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THE RISING INSTABILITY OF AMERICAN FAMILY INCOMES, 1969-2004

Evidence from the Panel Study of Income Dynamics

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Most Americans are aware that income inequality has increased in the last 30 years. Less well known is that income *instability*—how much families' incomes fluctuate up and down over time—has also grown substantially.

The Great Risk Shift (Hacker 2006; revised and expanded in 2008) documented a major post-1970s rise in family income instability and argued that it was one indicator of an increasing shift of economic risk from government and employers onto workers and their families. This Briefing Paper updates, improves, and extends these earlier estimates of rising family income instability and discusses potential causes and implications of this trend.

Part of the reason why family economic instability—sometimes called "income volatility"—has not been extensively examined is that aggregate economic statistics have been relatively stable and favorable. Neither the 1991 nor the 2001 recessions were particularly deep, and inflation and unemployment have remained historically low. Yet, as argued in *The Great Risk Shift*, these broadly stable and favorable aggregate indicators mask many signs of declining economic security among American families: dwindling health coverage and the rising financial threat posed by medical costs; the steady demise of pension plans offering a guaranteed benefit for the remainder of a retired workers' life; the growing costs of job dislocations and high levels of involuntary job displacement; the rising levels of household debt, incidences of bankruptcy

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and mortgage foreclosures; and the dwindling of public benefits for American workers, especially in light of the increasing number of workers juggling household duties and paid employment due to the movement of women into the workforce. Along with rising levels of family income volatility, these long-term trends point to serious and growing threats to the economic security of American families that aggregate statistics on growth, inflation, and unemployment largely obscure.

In the time since *The Great Risk Shift* was published, new data have become available and a number of complementary analyses have appeared, all of which confirm the basic finding of rising family income volatility.[1] These developments provide an opportunity to deepen and refine our understanding of this important trend. They also offer a chance to consider the strengths and weaknesses of the data used in studies of family income dynamics, as well as to suggest avenues for future research. Some of these revised analyses appear in the expanded paperback edition of *The Great Risk Shift* (2008). Others were done expressly for this briefing paper.

The main results reported in this brief are:

- The instability of family incomes has risen substantially over the last three decades. Although the precise magnitude of the increase depends on the approach to measuring income variance that is used, we estimate that short-term family income variance essentially doubled from 1969-2004. Much of the rise in income volatility occurred prior to 1985, and volatility dropped substantially in the late 1990s. It has, however, risen in recent years to exceed its 1980s peak.

- The proportion of working-age individuals experiencing a large drop in their family income (50% or greater) has climbed more steadily—from less than 4% in the early 1970s to nearly 10% in the early 2000s. The probability of large income drops varies predictably with the business cycle. Yet it has also trended strongly upward over time. For instance, the 2001 recession, which was mild in macroeconomic terms, was associated with a higher chance of large income drops than the recession of the early 1980s, which was the worst economic downturn since the Great Depression.

- There is an important distinction between *family income* (total earnings, asset income, and transfer income for all members of a family) and *individual earnings.* While the instability of individual male workers' earnings rose sharply between the 1970s and 1980s, it has been more or less stable since then, trending up and down with the business cycle through the 1980s and 1990s, and rising again in the early 2000s. This basic trend—a rise in earnings variability in the 1970s, little clear trend from the early 1980s to the late 1990s, and an upswing in the early 2000s—has been confirmed by numerous analyses, including a recent study by the Congressional Budget Office (CBO). Moreover, this same basic pattern can be seen in data from both the survey-based Panel Study of Income Dynamics (PSID) (which is used in this brief) and the administratively collected Continuous Work History Sample (CWHS) of the Social Security Administration (used by the CBO).

- Contrary to assertions in the popular press, women's increased workforce participation has not been a major factor contributing to the rise in family income volatility. Female earnings have, if anything, become more stable since the 1980s. Male workers have experienced a larger and more sustained rise in earnings instability. Because men's earnings account for a larger percentage of total household income than do women's earnings, on average, rising instability in male earnings helps account for the increase in family income volatility. In short, the stabilizing influence on family income of the decrease in female earnings instability is overwhelmed by the rise in men's earnings instability.

- In addition to the increase in male earnings variability, other likely causes of rising family income volatility include the growing variability of cash transfers and the limited cushioning effect of having a second earner in the household. Although the evidence is limited, there is reason to believe that a second family earner is less of a benefit in terms of income protection today than it was prior to the 1990s. Indeed, in 2004, if a male worker's earnings fell, on average his spouse's earnings fell as well, exacerbating, rather than offsetting, the loss.

- While less educated and poorer Americans have less-stable family incomes than their better-educated and wealthier peers, the increase in family income volatility affects all major demographic and economic groups. Indeed, Americans with at least four years of college experienced a larger increase in family income instability than those with only a high-school education over the past generation, with most of the rise occurring in the last 15 years.

- Finally, levels of family income volatility appear to be extremely high. Family income drops of 50% or greater affected nearly one in 10 non-elderly adults during the early 2000s. Meanwhile, earnings in the United States are also quite variable. The CBO's recent analysis of earnings variance using the CWHS suggests that around 15% of workers experience a drop in their earnings of 50% or greater every year—a level comparable to what we find using the PSID.

The remainder of this Briefing Paper is divided into five sections. First, it lays out the method used and the approach to the major data issues that researchers working in this area must confront. Second, the paper presents the main results and shows that the finding of rising family income instability is robust to alternative analytic choices. Third, it demonstrates that—but for a relatively short period in the early to mid-1990s, when the PSID was changing its procedures—the data appear highly representative and reliable. Fourth, it compares these results with other studies, including a forthcoming study of family income volatility from the CBO that purports to find lower levels of and no rise in family income volatility between 1985 and 2002. Fifth, it briefly discusses some of the potential causes of the rising family income instability that are found. It concludes, finally, by drawing out the broader implications of this analysis for contemporary efforts to address deepening public concern about economic security.

Methods

An examination of the instability of a family's income requires what economists call "longitudinal" or "panel" income data, repeated observations of the income of the same individuals over time (rather than the typical "cross sectional" source of income data, i.e., repeated random surveys of different individuals). The core dataset used in this brief is the Panel Study of Income Dynamics, a highly respected panel income survey that has followed thousands of respondents and their families since the late 1960s—making it the longest continuous panel income survey in the world.[2] Until 1996, the PSID data are available on an annual basis.[3] Thereafter, they are available every other year. Thus, there are income volatility estimates only for even-numbered years after 1996. For the same reason, the estimates of the frequency of large drops in family income compare family income in a given year to family income two years prior. The last year in this analysis is 2004.

The PSID contains several survey groups, most notably, an original sample that was chosen to be nationally representative and a supplementary sample of low-income respondents. This study follows the lead of past PSID users and combines these two samples, weighting the analyses to ensure representative results using newly available longitudinal weights that consistently correct for attrition from the beginning of the survey.[4] This procedure results in data that match up closely with other well-regarded income datasets.

Family income instability can be calculated using various definitions of income and various measures of instability. The original analyses in *The Great Risk Shift* looked at a comprehensive measure of family income that took into account key non-cash benefits as well as taxes. In the analyses reported in this brief, the focus is limited to *pre-tax cash* family income, defined as the sum of labor income, asset income, and public and private cash transfers for all members of a family. This makes the results more comparable with recent studies and addresses some data problems with broader income measures.[5]

The study of family income instability is still in its infancy. Indeed, the analyses that culminated in *The Great Risk Shift* represented the first examination of the changing instability of total family incomes from the 1970s to the early 2000s.[6] In the last decade, however, a large and growing body of research on *male earnings instability* has emerged, giving rise to several approaches to measuring earnings variability. With appropriate modifications, these approaches can also be used for studying family income dynamics.[7]

Although family income instability remains less explored than individual earnings variability, it is more crucial for understanding Americans' economic circumstances. Thanks to the dramatic movement of women into the workforce over the last quarter-century, the vast majority of Americans live in household units where the combined efforts of more than one individual earner add up to total economic well-being. Moreover, earnings are only one revenue stream of several that American families rely upon as income. Public and private transfers and assets also play a critical role. Thus, gaining a full picture of a family's economic resources requires not only looking at earnings from workers in a family, but also accounting for these non-labor sources of income—neither of which is captured in studies of earnings instability, much less of male earnings instability.

In work on male earnings instability, most scholars have followed the seminal contribution of economists Peter Gottschalk and Robert Moffitt in parsing earnings into so-called permanent and transitory components.[8] *Permanent earnings* is a worker's long-term earnings level. *Transitory earnings* is a worker's short-term earnings level, which reflects temporary shocks to earnings. This basic decomposition can be applied to family income as well. *Permanent family income* is a family's long-term income level. *Transitory family income* is a family's short-term income level, which reflects temporary shocks to family income, whether those are due to earnings losses, changes in asset or transfer income, or changes in the composition of a family itself.

In turning the analytic lens from individual workers' earnings to total family income, several issues arise. The most obvious is that family composition can change, affecting both income and the character of a family.[9] To deal with this, the analyses that follow all look at the family incomes of *individuals*, rather than at families taken as a unit.[10] As is standard in research that examines family incomes at the individual level, this study adjusts family incomes to reflect the size of the family.[11] To minimize the effect of schooling and retirement, the analyses examine only individuals older than 25 and younger than 62.[12] All incomes are converted into 2006 dollars using the consumer price index for urban consumers (CPI-U).

In the analyses of family income instability that follow, this study applies the simplest technique outlined by Gottschalk and Moffitt to examine the fluctuation of individuals' total family income relative to their average family income over four-year periods.[13] (Thus, the first estimates are for 1973—four years after the first year of data, 1969.) The resulting values are technically known as the "transitory variance" of family income, but in what follows, they are also referred to as "family income volatility" and "family income instability." The estimates are in a form familiar to economists, variance of log income.[14] Since these numbers can be hard to interpret, we present the results simply as *cumulative percentage change in transitory variance* since the early 1970s.[15]

This brief also reports results from two alternative approaches to measuring family income instability. The first, used in several recent studies of earnings and family income instability, is the dispersion of changes in income over short periods of time. Following recent analyses, this study examines the standard deviation of changes in family income from one year to two years later. (Again, the two-year interval is required when using the PSID because of the move in 1996 to biennial surveys.)

This alternative approach, the measurement of the dispersion of short-term income changes, does not attempt to distinguish between persistent and temporary changes in income, as does the Gottschalk-Moffitt technique. Moreover, it requires devising standards for dealing with the asymmetry between gains and losses of the same size when percentage change is the measure. For instance, a drop in income from $1,000 to $100 is a 90% decline, while the return from $100 to $1,000 represents a 900% increase—a massive percentage increase that is likely to be especially influential when estimating the distribution of changes. A variety of potential algebraic solutions to the asymmetry of percent gains and losses are available. In these analyses, we simply use the difference between logged income at two years in time (for example, 1996 and 1998), which eliminates the asymmetry between losses and gains.[16]

The second alternative measure is even more intuitive: the chance of large drops in family income from one year to two years later. This study looks at the share of individuals experiencing a 50% or greater loss in family income over a two-year period.

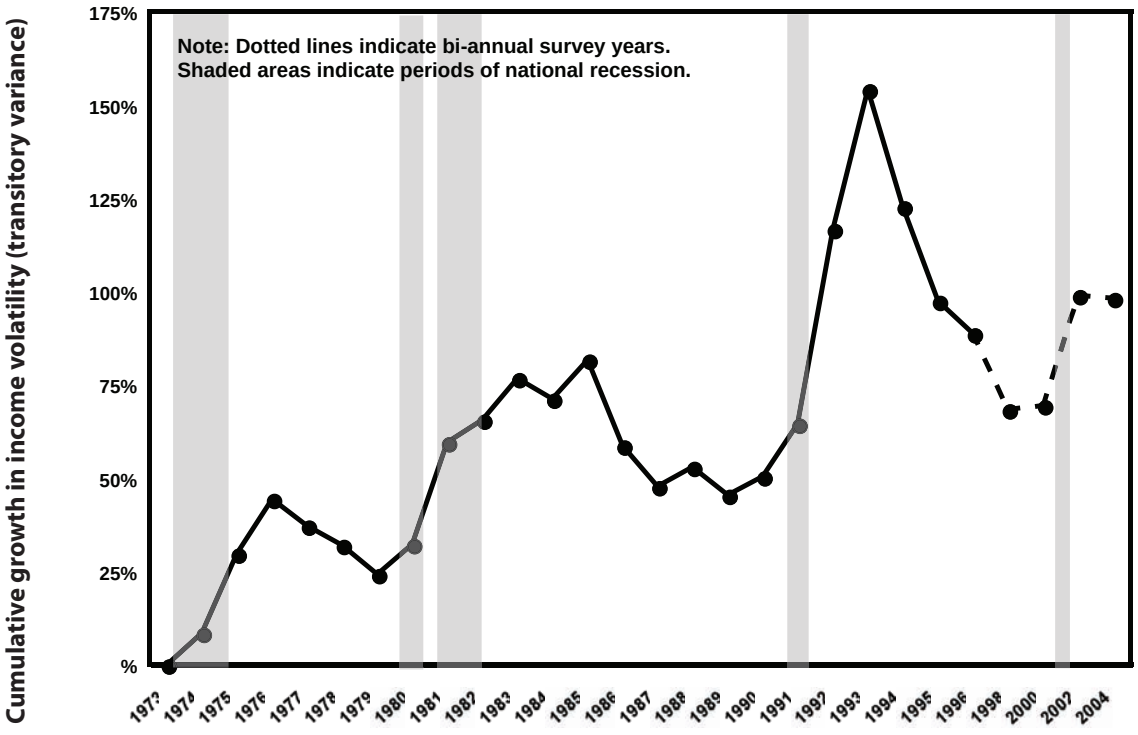
The probability of large short-term drops in family income is perhaps the most intuitive measure of family income instability. Its main disadvantage is its short-term nature—a problem that also plagues the distribution of changes metric. Because these measures rely on only two years of family income data for each individual, they offer little insight into the character of family income shocks. We do not know whether an income drop represents a serious deviation from that individual's medium-term average income, or rather a return to "normal" following a windfall year. For answering this question, the Gottschalk-Moffitt method is a stronger approach. As reported later in this brief, however, there is little evidence to suggest that the large short-term drops found here represent a return to earth after big upward income swings.

More important, all of these measures—transitory variance, the standard deviation of income changes, and the probability of large income drops—show a substantial increase in family income instability. Moreover, once one takes into account differences in the underlying unit of measurement, they also show relatively similar trends. However you measure it, family income instability has grown substantially.

A final note before moving to the results themselves: While the PSID is a well-regarded data source used by many of the nation's top social scientists, questions have been raised about the quality of the data in the 1990s, when the survey procedures changed. For most of the PSID's history, the income reports in the PSID closely match those in other respected datasets, including the Census Bureau's March Current Population Survey (CPS). Nonetheless, the PSID departs from the Current Population Survey at the bottom of the income distribution for roughly five years in the mid-1990s.[17] During this time,

FIGURE A

Cumulative growth in family income volatility since 1973



NOTES: Line shows the cumulative percentage growth in the transitory variance of before-tax total family incomes (logged and adjusted for family size) of individuals aged 25 to 61. The PSID switched to biennial surveys in 1996, thereafter no odd-number years have estimates.

SOURCE: Authors' calculations from the Panel Study of Income Dynamics.

the lowest income categories in the PSID have lower average incomes than seen in other income datasets and the overall variance of the PSID income data jumps.

Although the PSID is working to correct these apparent data problems, which are concentrated in a very small number of cases, several features of this analysis reduce their impact on the estimates reported. First, the analyses here begin by dropping all observations with family income of $1 or less. Second, they trim 1 percentile of the income distribution from the bottom and top of the remaining observations. This not only reduces the impact of very low incomes on the estimates, but also has the effect of eliminating concern about the inconsistent treatment of very high incomes in the PSID.[18]

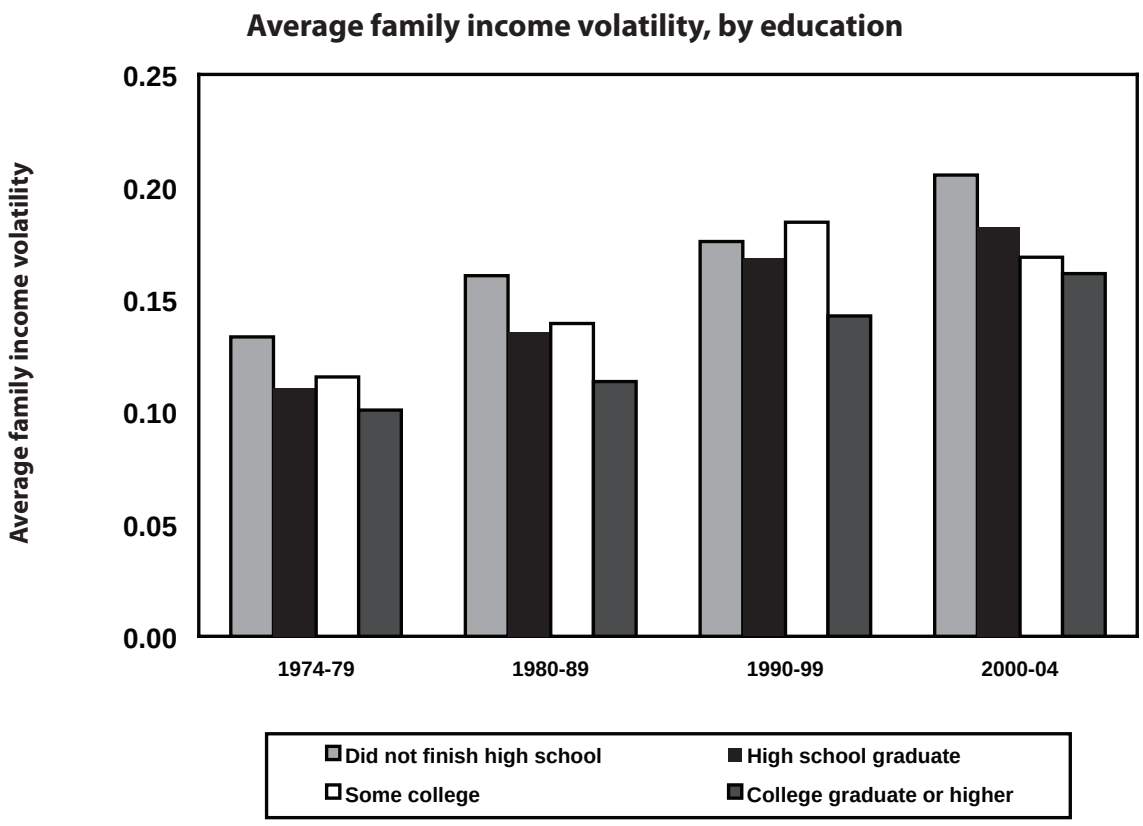
These adjustments bring the PSID income distribution closely in line with that of other respected income datasets. Nonetheless, they do not completely harmonize the PSID and other datasets at the very bottom of the income distribution in the early to mid-1990s, so estimates for this period should be viewed as less reliable than those for the rest of the series. Thankfully, the PSID dataset with our adjustments matches up extremely well with other datasets at both the beginning and the end of the more than three decades we are examining, giving us considerable confidence in appraising the long-term trend.

Results

The basic finding of rising family income volatility is summarized in **Figure A**.[19] From 1973 to 2004, the volatility of total family income increased by 99%—essentially doubling over the period.[20]

Several distinct periods of growth are apparent in Figure A: steady growth through the early 1980s, a flat period in the mid-to-late 1980s, sharp growth in the early

FIGURE B



NOTES: Bars show the average level over each time period of transitory variance of before-tax total family incomes (logged and adjusted for family size) of individuals aged 25 to 61. Education levels are based on the number of years of schooling ("did not finish high school" is fewer than 12 years; "high school graduate" is 12; "some college" is more than 12 but fewer than 16; and "college graduate or higher" is 16 or more).

SOURCE: Authors' calculations from the Panel Study of Income Dynamics.

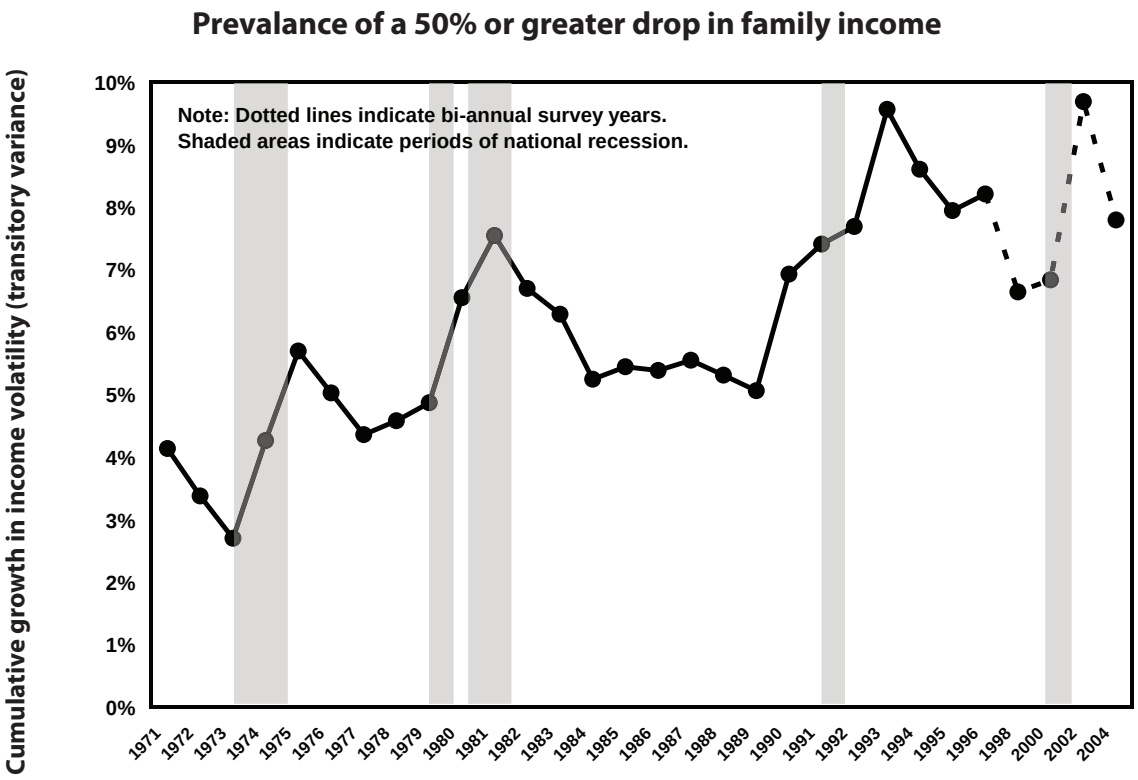
1990s, a dip in the late 1990s, and a slow tick upwards at the turn of the 21st century. The sharpness of the rise in transitory variance during the early to mid-1990s must be viewed with some suspicion due to its coincidence with the major administrative changes in the PSID, as discussed above. Even if it is ignored entirely, however, the overall trend is clear and positive: Income volatility has grown substantially from the early 1970s to the early 2000s.

It might be assumed that less-educated Americans are the only ones to face rising family income instability. Yet, as **Figure B** shows, volatility has risen by roughly the same amount across all educational groups over the full period we examine.

Figure B illustrates that, during the 1980s, working-age adults with less formal education experienced a large rise in family income volatility, whereas those with more formal education saw a more modest rise. Since then, however, family income instability has reached higher and higher up the educational ladder—first touching those who went to college but failed to complete four years, and then spreading to those who had completed four years of college or were even more highly educated. The story of the last few decades is the generalization of the family income instability that once hit mostly the less educated. When it comes to family income instability, more educated Americans are riding the roller coaster once reserved for the working poor.

Other indicators of income volatility suggest the same upward trend over time. Following the lead of a team of scholars lead by Federal Reserve economist Karen Dynan, this report computes the standard deviation of two-year changes in individuals' family income, using 1971 as a reference point. In 1971, the standard deviation was 37.32; by 2004 it was 56.03. In other words, the standard deviation of changes in income grew 51% in three decades, suggesting that the risk of a large income drop

FIGURE C



NOTES: The line traces the share of individuals aged 25 to 61 who experience a 50% or greater drop in before-tax total family income (adjusted for family size) from one year to two years later.

SOURCE: Authors' calculations from the Panel Study of Income Dynamics.

(or gain) is substantially greater today than it was 30 years ago. The lower percentage increase in income volatility using this method, compared with the Gottschalk-Moffitt approach, is mostly because of the differing units of measurement. The standard deviation is the square root of variance. Expressed in terms of standard deviations, the 99% rise in transitory variance found from 1973 to 2004 would be around 40%—very close to what is found using the standard deviation of change metric.

Finally, **Figure C** details the trend in income instability using a more intuitive measure of income volatility: the share of working-age individuals who experienced a drop in family income of 50% or greater over a two-year period.[21] This measure is highly correlated with economic downturns (the shaded portions on the figure), with the risk of large drops increasing when the economy falters and decreasing when it recovers. Nonetheless, the frequency of large income drops trends upward over time, peaking above its previous level during each downturn. In the early 1970s, just over 4% of working-age individuals experienced a drop in their family income of 50% or greater. By the early 2000s, more than 8% did, with the share peaking at nearly 10% in 2002.[22]

In short, the trend in family income instability is strongly upward whatever measure is used. However, it is also worth emphasizing that family income instability, regardless of the exact degree to which it has increased over the last 30 years, is extremely high. Family income drops of 50% or greater affected almost one in 10 non-elderly adults at their peak during the early 2000s. The share of workers who see *earnings* drops of 50% or greater is even higher. These are levels of economic instability that are almost certain to cause substantial financial hardship and personal anxiety, especially given how little most Americans have saved to deal with rainy days in their economic lives.

Comparison with other datasets

The PSID is the only dataset that allows for the analysis of long-term family income dynamics over the full span of the last generation.[23] Does this comprehensiveness come at a major data-quality cost? The answer appears to be no. According to a careful review done in 2000, "PSID data are among the best available on income, wealth, active savings and average annual hourly earnings." In particular, the PSID "seems to get more accurate reports of the poor income circumstances of lower-income families" (see Kim and Stafford 2000). The comparisons in this study suggest that the family income reports in the PSID closely track both the Census Bureau's March Current Population Survey and the CBO's income dataset, which is based in part on administrative tax data and hence considered quite reliable.

Figure D compares the PSID's family income data for working-age adults with the CPS's, with adjustments to each to ensure consistency across the two datasets. As can be seen, the two track each other extremely closely.

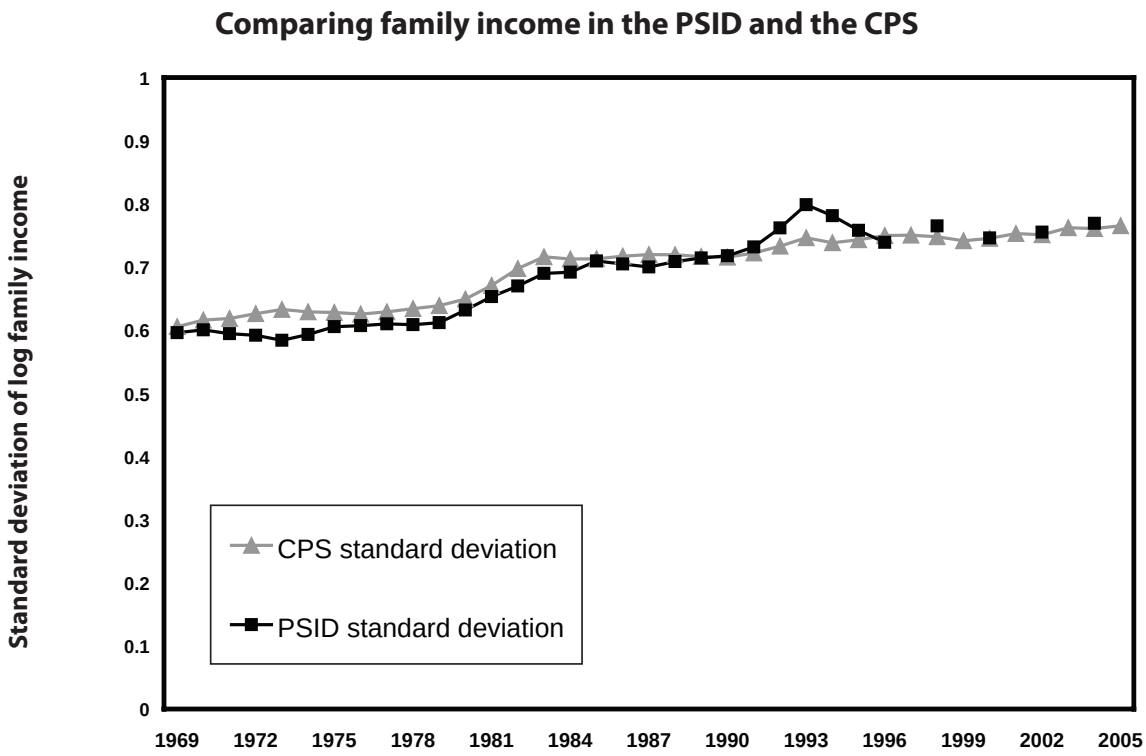
As noted earlier, the one notable point of incongruence between the PSID and other datasets comes during the 1990s, with the differences most pronounced at the bottom of the income ladder. As the PSID review cited earlier (Kim and Stafford 2000) notes, income observations from 1992 through 1996 "have a higher variance and ... this seems to be concentrated in a small number of cases per year….The question is: are these cases real or just data artifacts?" Although the 1991 recession does result in a decrease in incomes at the bottom of the distribution, the sharpness and persistence of the drop strongly suggests that data artifacts do play a role, particularly because the PSID changed its survey administration procedures during the time. As discussed earlier, the treatment of the data here—namely, the dropping of very low income reports—reduces the impact of the small number of questionable observations. Equally important, the problem appears to be largely limited to the early to mid-1990s. By the end of the decade, the PSID once again looks highly representative.[24]

In short, with the exception of the spike in low-income observations in the mid-1990s that this report attempts to compensate for in the analyses (and which do not provide grounds for questioning the long-term trend), the PSID appears highly representative, lending credence to the finding of rising family income volatility.

Comparison with other studies

The trends in family income volatility that are found in this brief using the PSID compare closely to recent estimates made by other scholars. Although these other studies are detailed in the appendix to this brief, two deserve

FIGURE D



NOTES: The lines compare the standard deviation of before-tax total family income (logged and adjusted for family size) of individuals aged 25 to 61 in the PSID and CPS, with the same income trims at the top and bottom of the distribution that were used in the analysis of family income volatility (Figure A). The PSID switched to biennial surveys in 1996, thereafter the PSID standard deviation is only available in even years.

SOURCE: Authors' calculations from the Panel Study of Income Dynamics and Current Population Survey.

particular attention here. In a recent unpublished paper, Peter Gosselin and Seth Zimmerman use a variation of the Gottschalk-Moffitt method and find a 118% cumulative increase in the transitory variance of family income between 1970 and 1998 using the PSID. Given the differences in method and treatment of data, this result is remarkably close to the 99% cumulative increase that is found in this study. Moreover, Gosselin and Zimmerman find a parallel increase in family income volatility between 1983 and 2001 using the Survey of Income and Program Participation, strongly indicating that the rise in family income volatility is not an artifact of the PSID sample.

Likewise, a recent working paper by Karen Dynan, Douglas Elmendorf, and Daniel Sichel finds a 36% increase in the standard deviation of percentage changes in family income between the 1970s and the 2000s. Their method is similar to our analysis of the standard deviation of log differences, which found a 51% increase in short-term changes in family income over the same time period. Again, the lower rise in income volatility found in their analysis appears to be mostly because of the differing data choices they make.[25]

Turning from family income to individual labor income, the PSID also produces results that closely track a recent study by the CBO of *earnings* instability, based on Social Security Administration's Continuous Work History Sample (CWHS). This assertion may come as a surprise, because the CBO study has been widely (and incorrectly) taken to indicate that family income volatility has not risen. Yet the CBO analysis is not of family income volatility. It is of *individual earnings volatility*. (In fact, it is not even of individual earnings volatility, but of wage volatility—because self-employment earnings are excluded.)[26] The CWHS only allows for analyses of workers' earnings—it has no information on family income, and, to the best of our knowledge, does not allow analysts to

identify married pairs in order to compute family earnings. The CWHS has extremely limited demographic information (only the age and sex of workers), and it presents obstacles to examining earnings prior to 1978, because data were not collected on earnings that exceeded the upper threshold on Social Security taxation.

Even though the CBO's analysis is not of family income volatility, we can compare what the CBO finds with comparable analyses of earnings data in the PSID. When we do, we find that the CBO findings are wholly consistent with the results of both older and recent studies that have used the PSID to assess changes in earnings instability—including this report's analyses of trends in labor income instability using the PSID.

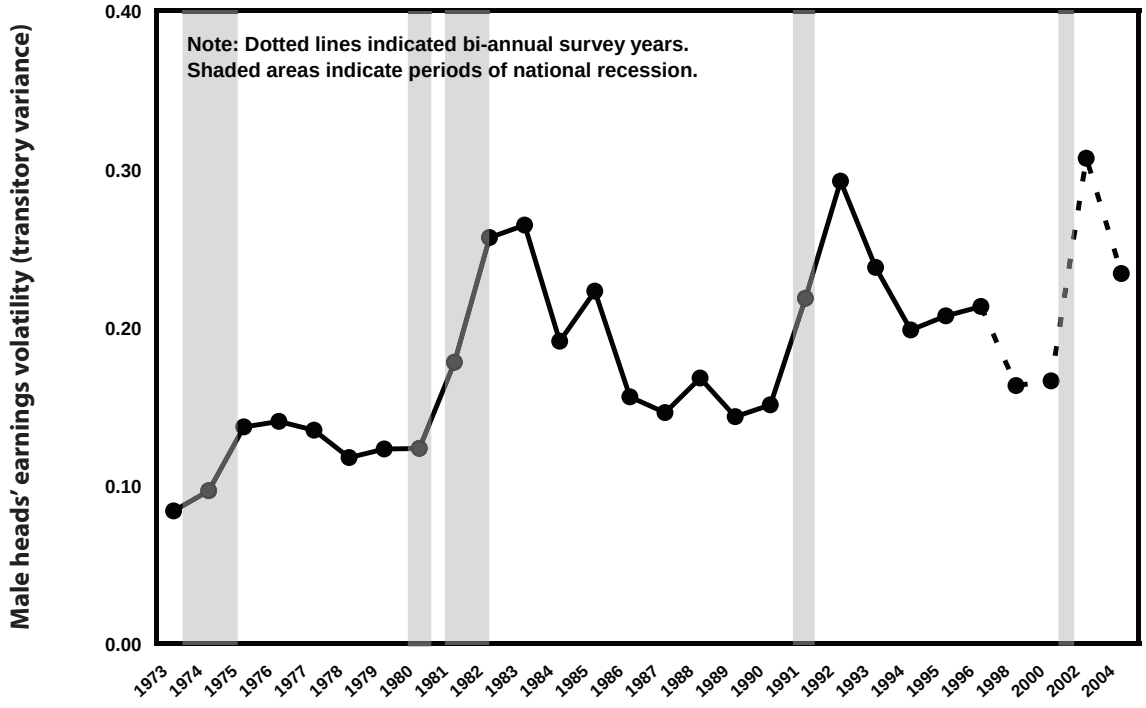
To recognize this consistency, it is important to understand that the CBO study includes the analysis of two samples. First, the CBO tracked individual earnings instability for *all workers* from 1980 through 2003, a period when Social Security wage data were available for workers regardless of earnings level. Looking at the standard deviation of year-to-year percentage changes in earnings, the CBO found remarkably high levels of earnings instability but little consistent trend in earnings instability for individual workers from 1980 through 2003, except for an upswing in instability in recent years.

Second, the CBO study tracks individual earnings instability for the *bottom 40% of workers* from 1961 through 2003, extending their analysis to include a period when accurate Social Security wage data were not available for top-earners. In this second analysis, the CBO found that male earnings variability rose between the 1970s and 1980s.

The CBO's findings are essentially identical to what the PSID shows: generally flat overall earnings volatility since 1980, but a rise in male earnings instability between the 1970s and 1980s. Most analyses of the PSID, including this one, have found that earnings instability has not consistently risen since the deep recession of the early 1980s,

FIGURE E

Male heads' earnings volatility, 1973-2004



NOTES: Line shows the transitory variance of individual labor earnings of male household heads aged 25 to 61. The PSID switched to biennial surveys in 1996, thereafter no odd-number years have estimates.

SOURCE: Authors' calculations from the Panel Study of Income Dynamics.

when the CBO's study begins. But all of them, including our own, show that earnings instability—and particularly male earnings instability—*rose before* the 1980s, as well as trending upward in recent years.[27] **Figure E** shows the transitory variance of individual labor earnings for male household heads aged 25 to 62, i.e., earnings volatility for working-age men. Earnings volatility rose quickly in the 1970s and early 1980s, fluctuated up and down with the business cycle between the early 1980s and late 1990s, and then rose again in the early 2000s—exactly the trend found by the CBO study.

Although we examine labor income in a slightly different way than does the CBO (the CBO looks at a slightly younger group of workers than we do, and does not include self-employment income, as we do), the basic results are close.[28] For example, the CBO estimates that between 10% and 15% of workers experienced year-to-year earnings declines of 50% or more over the last decade. Our estimates put the share in the same range. (Because of the PSID's move to biennial surveys in 1996, we must look at earnings drops from one-year to two-years later. Our own investigations have found, however, that the magnitudes of year-to-year and year-to-two-years-later drops track each other closely and are similar in magnitude.)[29]

More recently, the CBO has indicated that it has examined family income instability from 1984/85 to 2001/02 and, in preliminary results, has found no consistent increase over that period. Because the CBO has provided us with only a basic outline of their findings, data, and methodology, we are unable to fully answer why the CBO analysis diverges from the emerging consensus.[30] However, what we know of their analysis indicates that there are four straightforward reasons why the CBO's findings on income instability differ from all prior analyses—including our own—and why our findings are more likely to be correct.

First, and most important, the CBO utilizes different data than we and the majority of the other volatility scholars do. The CBO study brings together individual earnings data from the Continuous Work History Sample (CWHS), based on Social Security wage records, with longitudinal family income data from the Survey of Income and Program Participation (SIPP). According to those in attendance when the CBO's preliminary results were presented at the American Economic Association's annual meeting in early January, the CBO actually found an increase in family income volatility when it used the SIPP data alone. When they matched SIPP records with Social Security wage data from the CWHS, however, the increase disappeared. The CBO justifies its use of the CWHS earnings data with the claim that SIPP earnings reports may be "inaccurate."[31]

The use of a different data set alone is not reason to be suspicious of the CBO's findings. Indeed, it is encouraging to see that interest in the topic of income instability has inspired researchers to use creative strategies in service of advancing our understanding of family economic insecurity. The problem with the CBO's work lies in the side-effects of their data strategy. By matching SIPP survey data with CWHS administrative data, the CBO throws out a good deal of the sample. According to those who saw the CBO January presentation, the "match rate" between the two datasets declined substantially over time, from 85% in 1985 to just 57% in 2002. It is difficult to believe that nearly half of the SIPP sample was not in employment covered by Social Security. There is thus clear reason to suspect that the CBO's methods result in the exclusion of thousands of families with "valid" information. It is possible that the excluded cases may also be the most volatile, and thus may account for the fact that when they fold in the administrative data from the CWHS (and throw out the unmatched cases), the CBO finds that the rising family income volatility that they and other scholars find in the unadjusted SIPP data disappears.[32]

The three remaining explanations for CBO's anomalous findings are less substantial, but worthy of mention. First, the CBO cuts a significant chunk of observations off of both the bottom and the top of the income distribution (2 percentiles of the distribution) when it analyzes the SIPP, ever after it excludes a sizeable percentage of individuals vis-à-vis the matching process. A key justification for trimming outliers in the PSID is that low or high values caused by measurement error may skew the results, and this convention is followed in this work by making reasonable trims. There is less justification for making such trims when using administrative data, which is arguably more reliable.[33] Dropping individuals who have

either very high or very low incomes in either of the two years used for the analysis of income dynamics obviously will reduce estimates of volatility substantially.

Second, the CBO study uses 1984 as its baseline for comparison, which is an odd choice since 1984 falls between not one but two national recessions—one of which was the worst economic downturn since the Great Depression. It is odd that the CBO does not provide results for every year between 1984 and 2002, as other scholars who use the SIPP have done, in order to allow a better sense of the dynamics of the results over time. In any case, there is every reason to believe that 1984 represents a local peak in volatility over the 1970-2004 period.

Third, it is difficult to reconcile the CBO's 2007 findings on individual earnings volatility with their recent findings on family income volatility. In their 2007 findings, the CBO found between 10% and 15% of people experienced year-to-year labor income drops of 50% or greater. In its current analysis, the CBO finds year-to-year family income drops of 50% or greater in only about 4% of cases, which appears quite low and suggests an unrealistic amount of cushioning through government transfers and the work effort of other family members. Moreover, the CBO's recent results do not include the effect of taxes, which means that the income-buffering impact of the Earned Income Tax Credit is not taken into account. The vast divergence between the CBO's two sets of results is reason to view the latter with some skepticism.

In sum, with the exception of the CBO's most recent volley, our results are highly consistent with other recent studies of family income volatility, and the trends in individual earnings volatility in the PSID match closely the trends found in the Social Security administrative data.[34]

Explaining the rise in volatility

What is driving the substantial rise in family income volatility? Additional studies will be needed to answer this question definitively, but these findings and other recent analyses offer several important clues.

First, the earnings of male workers have become markedly more unstable since the 1970s. This shift is obscured in the CBO study because of the use of 1980 as the baseline for its analysis of all workers—a move necessitated by the limits of Social Security wage records. The early 1980s stand out as the roughest period for workers since the 1970s, rivaled only by the early 2000s.[35] It would be hard to find a more turbulent period for workers to establish as the benchmark for whether earnings instability has changed.

If, by contrast, the comparison is between the early 1970s and early 2000s, the rise in male earnings instability becomes undeniable. And because men still contribute considerably more to household income on average than do women, growing variability of male earnings has a major effect on overall family income stability.

Second, transfer income—cash benefits received by families from government programs—has also become more volatile since the 1970s.[36] Dynan and her colleagues' analysis suggests that transfer income volatility of heads and spouses rose by 31% between the 1970s and the early 2000s, using the standard deviation of percentage changes as the metric of volatility (Dynan et al. 2008). Several recent analyses, however, indicate the importance of considering varying causes of income volatility for different income groups, particularly with regard to persistently low-income Americans as compared to their wealthier peers. While the Dynan team finds an overall increase in transfer income volatility as compared to 1970, others have found that transfer income volatility actually *decreased* in recent years among the poor. For instance, two recent analyses suggest a decline in the volatility of transfers received by the poor after the 1996 welfare reform legislation, mainly because many fewer poor families received cash assistance from the government after 1996. Those remaining recipients of cash assistance may have been more likely to be disabled and therefore beneficiaries of stable and reliable government aid. While transfer income volatility decreased, total family income volatility for low-income families increased substantially during the second half of the 1990s, perhaps because of the move from relatively stable government cash transfers to the highly volatile arena of low-wage work.[37]

Third, the rising prevalence of two-earner couples does not appear to have provided a big income cushion to families. Family income grew more unstable between 1973 and 2004, even as women entered the labor market *en masse* and two-earner couples became more common.

Two-earner couples should have less income volatility than single-earner families, because they can share income risk across two earners. For instance, if the sole worker in a single-earner family loses his job, the household might incur a 100% income loss. But if the male earner in a dual-earner family loses his job, his wife's earnings cushion the blow, so the loss might be just 50%. Yet while two-earner couples have become more common, family income volatility has risen—even among two-earner couples.

Beneath the aggregate trend, however, appear two broad eras. From the early 1970s till the mid-1980s, the cushioning effect of a second earner seems to have risen, reflecting the rapid movement of women into the labor force. But since the 1980s, the trend has reversed. In 2004, spouses stepped up their earnings only about a third of the time when household heads' earnings fell—lower than in any year since 1981. Moreover, the amount by which spouses' labor earnings offset drops in household heads' labor earnings appears to have declined since its peak in the mid-1980s. In 2004, in fact, when household heads' labor earnings dropped by more than 5%, on average their spouses earnings dropped as well.[38] Apparently, the cushioning effect of a second earner is reduced when families are already running the two-worker engine at full throttle.

On the other hand, there is little support for the notion that the increased workforce participation of women *increases* family income volatility. A 2007 report by the think tank Third Way contends that:

> ...a principal reason for greater income volatility is both simple and benign—motherhood. In the 1970s, a minority of mothers were in the workforce and their pay was relatively low. By the 1990s, a majority of mothers were in the workforce and their pay was much higher. Because women today have a much more prominent role in the economy, their movements in and out of the workforce to take care of children are having bigger impacts on income volatility. When mothers re-enter the workforce, family incomes increase. This also counts as income volatility. (Kim et al. 2007)

This is a plausible claim, but there is no support for it in existing studies of family income volatility. To the contrary, married couples with two earners have lower income volatility than married couples with one earner, and the rise in family income volatility among dual-earner couples has been less steep than the rise among single earners. This suggests that, if anything, the rise in dual-earner families actually helped mitigate the overall rise in income volatility. At the same time, the gender gap in labor earnings volatility has been declining, suggesting that dual-earner couples are actually less likely to lose the wife's labor income than in the past. Yet family income volatility has continued to rise for dual-earner families, albeit at a slower rate than for other family types. Moreover, preliminary analyses suggest that the birth of a child has the same impact on family income volatility today as it did in the mid-1970s, which makes it difficult to argue that mothers' movement in and out of the labor force is the key to understanding the rise in family income volatility.

Moreover, the rise in family income volatility is not confined to any one demographic group, such as the poor or poorly educated. Average volatility is higher for women than for men, for African Americans and Hispanics than for whites, for those who never went to college than for those who have a college degree, for younger workers than for older workers, for the poor than for those who are not poor, and for single adults than for married-couple families. Yet the *increase* in volatility has occurred across all these groups. Indeed, workers with four years of college or more have seen a slightly larger increase in the instability of their incomes than did workers with only a high school education. The rise among more-educated workers, however, mostly occurred in the 1990s and after, whereas family income volatility rose sharply in the 1980s among less-educated workers.

The sharp rise in family income instability among highly educated workers might suggest that instability is driven by "windfall" years when families have a sudden large infusion of income—such as a sizable pay bonus, the capital gains from selling a home, or an inheritance. It is the case that the chance of both upward and downward short-term income shocks has increased; that, after all, is what an increase in income volatility means. But it is not the case that the increased chance of large income drops reflects a growing prevalence of "windfall" years. In fact, excluding from the analysis of income drops those with

very large prior income gains has virtually no effect on either the level or the trend.[39] The chance of large income drops has risen because people are more likely to tumble down the income ladder than they were in the 1970s, not because they are more likely to enjoy huge income gains in a single year and then ease back to their "normal" income.

Finally, short-term income volatility is distinct from longer-term upward or downward mobility. There is no evidence that long-term mobility—whether absolute mobility or mobility across income groupings or intergenerational mobility—has changed fundamentally during the era in which short-term income volatility has grown. Indeed, recent studies suggest that long-term upward mobility is basically flat, and that intergenerational upward mobility is lower in the United States than other affluent nations.[40] The chance of long-term downward mobility may be higher today than in the past—at least when the focus is earnings. But the focus here is short-term income instability, which has clearly increased—a challenge to the ideal of economic security that is a critical part of the American Dream.[41]

Much work still needs to be done to explain the rising instability of family incomes. The basic trends, however, are increasingly clear: Male earnings have become less stable, and family incomes have followed suit. At the same time, government transfers appear to have become less stable. While many families have gained a second earner, doing so appears to provide less protection against income fluctuations than it did in the past. And the instabilities that were once confined to those with limited education have spread to workers higher up the educational ladder.

Conclusion

Workers and their families are increasingly on an economic roller coaster, shooting upwards in good years and plunging downward in bad. These up-and-down fluctuations are worthy of concern in their own right. Yet they also demand attention because of what they suggest about the American economy: Workers and their families are bearing more risk, even as the macro-economy (as measured by aggregate indicators like growth and inflation) has become more stable. Aggregate statistics provide a less and less reliable picture of what workers and their families are experiencing in their own economic lives.

The rise in family income volatility would be less troubling if it was accompanied by dramatic income gains for the middle class. But, of course, this is not what has happened. According to the comprehensive post-tax income series of the CBO, average family income (adjusted for inflation and including public benefits) among the middle fifth of American families rose by 21% between 1979 and 2005. By contrast, the after-tax family income of the richest 1% of Americans increased by 230%. Meanwhile, workers in middle-class families are devoting much more time to paid work, mainly due to the increase work hours of women. Indeed, most of the income gains of the middle class are because of these increased work hours, rather than rising earnings. Even as family incomes are fluctuating more sharply, then, families are working harder for only modestly more income.

A wealth of research in psychology and economics suggest that major income fluctuations create not just financial hardship, but also anxiety and discontent. As economic actors, people are highly "loss averse," meaning they fear losing what they have far more than they welcome gaining what they do not have.[42] Commentators often assume that drops in income are irrelevant if people can maintain their spending. Yet research suggests that a wide range of important outcomes—happiness, child well-being, even, perhaps, obesity—may be worsened by sharp fluctuations in income.[43]

Moreover, the main way in which Americans maintain their spending—by borrowing—has led to a growing problem of indebtedness, bankruptcy, and home mortgage foreclosure. The personal saving rate has fallen from an average of 9.1% in the 1980s to an average of 1.7% so far this decade. Between the same periods, household debt as a percentage of aggregate personal income essentially doubled, rising from 60% to 100%—and in 2006, aggregate debt approached 120% of aggregate income.[44] As a result, middle-class families have strikingly little in the way of liquid wealth with which to deal with short-term income fluctuations. According to a recent analysis of families with incomes between two and six times the federal poverty level and headed by working-age adults, more than half of middle-class families have no net financial assets (excluding home equity), and nearly four in five middle-class families do not have sufficient assets to cover

three-quarters of essential living expenses for even three months should their income disappear (essential living expenses include food, housing, clothing, transportation, health care, personal care, education, personal insurance, and pensions).[45]

Until recently, the constraints on family finances posed by these trends were masked by the strong housing market, which allowed families to borrow against their home equity to finance present spending. But with the recent housing slump and credit crunch driven by the proliferation of risky sub-prime loans, this is no longer a ready option. The late Herbert Stein, chairman of Nixon's Council of Economic Advisers, once reportedly pronounced that "Things that can't go on forever, don't." Families cannot maintain consumption through borrowing forever, and the bill that eventually comes due can devastate family finances.

Still, income stability is not a direct measure of economic security. Economic security is best thought of as adequate protection against hardship-causing economic shocks that are at least partially beyond personal control. Fluctuations in income obviously cannot capture the risk that large expenses, such as catastrophic medical costs, pose to household budgets. Nor do they say anything about the massive increase in the risks posed by retirement (as responsibility for retirement planning has shifted from employers to workers) or the risks posed by higher education (as the cost of college tuition has skyrocketed and the returns to higher education have become more variable). And short-term income fluctuations provide little insight into the prevalence or severity of long-term downward mobility.[46] Future research should delve into all these topics.

Ultimately, no single measure can capture a worker or family's economic security. The best approach is to use multiple indicators, including, when possible, individuals' own subjective perceptions of their economic vulnerability.[47] Nonetheless, if the measure is income instability, the verdict is clear: Families are facing much greater up-and-down income swings than they did a generation ago. In an era of declining volatility in aggregate economic conditions, Americans are facing much greater economic volatility at work and home. All signs are that they are increasingly anxious about their economic security and looking to their nation's leaders for fresh ideas and real action.[48]

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Appendix: Comparison of findings with other studies

TABLE 1

Comparison of findings with other studies, male earnings

MALE EARNINGS

	Data	*Outcome*	*Methods*	*Results*
Gottschalk and Moffitt (1994, p. 217-72)	PSID; white male household heads age 20-59	Male heads' annual earnings	Decomposition of variance into permanent and transitory components (simple descriptive regressions)	Transitory variance in male earnings exhibits an upward trend between the 1970s and 1980s.
Moffitt and Gottschalk (1995)	PSID; white male household heads age 20-59	Male heads' annual earnings	Decomposition of variance into permanent and transitory components (both simple descriptive regressions and structural models of the earnings dynamics process)	Transitory variance in male earnings exhibits an upward trend between the late 1960s and late 1980s.
Cameron and Tracy (1998)	Matched CPS data (pseudo-panel); Sample includes civilian men between ages 18-63; Excludes students, self-employed, individuals without positive earnings and positive work hours in both observed years, observations with imputed earnings; Trims top and bottom 1.5% of each year's earnings distribution	Males' annual earnings	Decomposition of variance into transitory and permanent components, replicating Gottschalk and Moffitt (1994)	1. Transitory variance in male earnings increased by roughly 63% over the 1968-97 period. 2. Transitory variance peaked between 1982-86 and trended down from 1986-97. 3. Transitory earnings variance is highest for high school drop-outs, young workers, and those in the bottom quintile of the earnings distribution. 4. A large proportion of the rise in average transitory variance in earnings is explained by the rising prevalence of very large shifts at the tails of the distribution, i.e., big gains and losses have grown more extreme over time. The fraction of workers with relatively little earnings volatility has not changed much over time. 5. Transitory earnings variance is quite sensitive to the business cycle

TABLE 1 (CONT.)

Comparison of findings with other studies, male earnings

MALE EARNINGS

	Data	*Outcome*	*Methods*	*Results*
Haider (2001, p. 799-836)	PSID; white male household heads ages 25-60 with positive earnings; excludes students and retirees	Male heads' annual earnings	Decomposition of variance in transitory and permanent components, building upon Gottschalk and Moffitt's original model	1. Transitory variance in male earnings exhibited a secular increased during the 1970s; comparing the recessionary years of 1970 and 1982, transitory variance increased by 129%. 2. While transitory variance exhibits cyclical tendencies, variance during the 1971-73 expansion grew much more dramatically than during the 1983-90 expansion, again implicating the 1970s as a period of strong growth in earnings instability. 3. A brief exploration of causal influences behind the growth in earnings instability suggest that wage instability rather than hours instability was likely a key contributing factor to the 1970s run-up in volatility.
Daly and Duncan (1997)	PSID; limited to men age 25-44 who are not self-employed, had positive annual earnings, and worked at least 250 hours in the first year of the given period studied	Males' annual earnings	1. Decomposition of variance, following Gottschalk and Moffitt (1994) and also Haider; 2. Sample median of the 11-year average absolute value of year-to-year percentage changes in earnings; 3. Number of years an individual remained in his initial earnings quintile; 4. Number of times the individual's earnings dropped by 50% or more.	1. Transitory variance in male earnings grew substantially between the 1969-79 period and the 1979-89 period, dropped moderately during the 1981-91 period, and grew moderately between the 1985-95 period. They conclude that virtually all of the growth in transitory variance occurred between 1969 and 1981. 2. The average year-to-year percentage earnings change for male workers increased between the initial 1969-79 period and the second 1979-89 period, with the jump particularly large for older workers. 3. They find no discernible trends in quintile mobility. 4. The number of times a worker's earnings dropped by 50% or more in a given period increased only for younger workers, and only between 1969-79 and 1979-89.

TABLE 1 (CONT.)

Comparison of findings with other studies, male earnings

MALE EARNINGS

	Data	*Outcome*	*Methods*	*Results*
Gottschalk and Moffitt (2006)	PSID; all non-student male heads ages 20-59 with positive wage and salary income and annual weeks worked; excludes low-income (SEO) and Latino samples	Male heads' annual earnings	Decomposition of variance into permanent and transitory components (both simple descriptive regressions and structural models of the earnings dynamics process)	1. Transitory variance in male earnings exhibits an upward trend from the 1970s through 2002. 2. Transitory variance demonstrates a strongly cyclical pattern. After accounting for cyclical effects, the rise in earnings variance appears strongest primarily in the late 1980s and late 1990s through early 2000s.
Keys (2006)	PSID; drops all zero observations and trims top and bottom 1% of the distribution; limited to non-student heads age 20-59	Male heads' annual earnings	Decomposition of variance into transitory and permanent components, replicating Gottschalk and Moffitt (1994)	1. Transitory variance (instability) in male earnings grew by 38% between 1970 and 1990, compared to a 32% growth in permanent variance (inequality). 2. Most of the increase in both transitory and permanent variance in male earnings occurred during the 1980s, and was essentially flat during the 1990s. 3. Males without a high school degree have higher levels of both transitory and permanent variance in earnings, and both grew over time. While permanent variance (inequality) grew among makes with a college degree, transitory variance (instability) remained largely flat. 4. Among white males with children, those in married households have slightly lower earnings volatility than those in unmarried households. 5. Black males have substantially higher earnings instability than white males. 6. Black males in married households have substantially higher earnings instability than those in unmarried households with children and those in households with no children present.

TABLE 1 (CONT.)

Comparison of findings with other studies, male earnings

MALE EARNINGS

	Data	*Outcome*	*Methods*	*Results*
Congressional Budget Office (2007)	Social Security Administration's Continuous Work History Sample; SIPP; limited to workers age 22-59 years old; does not include self-employment earnings	Males' annual earnings	Percent changes in earnings from one year to the next, i.e., T-1 to T; Individuals with gains greater than 1000% are excluded; Individuals with $0 earnings at T-1 and positive earnings at time T are coded as having a 100% increase; Analysis using SIPP data disaggregates by workers' education level, age, and individuals' reasons for not working	1. The frequency of large drops (50% and 25%) in male earnings has been roughly flat since 1980, although they do vary with the business cycle. 2. The probability of a large drop in earnings increased somewhat after 2000. 3. Standard deviation in the percent change measure has decreased moderately since 1980. 4. Looking at only the bottom 40% of the earnings distribution (due to limitations in the scope of Social Security data prior to 1980), large drops in male earnings increased between 1961 and 1982, while 1982 to 2003 saw little change beyond ups and downs with the business cycle.
Shin and Solon (2007)	PSID; male household heads age 25-59; excludes observations of $0 earnings; trims the top and bottom 1% of positive observations in each year	Male heads' annual earnings	Decomposition of variance into permanent and transitory components (both simple descriptive regressions and structural models of the earnings dynamics process); Revises Gottschalk and Moffitt (1994) model to adjust for mean year effects, life-cycle stage, and cohort	1. Partialling out the impact of business cycle fluctuations, men's earnings volatility trended upwards during the 1970s. 2. Between the early 1980s and 1997, men's earnings volatility did not show a clear trend. In 1998, men's earnings volatility began climbing again.

TABLE 2

Comparison of findings with other studies, female earnings

FEMALE EARNINGS

	Data	*Outcome*	*Methods*	*Results*
Keys (2006)	PSID; drops all zero observations and trims top and bottom 1% of the distribution; limited to non-student heads age 20-59	Female heads' annual earnings	Decomposition of variance into transitory and permanent components, replicating Gottschalk and Moffitt	1. White female heads of household's earnings have greater permanent and transitory variance (i.e. greater inequality and instability) than white male heads of household's earnings. White female heads' earnings instability is at least twice that of white males'. 2. Earnings instability has increased more slowly for female heads than for male heads. 3. Relative to male-headed households with children, both married and unmarried, single mothers' earnings have much higher levels of permanent variance (inequality) and transitory variance (instability). 4. Earnings instability among single mothers is more than double that of single childless women. Earnings instability among single childless women has not changed over the course of the last several decades.
Congressional Budget Office (2007)	Social Security Administration's Continuous Work History Sample; SIPP; limited to workers age 22-59 years old; does not include self-employment earnings	Females' annual earnings	Percent changes in earnings from one year to the next, i.e., T-1 to T; individuals with gains greater than 1000% are excluded; individuals with $0 earnings at T-1 and positive earnings at time T are coded as having a 100% increase; analysis using SIPP data disaggregates by workers' education level, age, and individuals' reasons for not working	1. The frequency of large drops (50% and 25%) in women's earnings has been roughly flat since 1980, varying with the business cycle and ticking upward after 2000. 2. Women's were more likely than men to have a large drop in earnings between 1981 and 2003, although the gender gap narrowed over time. 3. Looking only at the bottom 40% of the earnings distribution, the probability of a large drop in earnings decreased for women between 1961 and 2000, varying with the business cycle.

TABLE 2 (CONT.)

Comparison of findings with other studies, female earnings

FEMALE EARNINGS

	Data	*Outcome*	*Methods*	*Results*
Dynan,Elmendorf, and Sichel (2008)	PSID; all observations where head is over 25 and non-retired; excludes observations where head has changed from previous observation; excludes all households with positive farm income; excludes low-income (SEO) sample; Replaces all reports of $0 or below with $1; trims top by maximum share top-coded for each variable	Spouses' annual earnings (spouses are nearly universally women in the PSID)	Description of percent changes between Year T-2 and Year T, annualized; All increases greater than 100% are replaced with 100%. Some analyses are disaggregated by household head's age, education, and gender	The standard deviation of annualized percent changes in spouses' earnings fell by 16% between the early 1970s and the early 2000s.

TABLE 3

Comparison of findings with other studies, individual earnings

INDIVIDUAL EARNINGS

	Data	*Outcome*	*Methods*	*Results*
Comin, Groshen, and Rabin (2006)	PSID for individual worker data; COMPUSTAT and Community Salary Survey (CSS) for firm-level data; note that all measures are logged, thus $0 reports are excluded	Annual individual earnings	Decomposition of variance into transitory and permanent components, building on Gottschalk and Moffitt (1994)	1. Average volatility of white male heads of households in 1984-93 was substantially greater than that of a comparable group between 1970-79. 2. The rise in transitory earnings volatility for white male heads that did not change employers during the period observed is similar in magnitude to the increase in earnings volatility for heads who switched jobs. 3. Results are similar when the sample criteria are relaxed and other race/sex heads are included. 4. Using firm-level data from COMPUSTAT and the CSS, they conclude that rising high-frequency turbulence among U.S. firms since the early 1970s has raised workers' wage volatility, thus increasing wage risks for many workers. The firm-level effect is quite strong, explaining about 60% of the increase in individual earnings volatility seen in the PSID.

TABLE 3 (CONT.)

Comparison of findings with other studies, individual earnings

INDIVIDUAL EARNINGS

	Data	*Outcome*	*Methods*	*Results*
Congressional Budget Office (2007)	Social Security Administration's Continuous Work History Sample; SIPP; limited to workers age 22-59 years old; does not include self-employment earnings	Annual individual earnings	Percent changes in earnings from one year to the next, i.e. T-1 to T; individuals with gains greater than 1000% are excluded; individuals with $0 earnings at T-1 and positive earnings at time T are coded as having a 100% increase; analysis using SIPP data disaggregates by workers' education level, age, and individuals' reasons for not working	1. The frequency of large drops (50% and 25%) in individual earnings rose somewhat in the early 1980s, decreased slightly in the mid-1980s, and then remained roughly flat through 1999 before increasing again in 2000. 2. The standard deviation of the percentage change in individual earnings (comparing this year to last year) decreased between 1981 and 1991, increased slightly through the mid-1990s, then decreased through 2002. The standard deviation of percentage changes grew somewhat between 2002 and 2003. 3. Looking only at the bottom 40% of the earnings distribution, the probability of a large drop in individual earnings increased between 1961 and 1976. After falling in the late 1970s, the probability of a large drop increased again in the early 1980s, and then leveled out in the mid-1980s. Between 1985 and 2000, the probability of a large drop in individual annual earnings has remained roughly flat, except for a bump upwards in the early 1990s. In 2000, the probability of a large drop began an upward climb that appears to continue through 2003.

TABLE 3 (CONT.)

Comparison of findings with other studies, Individual Earnings

INDIVIDUAL EARNINGS

	Data	*Outcome*	*Methods*	*Results*
Kopczuk, Saez, and Song (2007)	Social Security Administration's Continuous Work History Sample; limited to workers age 18-70 years old; Note that the authors impute earnings for individuals above the taxable ceiling from 1937-77	Annual individual earnings	Focus is on "mobility" rather than "volatility," therefore looks at transitions from one earnings quintile to another over a given period of time	1. Short-term (1-5 year) mobility: Downward and upward mobility are much less likely than stability. Quintile mobility is clearly correlated with the business cycle, with downward mobility increasing and upward mobility decreasing during recessions. The probability of moving from the top to the bottom half of the earnings distribution over the course of a year increased during the 1970s, peaking in the early 1980s then falling and remaining relatively stable in the years following. 2. Long-term (11-year) mobility: While long-term downward mobility is less likely than upward mobility, it has increased over time. This increase is especially prominent after the 1960s. Similarly, the probability of downward mobility over the course of career has increased, regardless of birth cohort.
Gosselin and Zimmerman (2008)	PSID and SIPP; exclude individuals under 25 or over 64; exclude individuals with family income of less than $10	Annual individual earnings	Decomposition of variance into transitory and permanent components, modifying Gottschalk and Moffitt (1994)	1. In the PSID, the volatility of individual earnings rises 10% between 1970 and 1998. In the SIPP, the volatility of individual earnings rises 10% between 1983 and 2001.

TABLE 3 (CONT.)

Comparison of findings with other studies, individual earnings

INDIVIDUAL EARNINGS

	Data	*Outcome*	*Methods*	*Results*
Dynan, Elmendorf, and Sichel (2008)	PSID; all observations where head is over 25 and non-retired; excludes observations where head has changed from previous observation; excludes all households with positive farm income; excludes low-income (SEO) sample; replaces all reports of $0 or below with $1; trims top by maximum share top-coded for each variable	Annual individual head's earnings (includes both male and female heads)	Description of percent changes between Year T-2 and Year T, annualized; all increases greater than 100% are replaced with 100%. Some analyses are disaggregated by household head's age, education, and gender	1. The standard deviation of heads' annualized percent change in earnings increased by 39% between the early 1970s and early 2000s. 2. The probability of large declines and large increases in earnings is related to the business cycle. 3. Volatility as measured by the standard deviation of percent changes in earnings increased for household heads regardless of age and education, although volatility for heads without a high school degree is higher throughout than is volatility for high school graduates. The run-up in volatility for heads with a college degree is concentrated in the latter part of the sample, while the rise in volatility for other heads has been consistent since the 1970s. 4. Female heads saw little net change in earnings volatility during the past 30 years.

TABLE 4

Comparison of findings with other studies, household earnings

HOUSEHOLD EARNINGS

	Data	*Outcome*	*Methods*	*Results*
Bollinger and Ziliak (2007)	CPS (annual data); sample includes all single female family heads between the ages of 16-54 with dependent children present under the age if 18; observations with $0 or less income are exclude, as are observations with imputed earnings or transfer income	Annual family earnings	Decomposition of variance into transitory and permanent components, based on Gottschalk and Moffitt (1994); due to the cross-sectional nature of the data, they construct age-education cohorts and treat these as pseudo-panels over time	1. Earnings volatility was high and relatively stable from 1979 through 1992, fell from 1992 through 1999, then rose from 1999 through 2004.
Dynan, Elmendorf, and Sichel (2008)	PSID; all observations where head is over 25 and non-retired; excludes observations where head has changed from previous observation; excludes all households with positive farm income; excludes low-income (SEO) sample; replaces all reports of $0 or below with $1; trims top by maximum share top-coded for each variable	Annual combined head and spouse earnings	Description of percent changes between Year T-2 and Year T, annualized; all increases greater than 100% are replaced with 100%; some analyses are disaggregated by household head's age, education, and gender	1. Volatility in combined head and spouse annual earnings as measured by the standard deviation in annualized percent changes in combined labor income increased 28% between the early 1970s and early 2000s. 2. The increase in combined head and spouse earnings is not well-explained by increases in female labor force participation given that the tendency for a spouse's earnings to increase when a head's earnings fall has not changed appreciably in the time period examined. Indeed, the correlation of movements in heads' and spouses' earnings has been close to zero for the last 30 years. 3. The rise in household earnings volatility is explained by the fact that heads continue to earn more than wives, and their earnings volatility has increased sharply over time.

TABLE 5

Comparison of findings with other studies, household income

HOUSEHOLD INCOME

	Data	*Outcome*	*Methods*	*Results*
Batchelder (2003)	PSID; sample limited to household with heads age 44-49 at T1	Annual taxable household income, which excludes transfers, capital gains, and lump sum payments	Coefficient of variation	1. Taxable income volatility rose the late 1960s and early 1990s for all families. 2. Parents and AFDC recipients experienced particularly sharp growth in volatility over the studied period.
Hertz (2006)	CPS matched data; note that he pools data into three time periods—1991/92, 1997/8, and 2003/4; sample criteria not clear	Annual household income	Correlation coefficient between T1 and T2 in each panel; median absolute change in income; median income lost; share losing $20,000 or more	1. Overall household income volatility increased between 1990/91, 1997/98, and 2003/04. 2. The share of households experiencing income losses of $20,000 or more has increased over time (from 13% to 14.8% to 16.6%). 3. Middle-class households are driving the increase in overall income volatility. Households in the top quintile experienced no change in volatility over the periods studied, and households in the top deciles were less likely to experience a large income shock at the end of the period than at the beginning.
Batchelder (2003)	PSID; sample limited to household with heads age 44-49 at T1	Annual taxable household income, which excludes transfers, capital gains, and lump sum payments	Coefficient of variation	1. Among white male-headed households, transitory variance in family income (i.e. income instability) is slightly smaller than earnings instability, but has grown by similar levels. 2. Families headed by white women have double the income instability in the 1990s than they had in the 1970s. 3. African American families' instability and inequality are substantially larger than instability and inequality among white families, regardless of whether male- or female-headed, and have grown more steeply. 4. Female-headed households' income instability and inequality grew substantially between the 1970s and 1990s, regardless of the presence of children in the household.

TABLE 5 (CONT.)

Comparison of findings with other studies, household income

HOUSEHOLD INCOME

	Data	*Outcome*	*Methods*	*Results*
Bania and Leete (2007)	SIPP; 1991/1992 and 2001 panels; limit sample to households of two or more individuals headed by 18-59 year olds; limit to low-income households, i.e. household incomes are up to 300% of the poverty line	Monthly household income (includes earned income, cash transfers, one-time payments, self-employment income, interest); Note that they also run an analysis imputing the monetary value of in-kind assistance such as food stamps and WIC	Coefficient of variation	1. Monthly family income volatility as measured by the coefficient of variation increased by 18% between 1991/2 and 2000. 2. The increase in volatility over time was greatest for lower income households. For households below the poverty line, volatility increased by 35%, while volatility for households between 100 and 300% of the poverty line increased by just 11%. Volatility for the very poorest households, those with income below 50% of the poverty line, increased by 64.4%. 3. Earnings income is more volatile then total income, while AFDC/TANF income is less volatile than total income or earnings. They suggest that the rise in total income volatility stems from the compositional shift away from stable (AFDC/TANF) income and toward volatile earnings income. 4. When the cash value of food assistance and WIC benefits are added to the total income measure, volatility decreases somewhat, and the slope of the time trend diminishes somewhat as well.

TABLE 5 (CONT.)

Comparison of findings with other studies, household income

HOUSEHOLD INCOME

	Data	*Outcome*	*Methods*	*Results*
Bollinger and Ziliak (2007)	CPS (annual data); sample includes all single female family heads between the ages of 16-54 with dependent children present under the age if 18; Observations with $0 or less income are exclude, as are observations with imputed earnings or transfer income	Annual total family income (including cash-value of food stamps, free lunch, and the EITC)	Decomposition of variance into transitory and permanent components, based on Gottschalk and Moffitt (1994); due to the cross-sectional nature of the data, they construct age-education cohorts and treat these as pseudo-panels over time	1. Annual income volatility for female-headed families as measured by transitory variance increased slowly from 1979 through 1996, then more steeply from 1996 through 2004. 2. This pattern holds regardless of the woman's educational background. 3. Income volatility among never-married single mothers grew fairly steadily and steeply from 1979-2004. 4. The authors note that the timing of changes in volatility trends for various income components are generally well-aligned with relevant policy shifts, e.g. welfare reform in the mid-1990s, changes in the EITC in the 1986 and 1990 tax reforms, etc.
Hertz (2007)	CPS matched data; note that he pools data into three time periods—1985-87, 1992-94, and 2003-05; sample criteria not clear	Annual household income	Correlation coefficient between T1 and T2 in each panel; median absolute change in income; median income lost, share losing $20,000 or more	1. Per capita changes in annual family income were significantly greater in 1992-94 than in 1985-87 and somewhat greater than 1992-94 in 2003-05. Because all three periods had similar GDP growth rates, the author argues these increases are indicative of long-run trends rather than cyclical changes. 2. The upward trend in per capita changes in family income volatility capture an increased frequency of both upward and downward short-term movement, but the increases were not symmetrical. In the 1980s, gains of 50% or more were more likely than losses of 50% or more by a ratio of 2.5 to 1. By 2003-05, that ratio had fallen to 1.8 to 1. 3. While the bottom income quintile experienced a net increase in short-term upward mobility over the periods studied, all other quintiles experienced less upward mobility in 2003-05 than in the 1980s.

TABLE 5 (CONT.)

Comparison of findings with other studies, household income

HOUSEHOLD INCOME

	Data	*Outcome*	*Methods*	*Results*
Gosselin and Zimmerman (2008)	PSID and SIPP; exclude individuals under 25 or over 64; exclude individuals with family income of less than $10	Annual total family income	Decomposition of variance into transitory and permanent components, modifying Gottschalk and Moffitt (1994); probability of a large income drop	1. Average income volatility increased in both the SIPP and the PSID, but the magnitudes differed: 118% increase between 1970 and 1998 in the PSID; a 48% increase between 1983 and 2001in the SIPP. All in-depth analyses are conducted using the PSID. 2. Average income volatility rose significantly between 1970 and 1998. Mean volatility rose by about 118% while median volatility rose by about 63%. 3. Mean volatility tracks the 75th percentile of volatility until about 1986, at which point it begins to increase more steeply. This diversion is explained by the rapid increase of volatility levels at the 99th percentile. 4. Increases in income volatility persist across income quintiles, education levels, and age groups. Although volatility levels are higher for low-income and less-educated groups, percentage increases in high-income and high-education groups are generally similar to or greater than percentage increases in lower-income and less-educated groups. 5. Increases in income volatility were smaller for two-earner families than for other types of families. Families with two continuous earners saw a 39% increase in volatility, compared to a 62% increase in volatility for families that switched from one to two earners and a 135% increase for families with a single earner across all analysis years.

TABLE 5 (CONT.)

Comparison of findings with other studies, household income

HOUSEHOLD INCOME

	Data	*Outcome*	*Methods*	*Results*
Gosselin and Zimmerman (2008) - continued	PSID and SIPP; exclude individuals under 25 or over 64; exclude individuals with family income of less than $10	Annual total family income	Decomposition of variance into transitory and permanent components, modifying Gottschalk and Moffitt; Probability of a large income drop	6. Income variance appears to be increasingly impacted by labor income, with head's increasing labor income variance outweighing the decrease in labor income variance among wives. Transfer income also appears to be more variable in the late-1980s and early 1990s than in the early 1980s and the 1970s. 7. While the probability of experiencing a "destabilizing event" (e.g. widowhood, major unemployment of head or spouse, birth of a child, etc.) decreased over the 1970-98 period, the probability of experiencing an income loss as a result of one of these events increased substantially. The percentage of individuals experiencing income drops associated with destabilizing life events increase by almost half, from 14.3% to 20.2%. Destabilizing events were also increasingly associated with large, i.e. 50%, losses of needs-scaled income.
Dynan, Elmendorf, and Sichel (2008)	PSID; all observations where head is over 25 and non-retired; excludes observations where head has changed from previous observation; excludes all households with positive farm income; excludes Low-Income (SEO) sample; replaces all reports of $0 or below with $1; trims top by maximum share top-coded for each variable	Annual total family income	Description of percent changes between Year T-2 and Year T, annualized; All increases greater than 100% are replaced with 100%. Some analyses are disaggregated by household head's age, education, and gender	1. Volatility in annual total household income (combined labor, capital, and transfer income) as measured by the standard deviation in annualized percent change rose by 36% between the early 1970s and early 2000s. 2. This growth in volatility occurred during all three decades, but not at a steady pace, and is largely due to increases in labor and transfer income volatility. 3. The magnitude of income changes in the tails of the distribution have changed markedly over time, with the absolute value of changes at the 10th percentile becoming much larger.

Endnotes

1. A forthcoming study by the Congressional Budget Office using different data sources questions whether family income volatility has risen between 1984 and 2002. Based on the limited details of this study that the CBO has made available as of this writing (May 2008), we have serious doubts about its validity—especially given the growing convergence of existing research, even research that has used the same data as the CBO uses. We discuss the reasons for our skepticism in this briefing paper.
2. For further information about the PSID, please consult the study's excellent Web site: psidonline.isr.umich.edu.
3. In each PSID release, income and earnings data are reported for the year prior. Therefore, the 1997 release of the PSID includes data on income and earnings for 1996. Throughout this briefing paper, dates refer to the income year, not the survey year.
4. These weights were kindly provided by the PSID in advance of their public release, but we have been assured they will be released without modification soon. It is worth noting that these weights give zero weight to the PSID's Latino sample, and thus our analyses largely exclude recent Hispanic immigrant groups—an exclusion that arguably dampens the overall rise in family income volatility. Our results are not notably impacted by using the publicly available weights in place of the limited-release test weights.
5. For example, actual tax data are not always available, requiring that taxes be imputed—a potential source of error. Moreover, some data inconsistencies have become apparent in the Cross-National Equivalent File (CNEF), a dataset prepared by researchers at Cornell University from the PSID that was used to obtain estimates of post-tax family income in the estimates reported in the first edition of *The Great Risk Shift* (Hacker 2006). Thus, we have shifted to using only the PSID's own reported data, which do not consistently include information on taxes. (Information on the CNEF, a valuable effort to provide comparable data for researchers from national panel income datasets, is available at www.human.cornell.edu/che/PAM/Research/Centers-Programs/German-Panel/cnef.cfm. The CNEF includes imputed tax data based on the National Bureau of Economic Research's tax simulation model.)
6. For earlier presentations of these results, see Hacker (2004a), Hacker (2004b), Hacker (2004c), Hacker (2006), and Hacker (2008).
7. It is important to emphasize, as Shin and Solon (2008) do, that measures of income instability look at income deviations relative to individuals' past income, rather than relative to the overall income distribution, which has clearly grown much more unequal during the period under analysis. Thus, it is entirely possible that income volatility has risen even as economic mobility across income quintiles has not fundamentally changed (as argued by, among others, Kopczuk, Saez, and Song (2007)).
8. Another approach, adopted recently by the Congressional Budget Office (CBO) in an important analysis of earnings instability, is to look at the distribution of percentage changes in income from year to year. In the CBO's case, the metric is the standard deviation of average annual percentage changes. While this approach is sometimes seen as more intuitive and less model-dependent than the Gottschalk-Moffitt technique, we view this assertion as incorrect. The Gottschalk-Moffitt method treats volatility as transitory deviations from long-term income levels, a model that fits well with most people's intuitive understanding of volatility as short-term income shocks. By contrast, the CBO approach conflates persistent and short-term changes in income. Moreover, the simplest of the approaches suggested by Gottschalk and Moffitt—and the one used in the following analysis—makes few modeling assumptions, except to calculate permanent income levels by comparing two time points that are sufficiently far apart to assume they are not jointly affected by the same transitory income shocks. Meanwhile, the CBO approach requires devising standards for dealing with the very large percentage changes that occur when people go from very low income levels to higher ones; the CBO adopts various rules, sometimes capping these increases at 100%, at others capping them at 1,000%. The other notable difference is that the Gottschalk-Moffitt technique uses log income, which is discussed further in endnote 13. Nonetheless, as discussed below, the basic finding of rising family income volatility does not depend on the technique chosen: While the magnitude of the increase varies somewhat, the finding of rising income volatility is highly robust.
9. For example, a divorce turns one family into two.
10. Thus, we are looking at the fluctuation of a working-age individual's *family* income, adjusted for family size. These fluctuations can occur because income changes or because family composition changes. Another approach is to look only at families that do not change composition. This approach is not ideal, as it not only rules out family compositional changes as a source of income fluctuations, but also results in a focus on an unrepresentative sample of the entire surveyed population. Alternatively, one could follow only household heads, as do Dynan, Elmendorf, and Sichel (2008). In this approach, the income effects of separation or divorce are captured in the income of the household head. The effect on the spouse is not captured, because she or he (usually she, as noted shortly) leaves the family, and is then analyzed as a separate "new" family in subsequent years. Unfortunately, this approach

also understates the effect of separation or divorce. From its inception, the PSID has automatically assigned men as household heads, except when households are headed by a single woman. Since men still contribute, on average, a substantially larger amount to household income, the income effect of divorce or separation is much smaller for men than for women. Thus, by following usually male household heads, the effect of divorce or separation looks smaller than it would if the analysis followed their spouses or averaged the income effects across the two.

11. The so-called equivalence scale used for this report is the square root of family size, but the results are robust to alternative family-size adjustments, such as the poverty line.

12. Again, the results are not appreciably different if, rather than excluding individuals from the analysis on the basis of age, exclusions are based on whether respondents say they are retired or in school.

13. The results are not appreciably different if six-year periods are used. Five-year periods, which Gottschalk and Moffitt employed in their original study, are not an option because the PSID became a biennial survey in 1996, allowing only even-year intervals for consistent estimates. It should be noted that the move to a biennial survey also limits the ability to implement CBO's measure of year-to-year income variation. The only analysis to use this measure to look at family income instability, a recent paper by Dynan, Elmendorf, and Sichel (2008), thus looks at percentage changes in income over a two-year interval, rather than from one year to the next. The PSID does not allow for estimates of extremely short-term income volatility—for example, monthly deviations from annual income levels. A recent attempt to carry out such analyses using the Survey of Income and Program Participation (SIPP) (Bania and Leete 2007) finds an increase in such short-term volatility between the early 1990s and early 2000s, especially among low-income households.

14. Logged income is frequently used in economics research and has two favorable properties for analyses of income variance. First, it makes variance mean-independent (i.e., independent of the absolute level of income). Second, it ensures that equivalent increases and decreases in income are treated symmetrically (as they are not when the measure is percentage changes in income).

15. The raw variance numbers and the codes necessary to replicate the analysis presented here are available upon request.

16. The results are not appreciably different when computed using percent differences in raw income, but they are sensitive to the maximum percentage increase allowed. For this reason, the log-difference results are presented.

17. The number of PSID observations with $1 in income—the lowest recorded level for the most comprehensive income variable used in this report—also spikes during this period.

18. Versions of this analysis run with larger percentile trends, e.g. 2% and 3%, give similar results. The level of income volatility is dampened somewhat, but the basic upward trend is consistent regardless of the chosen trim.

19. This figure differs somewhat in presentation and content from the one in the hardcover edition of *The Great Risk Shift* (Hacker 2006), though the basic substance and conclusion from both figures are the same. First, Figure A presents an analysis updated through 2004. Second, to avoid some apparent data inconsistencies that have become apparent in the Cross-National Equivalent File (CNEF) prepared by researchers at Cornell University from the PSID—which were used to obtain estimates of post-tax family income in my previous estimates—we have shifted to using only the PSID's own reported data, which does not consistently include information on taxes. Hence, all these analyses look only at *pre-tax* family income. (Information on the CNEF, a valuable effort to provide comparable data for researchers from national panel income datasets, is available at www.human.cornell.edu/che/PAM/Research/Centers-Programs/German-Panel/cnef.cfm. Because the PSID has not consistently collected information on actual taxes paid, the CNEF includes imputed tax data based on the National Bureau of Economic Research's tax simulation model.) Third, we have made some changes to the data analysis to deal with some apparent underreporting of family income in the early 1990s. Finally, to make the results more intelligible, we show the *growth* in volatility since the baseline year of 1973, rather than the raw volatility levels expressed in terms of over-time variance of log income.

20. Because the apparent data problems in the 1990s appear to be linked to a rise in household heads coded as reporting zero earnings, we also ran the analyses dropping all households in which the head has no labor income yet is reported as employed. The results are essentially identical to those reported here.

21. Because the PSID switched to a biennial survey in 1996, these drops are measured by comparing real family-size-adjusted family income in a given year with its level two years prior. Thus, the first year for which a measure of income drops is available is 1971. Because we are interested in the fullest sample of those who experience large income drops, we do not trim the small number of observations with family incomes of $1 or less for these estimates. Instead, we bump these reported incomes up to $1, which creates a consistent floor on income, a practice known as bottom-coding. At the top of the distribution, the PSID has capped reported income in some years and not others, which could distort comparability of the data over time. Thus, we cap very high income values to create consistent top-coding over time. That is, we identify the year with the maximum share of the sample that is top-coded—around 0.4%—then set all incomes higher than this level

at the income level of the 99.6th percentile for every year. The results are very similar if income values of $1 or less are dropped and the top and bottom 1% of observations are trimmed: the levels are slightly lower, but the trend is identical.

22. In this discussion, the "early 1970s" is defined as 1969-71, 1970-72, and 1971-73; the "early 2000s" is defined as 1998-2000, 2000-02, and 2002-04. There were two national recessions during the first period, and one during the second.

23. Future research should also seek to clarify the causes and magnitude of rising family income volatility by looking at alternative sources of income data. The PSID is unique in its combination of true longitudinal family income data (following the same individuals and families over time) and data availability back to the late 1960s. Other sources, however, could supplement and refine its findings. The Survey of Income and Program Participation (SIPP) begins in the mid-1980s and does not provide a continuous panel, but its shorter "mini-panels" (which range from two-and-a-half to four years in length) do allow for analyses of family income volatility and its larger sample size allows for more precise estimates. Recent studies using the SIPP all find a substantial increase in family income instability over the 1980s, 1990s, and early 2000s.

    Two other useful but more limited datasets bear mention: the Social Security Administration's Continuous Work History Sample (CWHS), mentioned earlier in the discussion of the CBO's recent analysis of earnings variability, and the Census Bureau's Current Population Survey, which features an extremely large sample, roughly half of which can be used for two-year analyses through statistical matching of households that do not move between surveys. Unfortunately, the CWHS only allows for analyses of workers' earnings, has extremely limited demographic information (only the age and sex of workers), and does not allow for analyses of all workers prior to 1980. The CPS has a huge sample that allows for over-time matching of around half of households between two successive surveys, with data dating back to the 1960s. Matching is imperfect, however, and only households that do not move are included, making the sample unrepresentative. (Weights can be used to make the sample demographically representative, but not to control for the likely unobserved differences between households that move and those that do not.) Nonetheless, at least one analysis of matched CPS data has focused on short-term income fluctuations. It, too, finds a substantial rise in family income volatility between the early 1990s and early 2000s.

24. Indeed, if anything, its respondents look a bit too rich, rather than too poor.

25. One such choice is their decision to use only the original representative sample of the PSID without weights, which ends up reducing the rise in income volatility, presumably because people with more unstable incomes are more likely to drop out of the sample; without weights, there is no way to correct for this attrition. Another potential reason for the remaining discrepancy is the authors' decision to follow the family income only of household heads. This ends up understating the effect of separation or divorce on family income. With this approach, the income effects of separation or divorce are captured in the income of the household head. But the effect on the spouse is not captured, because she or he (usually she, as noted shortly) leaves the family, which is then analyzed as a separate family in subsequent years. The reason this matters is that the PSID, from its inception, has arbitrarily assigned men as household heads, except when households are headed by a single woman. Since men still contribute, on average, a substantially larger amount to household income, the income effect of divorce or separation is much smaller for men than for women. Thus, by following usually male household heads, the effect of divorce or separation looks smaller than it would if the analysis followed their spouses or averaged the income effects across the two.

26. At least one paper reports that excluding self-employment income, reported by about 15% of household heads in the PSID, "significantly dampens the uptrend in estimated [earnings] volatility since 1980." See Dynan, Elmendorf, and Sichel (2008).

27. This includes analyses that use the same method as the CBO (e.g. Shin and Solon (2007); Dynan, Elmendorf, and Sichel (2008)), analyses that use our technique of parsing income variance into transitory and permanent components (e.g., Keys (2006); Gottschalk and Moffitt (2006); Moffitt and Gottschalk (2002); Haider (2001)), and even at least one analysis that applies this technique to the CWHS (Gottschalk and Moffitt (2006)).

28. The CBO analysis looks at workers aged 22 to 59, rather than 25 to 62, as we do. It also examines year-to-year variations, while limits of the PSID require that we look at variation from one year to the year after next.

29. It is worth noting that Dynan, Elmendorf, and Sichel (2008) find substantially smaller earnings drops in their analysis of the PSID, lending further credence to the earlier suggestion that their analytic decisions lead to an overly restricted sample, and hence may underestimate volatility.

30. Our comments on the CBO's most recent work on family income volatility are based on personal communication with staff members of the CBO. While we are grateful for the information they have shared thus far, we have requested more detail on their analysis, including a copy of their working paper. Because the devil is in the details

when it comes to the study of income volatility, the information they have provided is not sufficient for us to fully interpret their findings. We continue to await a substantive response.

31. In particular, the CBO is suspicious of all SIPP respondents for whom earnings are imputed—the SIPP replaces missing data with estimated values in order to ensure that missing data do not skew the distribution of income and other critical variables in the dataset. However, the imputed data do not show higher volatility than the non-imputed data, according to those who saw the CBO presentation in January. This runs strongly contrary to the suggestion that imputation in either the SIPP or the PSID are leading to the finding of rising volatility.
32. One reason to suspect that the data matching procedure is behind the CBO's divergent findings is that, according to the only existing study of family income volatility in the SIPP (Gosselin and Zimmerman 2008), the SIPP shows a very modest rise in the volatility of *earnings* between 1984 and 2002, around 10%, and a sharp rise in the volatility of *family incomes* over this period, around 50%. It is worth noting that these numbers are consistent with our and other researchers' findings using the PSID. Moreover, the Gosselin-Zimmerman findings suggest that the rise in family income volatility in the SIPP is not driven by rising earnings instability. This makes it odd that simply substituting earnings records from Social Security would cause the rise in family income to disappear. The more likely reason why the CBO's substitution of earnings data makes a difference is the exclusion of the most volatile households.
33. We note that administrative data is "arguably" more reliable because scholars have raised questions about the reliability of even Social Security wage records. For example, see Hotz and Karl (2001).
34. Donggyun Shin and Gary Solon (2007) reiterate this point regarding the broad consistency of results across data sources in a recent unpublished working paper, which applies yet another variation of the Gottschalk-Moffitt metric and finds similar results to ours for trends in male earnings volatility.
35. Using the Displaced Worker Survey, for example, Henry Farber (2007) finds that the earnings losses associated with involuntary displacement were actually higher in 2001-03 than in 1981-83.
36. These benefits do not include the Earned Income Tax Credit, because the PSID provides only pre-tax income.
37. For analyses of the volatility of transfer income, see Bania and Leete (2007); Bollinger and Ziliak (2007); and Dynan, Elmendorf, and Sichel (2008).
38. Calculations are based on preliminary analyses of the PSID. Details are available from the authors upon request.
39. Results available from the authors upon request.
40. For details on trends in long-term mobility, see Kopczuk and Saez (2007).
41. Part of the reason for this is rising economic inequality. Many studies of mobility look at the chance of moving from one quintile of earnings or income to another. As the gap between quintiles grows, however, these "transitions" (as they are called in mobility research) imply larger changes in income. Thus short-term mobility across income quintiles may not rise even as short-term income volatility does. The former looks at changes relative to other people's current incomes. The latter looks at changes relative to one's own past income—which for most people thinking about their short-term economic security, is arguably the more relevant standard.
42. Even opportunity-loving Americans share this fundamental predilection: In a 2005 poll by Lake Snell Perry Mermin, more than two-thirds said they would prefer the "stability of knowing your present sources of income are protected" than the "opportunity to make more money."
43. For more detail on the relationship between socio-economic well-being and income security, see Kalil and Ziol-Guest (2008); Kalil and Ziol-Guest (2005); Smith, Trenton, Stoddard, Christina, Barnes, Michael (2007); and International Labour Office (2004).
44. For more detail, see Dynan and Kohn (2007).
45. See Wheary, Shapiro, and Draut (2007).
46. Research on the long-term costs of job displacement suggests that income volatility rooted in earning shocks can have persistent and pernicious impacts on individuals' long-term economic prospects. For instance, a study by Huff Stevens (1997) finds that earnings remain 9% below their expected levels six or more years after an involuntary job loss.
47. With support from the Rockefeller Foundation, Hacker is currently heading a research project that aims to do just this. Building up from the best available data, the project will produce a new Rockefeller Economic Security Index (RESI) and will provide the first comprehensive measure of family economic security that can be used to compare individuals and families with different characteristics and chart changes in economic security over time.
48. According to recent surveys, Americans overwhelmingly believe that they are facing greater economic risk and that future generations will face even greater risk. See MetLife (2007); Rockefeller Foundation (2007).

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