essential for learning what is going on in a country as a whole. Second, the research community would benefit from panels for more countries. These would help uncover the extent to which the findings reported here can be generalized across Latin America. Third, longer panels for existing countries would be helpful for measuring longer-term economic position and comparing changes for the same people from one year to the next. This is particularly relevant if analysts are to find the socioeconomic determinants of long-run mobility.

Fourth, researchers need to assess the effect of measurement error on the mobility estimates. In particular, validation studies need to quantify and specify the nature of the effects of measurement error on earnings for Latin American countries and for developing countries in general. Without such studies, it is virtually impossible to separate true transitory adjustments in earnings from spurious correlations between mismeasured earnings. These data deficiencies are likely to be overcome in the new Mexican Family Life Survey, which shows substantial promise in providing a panel with national coverage, low levels of attrition, broader measures of income besides labor market earnings, and administrative records of earnings that can help distinguish true mobility from measurement error. More data sets like this would be welcome for other Latin American countries

Fifth, mobility studies are most informative when the same methodology is used in a number of countries. More such comparative studies would be particularly valuable. While there is a vast array of results on mobility for Latin American economies, the large methodological disparities across studies limits their usefulness in contributing to a regional understanding.

91. These concerns and recommendations are elaborated on at length in a forthcoming paper; see Fields (2007).

Sixth, researchers should continue to ask broader questions. A good example of a study that is broadening the scope of analysis is the Inter-American Development Bank's *Good Jobs Wanted,* which estimates that 16 percent of formal sector workers in Argentina and 10 percent in Mexico transited to an informal sector job after six months.[92] Another example is a joint study by the Inter-American Development Bank and the World Bank, which is looking at the skills, gender, and age dimensions of mobility in three Latin American countries and six transition economies.

Finally, the field would benefit from an open discussion among researchers and policymakers regarding the fundamental questions that need to be answered. How important is mobility vis-à-vis inequality and poverty? Which aspects of mobility—time independence, positional movement, share movement, symmetric income movement, directional income movement, or mobility as an equalizer of longer-term income—are most important from the perspective of economic well-being? What is the trade-off between the equalizing effects of mobility and the volatility and uncertainty that accompanies it?[93] These and other such fundamental questions merit a more thorough discussion in the region than they have thus far received.

Mobility studies have contributed a great deal of knowledge that would not have been garnered from inequality and poverty studies based on cross-sectional data. In Latin America, as elsewhere in the world, the knowledge obtained from mobility studies adds a different and valuable dimension to income distribution analysis. All types of income distribution studies are worthwhile, but mobility studies rate the highest priority for future research because they are so few in number.

92. IDB (2003). The formal sector is defined as comprising jobs with social security benefits, while jobs in the informal sector do not provide these benefits.

93. The theoretical literature has started to address this particular issue; see Gottschalk and Spolaore (2002). But the empirical literature has yet to link income mobility with credit market conditions, which would allow individuals to smooth income fluctuations.

Appendix: Supplemental Tables

T A B L E A - 1 .   **Available Panel Data for Latin American Countries**

Country and data source	Years	Coverage
Argentina		
Encuesta Permanente de Hogares	1988 to date	Urban areas, mainly Buenos Aires
Brazil		
Pesquisa Mensal de Emprego	Monthly, 1980 to date	Selected urban areas
Relaço Anual das Informações Sociais	Annual, 1976 to date	Formal-sector workers
Chile		
Survey of Scott and Litchfield (1994) and Scott (2000)	1968 and 1986	Selected rural areas
Encuesta de Caracterización Socioeconomica Nacional	1996–2001	National coverage
El Salvador		
BASIS Survey	1995–2001	Rural areas
Mexico		
ENEU-ENET-ENOE	1987 to date	Urban areas until 2001, national thereafter
Encuesta Nacional de Evaluación de los Hogares, ENCEL	1998–99	Households in treatment and control groups of PROGRESA program
IMSS employer-employee data	1993–2004	Formal-sector workers
Mexican Family Life Survey	2002 and 2005	National
World Bank-SRA Survey	1994 and 1997	Rural areas
Jamaica		
Jamaica Survey of Living Conditions	1995–2002	National
Nicaragua		
Encuesta Nacional de Hogares sobre Medición de Niveles de Vida	1998 and 2001	National
Peru		
Encuesta Nacional de Hogares sobre Medición de Niveles de Vida	1985 and 1990; 1991–97	Urban Lima (1985–90); national (1991–97)
Encuesta Nacional de Hogares	1997–99	National
Venezuela		
Encuesta de Hogares por Muestreo	1994–99	National

T A B L E A - 2 . Mobility Studies on Latin American Countries

Country and author	Years studied	Type of study
Argentina		
Albornoz and Menéndez (2004)	1991–2000	Conditional mobility
Beccaria and Groisman (2006)	1987–2001	Income instability and macro-mobility
Corbacho, García-Escribano, and Inchauste (2007)	1999–2002	Conditional mobility, vulnerability
Cruces and Wodon (2003, 2006)	1995–2002	Poverty dynamics and income instability
Fields and Sánchez Puerta (2007a, 2007b)	1995–2003	Conditional and unconditional mobility
Gutiérrez (2004)	1998–2002	Time dependence; conditional and unconditional mobility
McKenzie (2004)	2000–02	Conditional mobility
Navarro (2006)	1985–2004	Conditional and unconditional mobility
Sánchez Puerta (2005)	1995–2003	Macro-mobility
Wodon (2001)	1993–96	Time dependence
Chile		
Contreras, Cooper, and Neilson (2006)	1996–2001	Pro-poor growth and unconditional mobility
Contreras and others (2006)	1996–2001	Poverty dynamics and positional mobility
Huneeus and Repetto (2004)	1990–2000	Determinants of mobility
Paredes and Zubizarreta (2005)	1996–2001	Determinants of extreme poverty and mobility
Scott (2000)	1968 and 1986	Movements out of poverty
Scott and Litchfield (1994)	1968 and 1986	Positional, symmetric, and directional mobility; conditional mobility
El Salvador		
Beneke de Sanfeliu and González-Vega (2000)	1995 and 1997	Conditional mobility
Beneke de Sanfeliu and Shi (2003)	1995–2001	Conditional mobility, vulnerability
Rodríguez-Meza and González-Vega (2004)	1995–2001	Poverty traps
Sosa-Escudero, Marchionni, and Arias (2006)	1995–2001	Determinants of poverty persistence
Mexico		
Antman and McKenzie (2007, forthcoming)	1987–2001	Conditional and unconditional mobility; poverty traps
Cunningham and Maloney (2000)	1994–97	Vulnerability
Duval Hernández (2006a, 2006b)	1987–2002	Macro-mobility; conditional and unconditional mobility
Maloney, Cunningham, and Bosch (2004)	1994–96	Vulnerability
Wodon (2001)	1987–96	Time dependence
World Bank (2004)	1992–95; 1998–2003	Vulnerability
Yitzhaki and Wodon (2002)	1994 and 1997	Time dependence
Peru		
Glewwe and Hall (1998)	1985–90	Conditional mobility, vulnerability
Grimm (2007)	1997–99	Pro-poor mobility
Herrera (1999, 2001)	1985–96; 1997–99	Macro-mobility, determinants of poverty persistence
Herrera and Roubaud (2005)	1997–99	Macro-mobility, determinants of poverty persistence
Venezuela		
Fields, Cichello, and others (2003a, 2003b)	1997–98	Conditional and unconditional mobility
Freije (2001)	1979–98	Macro-mobility and conditional micro-mobility
Freije and Portela Souza (2002)	1994–97	Earnings dynamics model

T A B L E A - 3 .   Comparative Mobility Studies for the Latin American Region

Author	Countries	Years studied	Type of study
Calonico (2006)	Argentina	1992–2002	
	Brazil	1995–99, 2001–03	
	Chile	1992–2003	
	Colombia	1992–2003	Unconditional and conditional mobility
	Costa Rica	1992–2003	
	Mexico	1992–2001	
	Uruguay	1995–2003	
	Venezuela	1994–2003	
Fields, Duval Hernández, and others (2006)	Argentina	1996–2003	Unconditional and conditional mobility; symmetry hypothesis
	Mexico	1987–2002	
	Venezuela	1994–2000	

Comments

Omar Arias: This paper addresses an important but insufficiently studied aspect of the persistent high poverty and inequality in Latin America and the Caribbean. As the authors point out, understanding mobility is very important to identify the determinants of the persistent high levels of inequality in the region. However, the issue has not received adequate attention in terms of data generation, research, and the policy agendas.

The United States and other industrialized countries have a long history of studies in this area, although the main focus has been on intergenerational mobility, particularly the extent to which socioeconomic success is transmitted from parents to children. This paper instead focuses on intragenerational income mobility, that is, the changes in a person's income level during his or her adult life course. The authors concentrate on studies that track the evolution of the incomes of the same individuals over time to see who gains and who loses during the economic growth process. This is closely related to the recent literature on pro-poor growth and vulnerability. The paper provides a succinct summary of the current state of knowledge on intragenerational income mobility in the region (largely produced by the authors themselves), documents its importance, and highlights areas for further work. The work should thus be of great interest to development academics and policymakers alike.

The paper reviews the main conceptual and practical challenges in measuring intragenerational income mobility with existing data in the region. This includes the possible ambiguities in using alternative mobility measures and the difficulties that measurement error in (noisy) incomes and panel data attrition pose to empirical analysis. The authors suggest possible ways to address these issues, including the advantages and disadvantages of alternative methodologies such as instrumental variables and pseudo-panels.

The paper clearly highlights the limitations of panel household survey data in Latin America and the Caribbean and the critical need to expand their use and coverage. Nevertheless, some additional methodological issues are