Economic Mobility of the States

Methodology

Over the past several years, the Economic Mobility Project has worked to uncover the factors driving Americans' economic mobility—their ability to move up or down the income ladder or the earnings ladder over their lifetimes and across generations. This analysis is the first of its kind to investigate economic mobility at the state, rather than national, level by identifying *where* in the country Americans experience the best mobility outcomes. The analysis uses data from prior to the onset of the most recent recession.

Economic Mobility of the States explores Americans' mobility during their prime working years—the 10-year span between ages 35-39 and 45-49. It measures economic mobility in three ways: the earnings growth a state's residents experience; the percent of residents earning less than the U.S. median who move up the earnings ladder by 10 or more percentiles; and the percent of residents in the top half of earners who fall down by 10 or more percentiles. The report also examines whether geographic

mobility, or Americans moving out of their birth state, explains these patterns.

The analysis examines intragenerational mobility—earnings mobility of individuals across their own lives. It is not currently possible to study intergenerational

mobility, or whether adult children moved ahead of their parents' place on the earnings ladder, at the state level, because there is no data set that we are aware of that links parents to children and that is sufficiently large to compute reliable state estimates. Nor is it possible to examine intragenerational mobility using family or household income rather than individual earnings using this data since we only have access to administrative earnings data.[1]

Data

This report draws on data from the Survey of Income and Program Participation (SIPP) matched to the Social Security Administration's (SSA) Master Earnings File (MEF). The SIPP is a nationally representative survey conducted since 1983 by the Census Bureau consisting of a number of panels of around 20,000 to 40,000 households who are interviewed every four months over periods ranging from two to four years. The SIPP includes state of residence at the time of an interview, as well as state of birth, and is publicly-available data. The 1984, 1990 through 1993, 1996, 2001, and 2004 panels of the SIPP were used in the analyses.

Since earnings data in the SIPP are limited to only two to four years at most, the SSA MEF data—a data source that is not publicly available and does not include state information—is used to provide longer-term annual earnings data.[2] The MEF includes two distinct sources of earnings data: Summary Earnings Records (SER) and Detailed Earnings Records (DER). The SER data contains earnings up to the amount subject to Social Security and Medicare taxes but only covers workers who are covered by the Social Security system. The DER data contain earnings derived from IRS W-2 records but only begins in 1978. The DER data used in this analysis did not include earnings from self-employment. Since neither data source has complete coverage, both are utilized for this analysis by taking the larger of the DER or SER amounts.[3]

Respondents in the SIPP were matched to their MEF earnings histories using Social Security numbers that they voluntarily provided. Davis and Mazumder (2011) examined the extent to which this matched sample is nationally representative. While individuals with financial assets and those who participate in government transfer programs are somewhat over-represented, selection is generally not a large concern.[4] The advantage of constructing a measure of long-term earnings compared to only the short-term earnings available from the SIPP, outweigh any minimal selection effects.

In order to study intragenerational mobility effectively, one needs data that allow you to track the same group of individuals over time. Preferably, these data would track a large sample of

individuals over a lengthy period (at least 10 years). There are advantages of the combined SIPP-MEF data. For example, pooling multiple SIPP panels allows for a dataset containing a large sample of individuals with their states of residence identified. Linking the SIPP to the MEF adds earnings data that cover the same age range for all individuals and span their entire careers (rather than just the two to four years available through the SIPP alone). Without this combination, it is impossible to examine economic mobility at the state level. Although the SIPP was not designed to be representative of individual state populations (it was designed to be nationally representative), there is nothing explicit in its design that makes it likely to be unrepresentative. The 1990 5 percent Public Use Microdata Sample (PUMS) of Decennial Census data was used to check our sample for representativeness. Independent samples of 35-39 year old men and 35-39 year old women, both with positive annual earnings, were created from this PUMS. Overall, the correlation of states' logged mean earnings across the two data sets was very high (above 0.9 when two outliers were dropped).

The total sample size is 64,686 individuals and includes individuals born between 1943 and 1958, with average earnings calculated over two 5-year periods: first, from ages 35-39, and second, from ages 45-49. The two age ranges were chosen to minimize earnings changes that might arise due to schooling or retirement and to capture data from the prime working years of the individuals surveyed. The use of multiyear averages reduces the bias from transitory fluctuations and measurement error. For the sample as a whole, this means that earnings for 35-39-year-olds are measured anytime between 1978 and 1997, while earnings for these same individuals at the ages of 45-49 cover the years 1988 to 2007. Individuals must have positive earnings for each of the years to be included in the sample. Earnings are inflation-adjusted to 2007 dollars using the CPI-U.

A total of 42 states (including D.C.) are identified in every SIPP panel; nine less populous states are combined into three groups that with one exception are consistent over time: (1) Maine and Vermont; (2) Iowa, North Dakota, and South Dakota; (3) Alaska, Idaho, Montana, and Wyoming.[5] State of residence is measured when the first valid measurement appears in the SIPP.[6] All states were divided into eight regions based on definitions used by the Bureau of Economic Analysis, except that Alaska is included in the Rocky Mountain region rather than the Far West region because it is combined with Idaho, Montana, and Wyoming.

Mobility Measures

Economic mobility is the ability of individuals to move up or down the income ladder or the earnings ladder, both over their lifetimes and across generations. *Absolute mobility* measures an individual's earnings growth over time. *Relative mobility* measures a person's movement up and down the earnings ladder over time relative to their peers, focusing on whether their rank on the earnings ladder changes.

Estimates of absolute mobility are constructed by taking the difference in the log of the two 5-year averages of annual earnings. As this is roughly equivalent to a percentage change in earnings between the two time periods, absolute mobility in the report is characterized as "percent change" rather than log change. Absolute mobility measured in this way partly addresses state differences in cost of living; only state differences in the *change* in the cost of living will affect the results. Since analyses of mobility conducted here assess *changes* in earnings over time, the real question is whether there are concomitant regional differences in the *change* in cost of living. We thus looked at annual changes in the Consumer Price Index (CPI) by region to see whether regions that showed lower mobility against the national distribution than against the regional distribution also showed smaller changes in the cost of living. In general, these differences in CPI growth by region were fairly small.

Relative mobility measures the change in an individual's percentile rank in the earnings distribution over the 10-year period. Upward mobility is achieved if an individual starts in the bottom half of the earnings distribution of 35-39-year-olds and moves up by 10 or more percentage points in the earnings distribution by the 45-49 year average. An analogous measure of downward mobility is constructed for those who start in the top half of the earnings distribution and fall by 10 or more percentiles.[7]

The decision to use 10-percentile markers to identify upward and downward relative mobility stems from a desire to choose a level of delineation that provides a reasonable amount of signal while minimizing noise. For example, setting a small mobility threshold, such as a 1-percent change, will lead to extremely high levels of "mobility" in every state, levels that are arguably of little substantive importance. On the other hand, choosing a high threshold, such as 30 percent, will create an analysis driven by outliers. The 10-percentile mark is therefore a practical compromise. One issue to bear in mind is that this measure could miss important instances of upward and downward mobility while capturing others that may be less significant. For example, an individual that moves from the 10th to the 19th earnings percentile would not be counted as mobile under the current methodology, where someone

moving from the 49th to the 59th earnings percentile would be counted. The first case represents an instance of significant upward mobility that remains outside the scope of this report; the second case, while it is captured, may represent an individual who sees only marginal utility by moving upward from one high earnings level to another.

Arguably, relative mobility might be better measured with a finer-grained category than above or below the median. One might, for instance, want to know how states rank in terms of the likelihood that residents escape, for example, the bottom quintile of earnings. Unfortunately, sample sizes in the SIPP data combined with Census Bureau disclosure avoidance protocols make such an analysis unfeasible.

Upward and downward relative mobility rankings were calculated using both the national and the regional earnings distribution. That is, for every state, we calculated residents' chances of moving up (or down) 10 percentiles in the *regional* earnings distribution as well as those residents' probabilities of moving up (or down) 10 percentiles in the nation as a whole. Calculating mobility using both distributions sheds light on whether the ability to move 10 percentiles in the national distribution is driven by differences in the shapes of earnings distributions across individual states. For

example, moving up 10 percentiles in Alabama might entail a larger absolute gain than a 10 percentile move in New York. Moving up 10 percentiles in Alabama when ranked against the Southeast region may be comparable to moving up 10 percentiles in New York when ranked against the Mideast region. A state may exhibit more (or less) mobility when the frame of reference is only fellow Southerners (or Northeasterners). Which set of results to privilege depends on whether one believes the appropriate frame of reference in considering mobility is the nation as a whole or one's same-region peers.

Comparative Analysis

States were compared to the national average on all three measures by conducting two-tailed t-tests using a 95% significance level.[8] This formula divides the difference between the state and national average by the standard error of the difference. T-statistics above the 95% critical value allow us to conclude that a state has better mobility—either absolute change over time or the proportion who move up or down—compared to the national average while those below the critical value allow us to conclude a state has worse mobility than the national average. Or in other words, the difference—higher or lower than the national average—is unlikely to occur by chance alone. T-statistics that fall within the upper and lower critical values only

allow us to conclude that *we did not find a difference that was statistically significant*; it does not mean that we can conclude that there is actually not a difference between the state and national average.

Based on the t-statistic, states were assigned a value of -1 (worse than the national average), 0 (did not find a difference), or 1 (better than the national average) for each of the three mobility measures. For the downward relative mobility measure, a 1 represents less downward mobility than the national average, while for the absolute and upward relative mobility measure, a 1 represents more upward mobility. Therefore, 1 always represents above average outcomes for mobility, while -1 always represents below average outcomes. As mentioned above, we also use the regional earnings distribution for upward and downward mobility to compare each state to the national average. We look across the national earnings distribution measures for consistency in better or worse mobility.

Geographic Mobility

The economic mobility results may be interpreted in two ways. It may be that high- and low-mobility states have policies or other features that promote or hinder economic mobility for their residents. Alternatively, it could be that some states attract or retain highly mobile people better than others. In order to examine whether the economic mobility estimates are driven by geographic mobility, or whether states do as well by current residents as by those born there, we compared the average economic mobility of people who moved out of their state of birth ("movers") to those who were living in their birth state when surveyed for the SIPP ("stayers"). The geographic mobility results are based on a subsample of 48,316 individuals for whom state of birth was identified in the SIPP.[9] We also examined if there are differences in regional comparisons to the national average depending on whether we categorize people by their state of birth or their state of residence when surveyed in the SIPP. Sample sizes were too small to make statements about geographic mobility for individual states, so the state geographic mobility estimates were aggregated to the regional level. Additional sample loss occurred due to attrition, since the SIPP migration questions were asked in later waves of each panel.

Notes

1 Income is a broader measure of family resources than is earnings. Earnings include wages and salary from a job and are just one source of family income. Other sources of income could include interest and dividends, rental income, cash transfers (such as Social Security and public assistance), pensions, and child support.

2 The SSA MEF data is on earnings; individual, family, and household income estimates are unavailable.

3 SER values that are exactly at the taxable maximum are imputed using either the DER value or the Annual Social and Economic Supplement to the Current Population Survey.

4 Davis, Jonathan and Mazumder, Bhashkar (2011). "An Analysis of Sample Selection and the Reliability of Using Short-term Earnings Averages in SIP-SSA Matched Data."

5 Wyoming switches from the Alaska, Idaho, Montana group to the Iowa, ND, SD group in the 1996, 2001 and 2004 SIPP panels.

6 State of residence is not available in the SSA MEF file.

7 This measure is based on previous work done in the context of intergenerational mobility by Bhattacharya and Mazumder (2010).
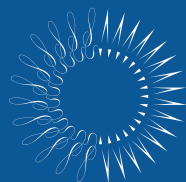
8 Given the size of the national sample, we assume the national and state samples are independent.

9 The geographic subsample does not include foreign born individuals because by definition they do not have an identified birth state in the U.S. An examination of states with high proportions of foreign born suggests that there is no consistent relationship between these states and our economic mobility outcomes.

By forging a broad and nonpartisan agreement on the facts, figures, and trends related to mobility, the Economic Mobility Project is generating an active policy debate about how best to improve economic opportunity in the United States and to ensure that the American Dream is kept alive for generations that follow.

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