Mobility within and between Generations

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Abstract

This paper discusses the implications of year-to-year earnings mobility for the interpretation of the rise in earnings inequality and for the measurement of intergenerational mobility. It develops a model that shows the links among cross-sectional inequality, intragenerational mobility, and intergenerational mobility, and it summarizes the evidence from recent studies that have used longitudinal data to distinguish between permanent and transitory earnings variation.

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Mobility within and between Generations

Most of the papers for this conference discuss the remarkable increase in earnings inequality that has occurred in the United States over the last two decades. The main evidence of this phenomenon is the rising earnings dispersion apparent in cross-sectional data sets such as the Current Population Survey. Such point-in-time "snapshots" of the earnings distribution, however, are ill-suited for assessing whether the increase in cross-sectional earnings inequality reflects a growing gap between the earnings of the chronic haves and the chronic have-nots, or whether it reflects increased year-to-year volatility in earnings. In the first scenario, the increase in cross-sectional inequality signifies an increase in *long-run* inequality – the chronically rich have gotten relatively richer and the chronically poor poorer. In the second scenario, long-run inequality may have increased very little; instead, there has been an increase in year-to-year "churning" through the ranks of the annual earnings distribution. Has the earnings gap between the haves and have-nots widened, or is there a heightened tendency for an annual re-shuffling of who the haves and have-nots are? Answering this question requires going beyond the snapshots available from cross-sectional data sets and examining longitudinal data that track the same individuals over time.

The first section of this paper, "Mobility within a Generation," formalizes this point with a simple model of earnings variation over the life cycle. Then, with that model as an organizing framework, it reviews the newly emerging longitudinal evidence on how the growth in earnings inequality divides between increases in the permanent and transitory components of earnings variation.

The second section, "Mobility between Generations," raises a different, but related question: To what extent is position in the earnings or income distribution passed from one generation to the next? Do we live in a highly mobile society in which one's economic success is nearly independent of whether one's parents were rich or poor? Or do we live in a caste society in which one's economic success is largely predestined by one's origins? This section combines the first section's model of earnings variation with a model of intergenerational transmission to explain why the distinction between current and long-run income is crucial for measuring the extent of intergenerational mobility. Then, in light of the combined model, it reviews what has been learned from recent research based on new intergenerational data sets. Finally, it raises the as-yet-unsettled question of whether the increase we have witnessed in intragenerational inequality has brought with it a decline in intergenerational mobility.

1. Mobility within a Generation

The important connection between cross-sectional earnings inequality and year-to-year earnings mobility can be illustrated with a simple model. Let y_{ibt} denote the measured real annual earnings in year t of the i^{th} worker born in year b. Suppose that y_{ibt} is determined according to

$$(1) \qquad y_{ibt} = \exp[a_{ib} + b(t-b) + e_{ibt}]$$

where a_{ib} represents the combined earnings effects of the individual's more-or-less permanent attributes. These may include potentially measurable attributes like years of

schooling as well as less readily measured attributes like motivation, intelligence, and interpersonal skills. The parameter $b > 0$ reflects the tendency for earnings to rise over the life cycle. The term e_{ibt} represents transitory departures of measured earnings from the individual's life-cycle earnings trajectory. These consist of both true transitory earnings fluctuations and random measurement errors.

The earnings model in equation (1) implies a conveniently linear model for the natural logarithm of earnings:

$$(2) \qquad \log y_{ibt} = a_{ib} + b(t - b) + e_{ibt} .$$

Now, for the sake of simplicity, assume that a_{ib}, b, and e_{ibt} are mutually independent and that $Var(a_{ib}) = s_a^2$, $Var(b) = s_b^2$, $Var(e_{ibt}) = s_e^2$, and $Cov(e_{ibt}, e_{ibs}) = 0$ for $t \neq s$. Then the dispersion of relative earnings in year t can be expressed by the variance of log earnings:

$$(3) \qquad Var(\log y_{ibt}) = s_a^2 + b^2 s_b^2 + s_e^2 .$$

Equation (3) delivers a couple of important lessons about the sources of cross-sectional earnings inequality in a particular year. First, if earnings inequality is measured for the entire labor force, one source of the measured inequality is the second term, which reflects inter-cohort variation in stage of the life cycle as of year t. As emphasized by Paglin (1975), this source of cross-sectional inequality need not imply any fundamental inequity. This year's 45-year-olds tend to earn more than this year's 25-year-olds, but in

the year $t+20$, the current 25-year-olds will get their turn to be the higher-earning 45-year-olds. From a lifetime perspective, then, the current 25-year-olds and 45-year-olds may be on an even footing. This lesson has long been appreciated by economic researchers, and all of the excellent studies of the recent rise in earnings inequality have been careful to distinguish between within-cohort and between-cohort earnings variation.

Second, even within a cohort, cross-sectional earnings inequality stems from two sources – the long-lasting inequality represented by s_a^2 and the transitory variation represented by s_e^2. The portion of the latter that reflects true earnings volatility, rather than measurement error, can have serious welfare consequences. For example, a transitory earnings drop can force a liquidity-constrained worker to cut back his or her current consumption. Nevertheless, in terms of lifetime earnings inequality, transitory fluctuations of e are of much smaller consequence than the variation in a, which represents the lifelong earnings gap between the chronic haves and the chronic have-nots. If worker i has greater earnings this year than worker j because worker i drew a luckier e this year, that contributes to this year's measured inequality. But worker j may get the luckier draw next year, and in the long run the luck will mostly even out. What will matter most for lifetime inequality is variation in a.

This point can be formalized by analyzing the present value of lifetime earnings implied by the earnings model in equation (1).[1] Reduce notational clutter by dropping the b subscript, normalize $x = t - b$ to equal 0 in the worker's first year of employment, assume a constant real interest rate r, and simplify by assuming infinitely-lived careers. Then worker i's present value of lifetime earnings is

$$(4) \qquad V_i = \sum_{x=0}^{\infty} \exp(a_i + bx + e_{ix})(1+r)^{-x}$$

$$\cong \sum_{x=0}^{\infty} \exp(a_i + e_{ix}) \left(\frac{1+b}{1+r} \right)^x$$

$$= \exp(a_i) \sum_{x=0}^{\infty} \exp(e_{ix}) \left(\frac{1+b}{1+r} \right)^x .$$

The logarithm of the worker's present value of lifetime earnings is

$$(5) \qquad \log V_i \cong a_i + \log \left[\sum_{x=0}^{\infty} \exp(e_{ix}) \left(\frac{1+b}{1+r} \right)^x \right]$$

$$\cong a_i + \log \left[\sum_{x=0}^{\infty} \left(\frac{1+b}{1+r} \right)^x \right] + \frac{\sum_{x=0}^{\infty} e_{ix} \left(\frac{1+b}{1+r} \right)^x}{\sum_{x=0}^{\infty} \left(\frac{1+b}{1+r} \right)^x}$$

$$= a_i + \log \left(\frac{1+r}{r-b} \right) + \frac{r-b}{1+r} \sum_{x=0}^{\infty} e_{ix} \left(\frac{1+b}{1+r} \right)^x$$

where the second line comes from a first-order Taylor series approximation around $e_{ix} = 0$ and the third assumes that $b < r$.

Then the inequality in the logarithm of lifetime earnings can by measured by

$$(6) \qquad Var(\log V_i) \cong \sigma_a^2 + \sigma_e^2 \left(\frac{r-b}{1+r}\right)^2 \sum_{x=0}^{\infty} \left(\frac{1+b}{1+r}\right)^{2x}$$

$$= \sigma_a^2 + \sigma_e^2 \left(\frac{r-b}{1+r}\right)^2 \frac{(1+r)^2}{(r-b)(2+r+b)}$$

$$= \sigma_a^2 + \sigma_e^2 \left(\frac{r-b}{2+r+b}\right) .$$

For comparison, recall from equation (3) that the within-cohort variance of current log earnings in a particular year is $\sigma_a^2 + \sigma_e^2$. Equation (6) shows that the variance in the log of lifetime earnings involves the same terms, but multiplies σ_e^2 by the factor $(r-b)/(2+r+b)$. Even if r exceeds b by as much as 0.10, this factor is less than 0.05. Furthermore, if we dispensed with the fiction that careers are infinite, the factor would become even smaller.

Two implications immediately follow. First, cross-sectional inequality as measured by the within-cohort variance of log earnings in a particular year overstates lifetime inequality by almost the entirety of the transitory variance component σ_e^2. This point – that volatility in measured annual earnings inflates cross-sectional inequality relative to lifetime inequality – has been stressed by many previous writers, such as Lillard (1977) and Shorrocks (1981). Second, if the magnitudes of the permanent variance

component s_a^2 and the transitory component s_e^2 are at all similar, the permanent component s_a^2 dominates the variance of log lifetime earnings.

With cross-sectional data, it is impossible to distinguish s_a^2 and s_e^2, and therefore impossible to ascertain what proportion of cross-sectional inequality reflects long-run inequality. Separation of the permanent and transitory components requires longitudinal data that track the same workers over time. In terms of the model developed here, longitudinal data identify not only the cross-sectional variance $s_a^2 + s_e^2$, but also the autocovariance s_a^2 (and hence the difference s_e^2 as well). To put it another way, since longitudinal data reveal how persistent a worker's relative earnings status is across years, they identify the autocorrelation $s_a^2 / (s_a^2 + s_e^2)$, which is just the proportion of the cross-sectional variance due to permanent variation. This autocorrelation also can be read as an inverse index of year-to-year earnings mobility. In more complex and realistic models of earnings dynamics (which recognize, for example, that the transitory earnings component is serially correlated), the distinction between the sources of earnings variation is more subtle, but the availability of autocovariance information from longitudinal data remains the key tool for identification.

Econometric studies of earnings dynamics have become an important segment of empirical labor economic research since longitudinal data on nationally representative samples first became available during the 1970's. The classic study by Lillard and Willis (1978), for example, used the first seven years of data from the Panel Study of Income Dynamics to estimate a model only slightly more elaborate than the one presented here. Their results indicated that the permanent variance component accounted for between 61

and 73 percent of the cross-sectional variance in measured log annual earnings. Since then, lengthier earnings histories have become available, and many subsequent researchers have used these to estimate more sophisticated models (allowing, for example, for heterogeneity across individuals in the earnings growth rate b, permanent shocks to earnings, and heteroskedasticity and more complex forms of serial correlation in the transitory component). With respect to the division of cross-sectional inequality into its permanent and transitory components, however, the qualitative results of these studies have not been dramatically different from those of Lillard and Willis.[2]

The longitudinal evidence, then, has revealed that much of cross-sectional earnings inequality is permanent, but the share due to earnings volatility also is substantial. At a conference on the trend toward increased inequality, it is obvious what the next question must be: How much of the increase observed in cross-sectional earnings inequality is due to a rise in the permanent variance component and how much to a rise in volatility? Answering this question is crucial, first, because if much of the increase has occurred in the permanent component, the rise in cross-sectional inequality signifies a widening gap between the chronic haves and the chronic have-nots. Second, decomposing the inequality increase into persistent and transitory components will help generate clues about *why* earnings inequality has risen.

The model we have used so far is inadequate for the analysis of rising inequality because it does not allow for trends – the variances and autocovariances of log annual earnings are time-invariant. To incorporate trends in earnings inequality, Katz (1994), Moffitt and Gottschalk (1995), Haider (1998), and Baker and Solon (1998) have suggested a simple extension of the model in equation (2):

(7) $\log y_{ibt} = p_t[a_{ib} + b(t-b)] + l_t e_{ibt}$.

The notation p_t for the first year-specific factor loading is intended to evoke "price," in accordance with the common interpretation of rising earnings inequality as an increase in the relative price of skills.[3] Whatever its interpretation, this factor loading generates shifts over time in the variance of the permanent component of earnings variation. Similarly, the other year-specific factor loading l_t shifts the variance of the transitory component. Within a cohort, the variance of log annual earnings in year t now becomes

(8) $Var(\log y_{ibt}) = p_t^2 s_a^2 + l_t^2 s_e^2$.

In this model, cross-sectional earnings inequality can increase because of an increase in either p_t or l_t. If the increased cross-sectional variance stems solely from an increase in p_t, the rise in cross-sectional inequality signifies an increase in long-run inequality, with a widened gap between the chronic haves and the chronic have-nots. If instead it stems solely from an increase in l_t, lifetime inequality rises very little; instead, there is increased year-to-year re-shuffling of workers' order in the annual earnings distribution.

Although these two versions of rising inequality are quite different, they cannot be distinguished with cross-sectional data, which provide no basis for ascertaining the source of the observed variance increase. The autocovariance information provided by longitudinal data, however, can enable a distinction. In an era when p_t rises to a higher

level, the autocovariances grow along with the variances. Indeed, if p_t increases without a change in l_t, the autocovariances grow in greater proportion than the variances, so the autocorrelations increase. In that case, the increase in cross-sectional inequality is accompanied by a decrease in mobility. In contrast, if l_t increases without a change in p_t, the rise in variances is *not* accompanied by a rise in autocovariances, and the autocorrelations decline.

Several recent econometric studies have used U.S. longitudinal data to estimate variants of the model in equation (7).[4] By and large, these studies have found that the increase in earnings inequality in the United States has stemmed from increases in *both* the persistent and transitory components of earnings variation. Haider (1998), for example, concludes that "annual inequality increased because of fairly equal increases in the persistent and instability components." The growth in cross-sectional inequality therefore signifies a growing gap between the chronic haves and the chronic have-nots, as well as a rise in year-to-year earnings volatility.

The finding that long-run inequality has increased is hardly a surprise. A vast literature has documented a rising earnings gap between the more and less educated, so a failure to discern an increase in the permanent variance component would have been startling.[5] A great deal of attention already has been devoted to accounting for this aspect of rising inequality, with many analysts attributing a large part to skill-biased technological change that has increased the relative demand for higher-skill labor.[6]

In comparison, the increase in the transitory component of earnings variation is relatively under-studied and much less understood. Gottschalk and Moffitt's (1994) pioneering study discussed various possible reasons for rising earnings volatility, but

concluded, "We have not located any definitive explanation for the increased transitory variance." For example, they considered whether the large decline in the unionization of the U.S. work force has played an important role, and they found this could be "only a small part of the explanation." Similarly, Baker and Solon (1998) found that Canada also has experienced a substantial increase in earnings volatility even though unionization has not declined nearly as much there as in the United States.

Another possible source of increased earnings volatility is changes in job stability, but the U.S. evidence does not point to a clear-cut trend toward lesser job stability.[7] The possibility remains, though, that more subtle trends in job stability might be part of the story.[8] For example, the Canadian studies by Heisz (1996) and Green and Riddell (1997), like the U.S. studies, do not find a broad trend toward shorter job duration, but they do find an increasing prevalence of both very short *and* very long jobs. Whether such polarization in the job tenure distribution or other changes in job stability patterns can explain much of the rise in earnings volatility deserves further attention.

Although the increased variance in the transitory earnings component is now fairly well established as a salient phenomenon in the U.S. labor market, we have barely begun to figure out what has generated it. The old refrain that "more research is needed" is particularly applicable here.

2. Mobility between Generations

Imagine two societies, society A and society B. The distribution of earnings is identical between the two societies, so the variance of log earnings or any other measure of intragenerational earnings dispersion depicts the two societies as equally unequal. But

suppose that, in society A, one's relative position in the earnings distribution is exactly inherited from one's parents. If your parents were in the 90^{th} percentile of earnings in their generation, it is certain that you place in the 90^{th} percentile in your own generation. If your parents were in the 5^{th} percentile in their generation, you also inevitably place in the 5^{th} percentile. As far as earnings are concerned, society A is an extreme caste society. In contrast, in society B, one's relative position in the earnings distribution is completely independent of the position of one's parents. The offspring of parents in the 5^{th} percentile and the offspring of parents in the 90^{th} percentile show the same distribution of earnings. Unlike society A, society B displays complete intergenerational mobility.

Although societies A and B have the same measured inequality within a generation, I expect most of us would agree that the two societies are tremendously different in the *character* of their inequality. We therefore would like to know where our own society's intergenerational mobility lies along the spectrum between societies A and B. As of a decade ago, the empirical literature on the subject suggested that the United States is much more like society B than society A. More recent analyses, however, have shown that this view was distorted by inattention to the same distinction between current and long-run earnings discussed above in Section 1. When longitudinal data are used to assess the intergenerational transmission of *long-run* earnings status, the United States looks closer to midway between societies A and B.

This point is easily formalized in terms of the earnings model developed in the previous section. Let a_{ic} denote the permanent component of log earnings for a child from family i born in year c, and let a_{ip} denote the permanent component of log earnings for

her/his parent born in year p. Express the intergenerational transmission of relative long-run earnings as

$$(9) \qquad a_{ic} = g + r a_{ip} + u_i$$

where $Cov(a_{ip}, u_i) = 0$ and r is the intergenerational elasticity of long-run earnings. Society B has a r of zero, while societies more like society A exhibit much less intergenerational regression to the mean because they have r close to one.

If the permanent component of log earnings were directly observed, one could achieve consistent estimation of r simply by performing least squares estimation of equation (9). Like most research on trends in earnings inequality, however, most of the early research on intergenerational mobility measured earnings status with single-year or other short-run measures of earnings. To analyze the implications, let y_{ict} denote the child's earnings measured in year t, and let y_{ips} denote the parent's earnings measured in year s. Then, if both of these annual earnings measures are connected to long-run earnings in the way described above in equation (2), the relation between the child's and parent's single-year earnings measures is

$$(10) \qquad \log y_{ict} = g + r \log y_{ips} + b(t - c) - rb(s - p) + u_i + e_{ict} - re_{ips}.$$

If one applies least squares to this regression of the child's log earnings in year t on the parent's log earnings in year s and age controls for both generations, the estimated

coefficient of the parent's log earnings is a downward-biased estimator of r because the measured regressor $\log y_{ips}$ is correlated with its transitory component e_{ips}, which appears in a component of the error term in equation (10). Indeed, if all the error components are uncorrelated with each other, the permanent component of the parent's log earnings, and both generations' ages, then the least squares estimator of r in this regression is subject to the classical errors-in-variables inconsistency

$$(11) \quad \text{plim } \hat{r} = r\, s_a^2 / (s_a^2 + s_e^2) < r .$$

The inconsistency factor $s_a^2 / (s_a^2 + s_e^2)$ is a familiar entity – the share of the permanent variance component in the cross-sectional variance of log earnings in a particular year. Thus, based on evidence like Lillard and Willis' (1978), we would expect least squares estimation of equation (10) with a nationally representative sample to produce an estimate of r about a third below the true value.

Unfortunately, the early researchers of intergenerational mobility did not have access to intergenerational data on nationally representative samples. Instead, they had to resort to data from peculiarly homogeneous samples. For example, the fathers in Behrman and Taubman's (1985) study were drawn from a sample of white male twins in which both members of each twin pair had served in the armed forces and then cooperated with a succession of surveys. Because reliance on such a sample depresses the "signal" variance s_a^2 without a commensurate reduction in the "noise" variance s_e^2, the downward errors-in-variables bias becomes even more severe.

As summarized in Becker and Tomes (1986), the early studies typically estimated the elasticity of son's earnings with respect to father's earnings at 0.2 or less. Based on such evidence, Behrman and Taubman concluded, "The members of this sample come from a highly mobile society," and Becker and Tomes' summary was much the same: "Regression to the mean in earnings in rich countries appears to be rapid." Later, in his presidential address to the American Economics Association, Becker (1988) similarly concluded, "In all these countries, low earnings as well as high earnings are not strongly transmitted from fathers to sons...." In other words, the United States as well as some other countries appeared more like society B than society A.

During the 1990's, a subsequent wave of intergenerational mobility studies has reestimated r with newly available intergenerational data from the Panel Study of Income Dynamics (PSID) and the National Longitudinal Surveys (NLS) of labor market experience. Both of these surveys began with national probability samples in the late 1960's and then followed the children in the sampled families as they matured into adulthood and formed their own households. In recent years, therefore, it has become possible for researchers to relate the children's earnings status as adults to their parents' status, with both generations' earnings variables contemporaneously self-reported. The data from these two surveys have offered two major analytical advantages over the data sets previously available. First, because the data come from national probability samples, they avoid the homogeneity of the samples used in many early studies. Second, the longitudinal nature of the data enables exploration of the empirical importance of using long-run instead of short-run earnings measures.

Even if only single-year earnings measures are used, the larger "signal" variance afforded by the heterogeneity of these samples should reduce the errors-in-variables inconsistency and produce larger estimates of the intergenerational elasticity. As one example, the first columns of Tables 2 and 3 in Solon (1992) show the results from least squares estimation of the regression of the PSID sons' log earnings in 1984 on single-year measures (from each year between 1967 and 1971) of their fathers' log earnings and age controls for both generations. Despite the use of father's single-year log earnings as the key regressor, the estimates of the intergenerational elasticity are around 0.3, considerably higher than most of the earlier estimates.

Even these estimates, though, are presumably downward-inconsistent by about a third. Indeed, the remaining columns in Tables 2 and 3 of my 1992 paper show that the estimated intergenerational elasticity does increase as the "noise" in father's log earnings is reduced by averaging his log earnings over progressively more years. The estimate rises to 0.41 once father's log earnings are averaged over all five years between 1967 and 1971. Although the "noise" remaining in even a five-year average presumably induces at least a minor errors-in-variables inconsistency, this estimate suggests a much less mobile society than depicted by the earlier studies.

Numerous other studies, surveyed in Solon (forthcoming), have similarly used the PSID or NLS to reestimate r for sons. By and large, the results suggest that the elasticity of son's long-run earnings with respect to father's long-run earnings is probably at least 0.4, and the elasticity with respect to parents' family income seems to be somewhat higher. A smaller literature on daughters, exemplified by Chadwick and Solon (1999), suggests that the elasticity for daughters is nearly as high as for sons. The new evidence indicates

that the United States certainly is not an extreme caste society, but neither is it as mobile as the earlier literature had claimed.

In light of the new evidence, concerns about unequal opportunity can no longer be summarily dismissed on the ground that our society resembles Society B. But whether our society has *too much* inequality of opportunity (or not enough) remains quite open to debate. One's views should depend, among other things, on one's beliefs about *why* intergenerational influences on earnings are as strong (and as weak) as they are. Unfortunately, we remain fairly ignorant about the causal processes underlying the intergenerational transmission of earnings. For example, does parental income matter as much as it does because high-income parents are able to invest more in their children's human capital, or because the genetic or cultural traits that contributed to the parents' high earnings are passed on to the children? In any case, even when we have accumulated better evidence on the sources of intergenerational transmission, well-informed, well-intentioned people still will differ in their policy views because of different value judgments about what constitutes a fair earnings distribution and about the extent to which efficiency losses should be suffered to achieve it.

So far, this section's analysis has been based on the time-invariant version of the model from Section 1, and therefore it has overlooked the possible impact of the changes in earnings inequality that have occurred over the past two decades. If we attempt to incorporate those changes by replacing the earnings model in equation (2) with the model with year-specific factor loadings in equation (7), the intergenerational regression equation in equation (10) gets replaced by

$$(12) \quad \log y_{ict} = p_t g + (p_t / p_s) r \log y_{ips} + p_t b(t-c) - p_t r b(s-p) + p_t u_i + l_t e_{ict} - (p_t / p_s) l_t r e_{ips}.$$

Thus, if p_t, the return to skill in the children's generation, exceeds the return p_s experienced by the parents' generation, the intergenerational elasticity appears to become larger than the value r that would pertain if long-run inequality were the same in both generations.

Based on an argument like this, Reville (1995) has conjectured that the rise in earnings inequality may also have caused a reduction in intergenerational mobility. Although his empirical analysis did not yield strong evidence to support his conjecture, he noted that "the number of years of data available with a broad range of ages is too few to yield reliable estimates." As additional years of data accumulate, it would be very worthwhile to continue investigating whether an era of increased earnings inequality is also an era of lesser intergenerational mobility. This question also deserves serious theoretical analysis. The mechanical path by which we arrived at equation (12) treated the intergenerational transmission parameter r as if it were an immutable constant. A deeper theoretical analysis, such as that in Becker and Tomes (1979), would recognize that r is endogenously determined by parents' decisions regarding investment in their children, which in turn are affected by the parents' perceptions of the returns to human capital investment.

3. Conclusions

The cross-sectional dispersion of earnings stems both from persistent disparities between the chronic haves and the chronic have-nots and from year-to-year earnings volatility. Several recent studies therefore have used longitudinal data to decompose the well-documented increase in earnings inequality into persistent and transitory components. The results suggest that the rise in earnings inequality that has occurred in the United States over the past two decades reflects both an increase in long-run inequality and an increase in earnings volatility. The factors contributing to the former phenomenon have received a great deal of attention, but the sources of the latter remain an unresolved puzzle and deserve much more scrutiny.

The distinction between persistent and transitory earnings or income has been crucial also for the measurement of *intergenerational* mobility. New studies that have used longitudinal data to reassess the intergenerational transmission of *long-run* economic status have found that the United States is a less mobile society than previous research had depicted. The question of whether the recent rise in earnings and income inequality has been accompanied by a decline in intergenerational mobility is another worthy topic for further research.

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Notes

[1] The analysis here is similar to Haider's (1998) analysis of a simpler model.

[2] See Baker (1997) for a recent analysis and references to the literature.

[3] See Juhn, Murphy, and Pierce (1993) for an analysis that emphasizes this interpretation.

[4] Gottschalk and Moffitt (1994), Moffitt and Gottschalk (1995), Gittleman and Joyce (1996), Haider (1998), and Buchinsky and Hunt (1999).

[5] Another strong indication of increased long-run inequality is the rising dispersion in consumption expenditures. See, for example, Cutler and Katz (1992) and Attanasio and Davis (1996). Baker and Solon (1998) find increased long-run earnings inequality in Canada as well, even though Canada has *not* experienced a pronounced rise in the returns to education.

[6] See Katz and Autor (forthcoming) for an excellent survey of the literature.

[7] See Jaeger and Stevens (1998) and the references therein.

[8] Stevens (1997) reports that the increase in earnings volatility is particularly concentrated among workers that have lost their jobs.