

INCOME VOLATILITY

A Primer



May 2016

Income volatility is an emerging, critical issue for understanding financial security today. American households seem to be facing increased instability and unpredictability in their financial lives. Despite the efforts of scores of researchers, there is no consensus on the extent of volatility and how it affects individual well-being, especially among vulnerable low- and moderate-income populations. For that reason, the Aspen Institute Financial Security Program (FSP) is devoting the inaugural year of its new knowledge-synthesis initiative, the Expanding Prosperity Impact Collaborative (EPIC), to income volatility. EPIC aims to be an evidence-based, neutral forum for gaining clarity about the nature of the problem, its evolution, its significance, and our options for responding.

This issue brief – built on a comprehensive literature review by Aspen FSP staff – is a first step, designed to provide a common frame of reference and facilitate a shared understanding of existing evidence and directions for future research. Additional information on each claim in this brief, as well as sources, can be found in the Endnotes. This brief focuses on the prevalence, causes, and impacts of volatility; a future brief will look at how households cope, and what policies and products can do to mitigate volatility and its effects.



WHAT IS “VOLATILITY”?

Volatility is about change and unpredictability. A volatile chemical will evaporate quickly. Knowing a volatile person means not knowing well what he or she will do next. Volatility in financial parlance usually refers to how much an asset’s value fluctuates from its general trend; high volatility equals greater uncertainty about what the value will be tomorrow or next month or next year.

Think of the typical household as a firm with financial statements. An income and expense report would track what is coming in from earnings and benefit payments (and perhaps interest or other returns on investment) and what is going out in expenditures for today and payments on long-term obligations (perhaps a mortgage or student loans). There would also be a balance sheet of what is owned and what is owed. When those hypothetical financial statements are in flux – especially when the changes are unwanted, frequent, or unpredictable – the household finds itself on shaky economic footing. It experiences volatility.

In the context of household finances, volatility is usually defined as the variance of income, meaning the amount of divergence from the average. It can also be measured by the number of substantial spikes and dips in income over time.

“High volatility means more uncertainty about what the value of an asset will be next month or next year.”

VOLATILITY OVER WHAT TIME PERIOD?

Volatility is a measure that can look at change over any period of time. Researchers have historically analyzed income and consumption changes over decades or even lifetimes. More recently, academics have examined changes from year to year. Only in the last few years have researchers begun to focus on fluctuations over shorter time periods, such as monthly, weekly, and even daily.



■ *Annual income volatility*

Numerous studies have looked at how much individual and family income shifts from year to year, and how that has changed over time. Most studies – though not all, as a function of differences in data and methodology used – have found increasing income volatility for American households in general since the 1970s. For example, the share of all households experiencing a negative annual income shock of \$20,000 or more increased by 23% between 1991 and 2004. The increase in volatility has been highest for households at each end of the income distribution (both low-income and top earners).

The trends vary somewhat when looking at specific groups. For example, males (in particular black male household heads) have seen increasing volatility since the 1970s. The evidence is more mixed for women, although there is observed growth in volatility for female-headed households. There is particular prevalence among low-income households, black families, and single parents.

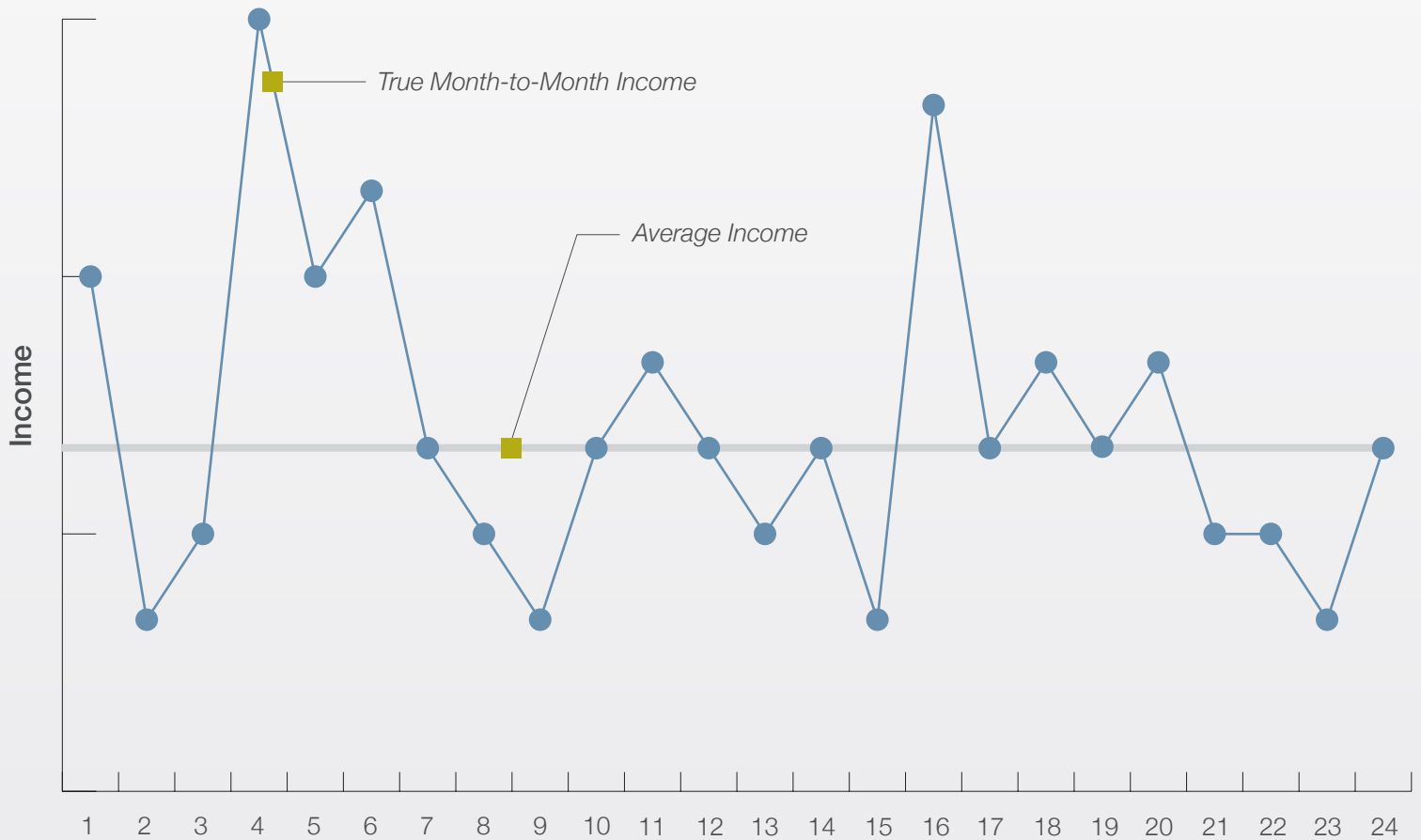
Nearly half of all households experience an income gain or drop of more than 25% over any two-year period. Roughly one-quarter of individuals can expect to see even larger changes – 50% or more – from year to year. When the economy was seeing earnings generally rise over time, the income changes tended to be more on the positive than negative side; however, as wages have stagnated, the incidence of losses has become roughly equal with gains. Because drops are more associated with hardship, this shift contributes to the heightened concern about volatility.

■ *Intrayear income volatility*

Variation in income from month to month has received less attention, but one study found that such intrayear variation increased by 11% between 1991 and 2003. Intrayear volatility is especially high among low-income households, and the trend line upward has been especially steep for them. Among people living below the federal poverty line between 1991 and 2003, the increase in volatility was 31%, and monthly volatility was 88% higher for those in deep poverty (defined as less than 50% of the federal poverty level). There is greater intrayear income volatility among those receiving food or cash assistance and among those in households in which the head did not complete high school.

One major reason why there has been less attention on intrayear income volatility is that month-to-month income data is not widely available. For example, the Panel Study of Income Dynamics on which many volatility studies rely originally interviewed participants annually, and more recently just every other year. An annual time frame can mask the incidence of





Month to Month (Figure 1)

considerable month-to-month variation (see Figure 1); for example, someone with a steady annual income who makes that money mainly in the spring and fall experiences considerable volatility. Researchers have in recent years employed new methodologies to dig into intrayear variability.

The Federal Reserve’s 2013 Survey of Household Economics and Decisionmaking found that 21% of respondents experienced some unusually high or low income months, and an additional 10% reported their income often varies “quite a bit” from one month to the next. The U.S. Financial Diaries’ year-long study of low- and moderate-income households revealed that the households experienced on average five out of twelve months with a change in income of over 25% (roughly split between rises and falls). Using proprietary data, the JP Morgan Chase Institute observed that between 2012 and 2014, four in ten individuals saw more than a 30% month-to-month fluctuation in income.



WHAT CAUSES INCOME VOLATILITY? WHY WOULD IT BE BECOMING MORE COMMON?

Researchers have identified numerous sources of income volatility (whether annual or intrayear). The relative importance of these is unclear, meaning that more research is needed to understand causation. Household income has three components – labor market earnings, non-labor transfers, and household composition – each of which can be unstable.

■ *Unstable labor market earnings*

The most obvious jolt to income from earnings comes from involuntary job loss, which may stem from employer actions (such as layoffs) or from personal circumstances (illness or disability). It may be complete or partial (a reduction in hours). Disruptions seem to have become more common over time as employers increasingly demand flexible labor and as the “on-demand” economy has grown. For workers with high skills or control over their hours, this can mean increased freedom as well as increased ability to mitigate volatility by supplementing income when needed. However, for lower-skilled workers and those with little control, increased flexibility equals unpredictability and income volatility. Low-wage jobs with steady recurring income are surprisingly rare.

“Over 40% of Americans who report variable monthly income blamed an irregular work schedule for the swings.”

The increasing demand for flexible labor itself has a number of possible root causes. Some of these do not necessarily suggest a directional trend: volatility is quite sensitive to business cycles, and certain industries (such as agriculture and wholesale and retail trade) are inherently more sporadic. Other causes of demand for more flexible labor appear to be associated with underlying structural and political changes: employers are experiencing greater volatility in sales and are passing this through to their employees, and a decrease in unionized workplaces reduces standardization of practices.



The degree of variation in annual hours worked has increased over time. Of equal significance is the variability and fluctuation of hours worked on even a daily basis. Over 40% of Americans who report variable monthly income blamed an irregular work schedule for the swings. This is true for full-time hourly work, but has an even greater impact on part-time work (which became more widespread during the Great Recession and remains at heightened levels) and temporary or seasonal jobs. Around half of the low-wage workforce is subject to precarious scheduling (such as lack of input on the hours to be worked and little advance notice of shift changes or cancellations).

The independent contracting that comprises the growing “gig” economy is defined in part by scheduling irregularity and unpredictability. Most self-employment is associated with highly volatile earnings in terms of both earnings per hour and hours worked. Some workers can tolerate this better than others. However, some limited evidence indicates that flexible access to additional income through online gigs serves as a cushion against dips in other earnings.

How one is paid for hours worked matters. Five-Friday months and year-end bonuses contribute to month-to-month volatility. Performance-based pay (which may be associated with the decline in union bargaining power) can result in variable bonuses and commissions year-round. Wage theft – not being paid for hours worked – is another source of unpredictability and instability, especially for day laborers and some other low-wage workers.

■ ***Unstable non-labor transfers***

For many, household income relies to some extent on public benefits or transfer payments. Some of these benefits are means-tested cash or voucher assistance for which eligibility is determined by income or other indicia of need (for example, the EITC-Earned Income Tax Credit, SNAP-Supplemental Nutritional Assistance Program, Housing Choice). Other payments constitute social insurance for which eligibility is determined by having previously paid into the system (such as Unemployment Insurance or Social Security).

Many transfer payments are interdependent with labor income, so they can to some extent replace earnings and cushion some instances of volatility (e.g. a laid off worker can become eligible for Unemployment Insurance and SNAP). However, benefit programs are not typically responsive to short-duration shifts in income and cannot mitigate that instability. Eligibility criteria can have perplexing effects from a volatility perspective. For example, a reduction in hours may make someone eligible for a larger EITC, but a complete loss of work can result in no EITC. “Benefit cliffs” – where \$1 additional income can result in complete loss of assistance – are themselves a source of income volatility.



Benefits programs are not very responsive to short-term shifts in income, and thus cannot mitigate volatility caused by illness or shifts in seasonal work.

Modifications of benefit structures and eligibility requirements in recent decades have also made transfer income more volatile. Unemployment Insurance coverage has diminished, and it does not offer any assistance to those with the most fluctuating earnings (such as seasonal workers). The 1996 law that “ended welfare as we know it” shifted many low-income families from the relative stability of monthly benefits to the variability of labor income supported by tax credits and other work-based assistance.

Increased reliance on the tax code for administration of income supports – principally the EITC but also the Additional Child Tax Credit – has greatly magnified a source of intrayear volatility: the once-a-year lump-sum tax refund. Refunds have long been used enthusiastically as an income shifting device through the forced savings mechanism of overwithholding. Now, full-time minimum wage workers supporting large families receive a refund equal to more than half of their annual earnings. Interestingly, many volatility researchers focus on pre-tax income to avoid the skewing effects of tax refunds, yet taxpayers experience refunds as a volatility spike.

■ ***Unstable household configurations***

Income volatility is affected both by changes in individual earnings and changes in household income. Over the last several decades, household income has changed due to the addition of earnings from women in the labor force. The fact that more women work today does not appear to explain the growth in overall variability, however. Among married couples in which each is working, there is less volatility, though there is evidence that the presence of a second earner does not provide the same buffer it once did.

Changes in family structure can cause harmful disruption and volatility in income flows. A wage earner may leave the family due to divorce or death. Welcome household events – such as marriage or birth – can destabilize income. As children grow up and parents age, care needs can shift (sometimes unpredictably) and affect earnings. While the likelihood of these life events does not seem to have increased over time, the extent to which they destabilize a family’s balance sheet has grown.



WHAT ABOUT VOLATILITY ON THE EXPENSE SIDE OF THE LEDGER?

Both sides of the household income and expense statement can fluctuate. What one spends is affected by what one has. There is also expense or spending volatility independent of household resources: prices go up, new needs arise, calamities occur, choices are made. For a household, both sides of the ledger matter. Pew's Survey of American Family Finances – one of the new sources of data related to volatility – uses the lens of financial shocks, which can result from either a dip in income or a spike in expenses.

Household consumption fluctuates considerably. Between 1970 and 2004, year-to-year volatility of household food consumption increased overall by 21% and was greater than that for non-white and less-educated households. As with income, expense volatility is highest at the top and bottom of the income distribution, though Pew found that for every additional \$10,000 in annual income, the likelihood of experiencing a shock decreased by 0.5 percentage points. The effect of shocks on financial security is greater for low-income households than high-income households and greater for African-Americans and Hispanics than for whites.

Between 1970 and 2004, year-to-year volatility of household food consumption increased overall by 21% and was greater for non-white and less-educated households.

Income and expense shocks often do not match up. The JP Morgan Chase Institute study found consumption volatility was higher than income volatility by 5% to 30%. The low- and moderate-income households in the U.S. Financial Diaries averaged around two spending spikes and two spending dips over twelve months; 61% of the spending spikes were not associated with an income spike, and 33% of them occurred when income was below the household's average.



A variety of unexpected events generate expense spikes: malfunctioning cars, appliances, or housing infrastructure; illness, infirmity, or death (both people and pets); commodity price increases; or needing to move. There are also spikes associated with predictable occurrences, such as tax bills and holiday spending. Spending also has a psychological element, which can blur the distinction between the unexpected and the predictable, and accentuate instability.

WHY DO WE NEED TO BE CONCERNED ABOUT INCOME VOLATILITY?

Income volatility exacts financial and non-financial costs with both immediate and long-term consequences.

Volatility would not be particularly worrisome if households were able to perfectly smooth consumption – by, say, saving, budgeting, borrowing, or insuring. But volatility has been found to delay and disrupt important household consumption, especially among those households with high levels of debt. Volatility also increases the risk of living in poverty and experiencing food insecurity. Intra-year volatility complicates a household's ability to access safety net programs. Fluctuation can lead to utility disruptions and housing instability. It may hinder the ability to obtain and maintain appropriate health care. There are also volatility-generated expenses such as late fees and higher financial transaction and credit servicing costs. Economically unstable households sometimes rely on unsafe and predatory financial products that have their own destabilizing consequences.

Income volatility can wreak havoc on household balance sheets as it disrupts the ability to make ends meet. Not only do savings not accumulate, but they can be depleted through actions such as raiding retirement accounts. Recent experience shows that the racial wealth gap exacerbates these disruptions for African-American and Hispanic households. On the liabilities side, an economically unstable household will often incur additional debt. Intra-year volatility can mean that a year in which a household's total income exceeds total expenses still includes a few months of living in poverty, and this can have negative long-term consequences if short-term coping involves disposition of assets or unreasonably heightened risk aversion.

Most people inherently value steadiness and security. Both the Pew survey and the US Financial Diaries found an overwhelming majority of households preferring stability to moving up the income ladder. Volatility undermines feelings of financial security, generating stress, anxiety, and even depression. It is cognitively taxing. This leads to worry and pessimism about



the future and tends to undermine planning. Financial instability can lead to family instability and negative impacts on health.

Of particular concern are harmful non-financial effects of income volatility on children. Studies are just beginning to focus on these questions, but initial evidence suggests that parents facing economic instability can be less involved and less consistent in child-rearing. There can be behavioral problems, reduced mastery of skills, and low self-esteem that hinder educational attainment. As adults, affected children may see reduced earnings and experience volatility themselves, almost as if it were inherited.

Of course, families develop their own tools to manage volatility. And the marketplace provides a wide array of options, some more useful than others, that facilitate income and consumption smoothing, including credit cards, payday loans, and mobile budgeting apps. The role that households, the financial industry, the technology sector, and government can play to mitigate volatility's worst effects will be the subject of a second, forthcoming EPIC brief.

WHAT DO WE NOT YET KNOW?

EPIC's look at income volatility includes identifying questions that deserve further explanation. Four areas of inquiry stand out.

■ *Significance of expense volatility*

The observed increased swings in household expenditures have likely been influenced by increased income fluctuations. However, the costs of some line items in household budgets – such as food, health care, housing, and transportation – have fluctuated significantly for most. To what extent is this the source of the growth in household economic instability in recent years, and what are the implications for addressing the negative effects of income volatility?

■ *Relevance of income spikes*

Some researchers focus exclusively on income drops since they clearly have more dire consequences than spikes. This brief examines changes in both directions, under the assumption that large, unexpected gains can present families with difficult cash management decisions in their own right. But do sudden gains deserve as much attention as sudden declines? Can understanding how households react to income spikes help inform the development of products and policies that allow families to better cope with downturns?



■ *Effects on economy as a whole*

On the one hand, classical economic theory posits a potentially positive relationship between microeconomic (household-level) volatility and macroeconomic growth as dynamism and creative destruction lead to greater efficiency and productivity. Is the income volatility observed today a necessary byproduct of a vigorous and healthy economy characterized by rapid technological innovation and globalization? If so, how can negative household-level effects be ameliorated without undermining growth?

On the other hand, volatility causing financial stress can be a drag on worker productivity potentially affecting the larger economy. Volatility that fuels consumer debt acquisition and diminishes savings can lead to “balance sheet” recessions such as the one from 2007 to 2009. Families constraining consumption or avoiding risk could impair macroeconomic demand and vitality. Could the ripple effects of income volatility through households coalesce into precarious waves that destabilize the larger economy and threaten growth?

■ *Distribution of incidence*

Are the same households affected by income volatility – whether annual or intrayear – year after year, or is the incidence widely distributed across the population? For those subject to repeated volatility, does it come from the same source again and again, or are the causes more varied? Among workers experiencing intrayear volatility, what is the breakdown by proximate cause (for example, seasonality, incentivized pay, week-to-week variation in hours, etc.)? Studies to date have not been able to discern these more finely-grained characteristics.

NEXT STEPS

This issue brief is the first step in EPIC’s process to understand better the challenges income volatility poses to the financial security of low- and moderate-income Americans. A March convening of researchers from academia, government, and industry refined a shared understanding of the incidence and impacts of income volatility, identifying both areas of consensus and some disagreements. A wider group of experts simultaneously considered these issues via an online survey, and EPIC will soon distribute the combined results. In June, a second convening and an additional online survey will examine what individuals, governments, and financial service providers can do to help families mitigate volatility’s worst effects and reduce the incidence altogether. EPIC’s final report on this topic later in 2016 will share the knowledge-synthesis.



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ABOUT FSP: The Aspen Institute’s Financial Security Program (FSP), formerly the Initiative on Financial Security (IFS), is dedicated to solving the most critical financial challenges facing America’s households, and to shaping policies and financial products that enable all Americans to save, invest, and own. For more information, please visit www.aspenfsp.org.

ABOUT EPIC: An initiative of the Aspen Institute’s Financial Security Program (FSP), the Expanding Prosperity Impact Collaborative (EPIC) is a new and neutral forum designed to harness the knowledge of experts working in applied, academic, government, and industry settings to identify new solutions to promote financial security. EPIC’s diverse panels of experts convene in person and online to develop analyses and forecasts related to a current issue critical to the financial security of millions of Americans. These analyses will help decision-makers understand and prioritize the issues affecting financial security, and then forge consensus and broad support to implement solutions. For more information, please visit www.aspenepic.org.



■ ENDNOTES

ANNUAL INCOME VOLATILITY

MOST – Dynan, Elmendorf, & Sichel (2012) found that volatility in household income, as measured by the standard deviation of two-year percent changes in Panel Study of Income Dynamics (PSID)-reported income, increased by 29% between 1971 and 2008. Gosselin & Zimmerman (2008) found that family income volatility, as measured by the PSID-reported annual divergence from a moving average, termed transitory variance, increased at the median by 63% between 1970 and 1998. See also Gorbachev (2011), Khan & Beede (2010), Hacker & Jacobs (2008), and Hardy & Ziliak (2013).

BUT NOT ALL – Using data from the Census Bureau’s Survey of Income and Program Participation (SIPP) and from the Social Security Administration’s (SSA) Detailed Earnings Record (DER), Dahl, Schwabish, & DeLeire (2008) found that “the fraction of households experiencing large [annual] changes in income [25 percent or more in either direction] has been relatively constant since the mid-1980s.” Using PSID data, the Pew Charitable Trusts (“Precarious” 2015) found the share of households experiencing an annual gain or loss of income of more than 25% remained stable between 1979 and 2011. See also Monti & Gathright (2013), Celik, Juhn, McCue, & Thompson (2012), Dahl, Schwabish, & DeLeire (2011), Jensen & Shore (2010), Sabelhaus & Song (2010), and Winship (2009).

SHARE - Hertz (2006), using data from the Current Population Survey (CPS) over three, two-year time periods: 1990-91, 1997-98, and 2003-04.

EACH END OF THE INCOME DISTRIBUTION - Using CPS data to construct a measure of volatility based on annual arc percent change, Hardy & Ziliak (2013) found that volatility increased 50% between 1980 and 2009 among the bottom 1% of the income spectrum, and by 185% among the top 1% of the income spectrum. See also Gottschalk & Moffitt (2009) and Gosselin & Zimmerman (2008).

MALES - There is an extensive literature on the growth in volatility of male earnings. See, for example, Gottschalk & Moffitt (1994), Daly & Duncan (1997), Cameron & Tracy (1998), Haider (2001), Keys (2006), Keys (2008), Gottschalk & Moffitt (2006), Gottschalk & Moffitt (2009), Shin & Solon (2010), Gottschalk, McEntarfer, & Moffitt (2008), Ziliak, Brady, & Bollinger (2011), and Moffitt & Gottschalk (2012).

BLACK HOUSEHOLD HEADS – Using the PSID, Keys (2006) found that the annual earnings volatility of black male heads of households increased 90% between 1970 and 2000, compared to 38% for white male heads of households, 17% for black female heads of households, and 9% for white female heads of households.

MORE MIXED FOR WOMEN – Dynan, Elmendorf, & Sichel (2012) found the volatility of annual female earnings decreased by 18% between 1971 and 2008. Hardy (2011) found a similar result for female earnings, but noted that when all income sources are included – not just labor earnings – year-to-year volatility for women increased between 1986 and 2008. See also Dahl, Schwabish, & DeLeire (2008), Hacker & Jacobs (2008), and Ziliak, Hardy, & Bollinger (2011).

FEMALE-HEADED HOUSEHOLDS – For example, Bollinger & Ziliak (2007) used CPS data to show that income volatility for single mothers experienced “unprecedented growth” between 1995 and 2004. See also Keys (2006).

PARTICULAR PREVALENCE – Using PSID data, Batchelder (2003) found larger annual divergences from average income between 1987 and 1992 among families in low income quartiles as opposed to higher ones, families led by black as opposed to white heads of households, and single parents as opposed to married ones. See also Hardy (2011), Keys (2006), and Keys (2008).

NEARLY HALF – Pew Charitable Trusts (“Precarious” 2015).

ROUGHLY ONE-QUARTER – Monti & Gathright (2013) found that “the fraction of people who experience [50% or greater] changes in earnings is large, ranging between about 23% and 27% of individuals using SIPP data and between about 20% and 26% using DER data.”

EQUAL WITH GAINS – Pew Charitable Trusts (“Precarious” 2015).



INTRAYEAR INCOME VOLATILITY

ONE STUDY – Bania & Leete (2009), using SIPP data to compare the median coefficient of variation in total monthly household income for household heads over a 12-month period in 1991-92 with a 12-month period in 2001-2003.

LOW-INCOME HOUSEHOLDS – Using SIPP data from 1996, 2001, and 2004, Acs, Loprest, & Nichols (2009) found that one in five adults in low-income families with children experience a 50% or greater drop in family income between consecutive four-month periods over the course of one year, compared to one in eight in the general population (all income groups). See also Bania & Leete (2009), Hannagan & Morduch (2015), Mills & Amick (2010), Newman (2006), and Newman (2008).

ESPECIALLY STEEP – Using SIPP data, Morris et al (2015) found households with children at the 10th percentile of income saw an increase in triannual (once every four months) income volatility of 77% between 1984 and 2008, while households with children at the 90th percentile saw income volatility fall by 18% over the same period. See also Bania & Leete (2009).

BELOW THE FEDERAL POVERTY LINE – Bania & Leete (2009), determining poverty level in the last month of each 12-month survey.

GREATER – Bania & Leete (2009) found heightened volatility among single-parent households, households receiving either welfare or food stamp assistance, renters, smaller households, and households in which the head did not complete high school. Using SIPP, Wolf, Gennetian, Morris, & Hill (2014) found that low- and middle-income households with high volatility are less likely to have a full-time earner, less likely to own a home, and more likely to own a business. Interestingly, there are mixed findings with respect to Hispanic households: Acs, Loprest, & Nichols (2009) found that Hispanics were more likely to experience a large monthly income drop, but Gennetian, Rodrigues, Hill, & Morris (2015) found that low-income Hispanic children are less likely to experience intrayear income volatility compared to low-income non-Hispanic children.

FEDERAL RESERVE – Federal Reserve (2014).

U.S. FINANCIAL DIARIES – Hannagan & Morduch (2015), based on in-depth interviews with 235 low- and moderate-income households in ten sites across the country.

JP MORGAN CHASE – Farrell & Greig (2015). See also Farrell & Greig (2016).

UNSTABLE LABOR MARKET EARNINGS

INVOLUNTARY JOB LOSS – Acs, Loprest, & Nichols (2009) found that individuals living in families that experienced a job loss are 7.5 percentage points more likely to experience a substantial income drop than those in other families. See also Federal Reserve (2014), Gosselin & Zimmerman (2008), Monti & Gathright (2013), Newman (2006), and Pew Charitable Trusts (“Cope” 2015).

MORE COMMON OVER TIME – For example, Peck & Theodore (2007) chronicle the rise of the temporary staffing industry in the U.S. from the early 1970s to 2000. See also Lambert (2008), Lambert & Henly (2009), Kalleberg (2003), and Shaefer (2008).

SUPPLEMENTING INCOME – Using Chase account information, Farrell & Greig (2016) found that labor platform earnings – in which individuals perform discrete tasks via an online platform (e.g., Uber, TaskRabbit) – were higher in months when participants saw a drop in their more traditional income.

RECURRING INCOME – Preliminary evidence from the U.S. Financial Diaries, as reported by Morduch & Schneider (2013), indicates that “even recurring employment income can fluctuate widely” (Figure 7, p. 5).

SENSITIVE TO BUSINESS CYCLE – For example, Cameron & Tracey (1998) found that “transitory earnings variance is very sensitive to the macro economic conditions as measured by the prime age male unemployment rate” (p. 2). See also Venn (2011) and Khan & Beede (2010).

CERTAIN INDUSTRIES – Hertz (2007) found that workers in U.S. states with more employment in certain industries, such as agriculture and wholesale and retail trade, as compared to manufacturing, experienced greater income volatility.



PASSING THROUGH TO EMPLOYEES – Comin, Groshen, & Rabin (2006) found that firm-level volatility explains 60% of the recent rise in worker-level volatility. See also Strain (2013) and Juhn, McCue, Monti, & Piece (2015).

DECREASE IN UNIONIZED WORKPLACES - Abras (2010) finds that jobs that pay some form of bonus or commission have higher volatility than jobs with wages subjected to collective bargaining. See also Hertz (2007).

INCREASED OVER TIME – Dynan, Elmendorf, & Sichel (2012) found the standard deviation of percent change of volatility of annual hours of household heads increased 30% between 1971 and 2008.

IRREGULAR WORK SCHEDULE – Federal Reserve (2014).

PART-TIME WORK – Lambert, Fugiel, & Henly (2014).

MORE WIDESPREAD – According to Valletta & Bengali (2013), the share of people working part-time rose 20% in the 2007-09 recession and stayed near that level through 2013.

TEMPORARY OR SEASONAL – Federal Reserve (2014), Morduch & Schneider (2015), and Peck & Theodore (2007).

PRECARIOUS SCHEDULING – Using the National Longitudinal Survey of Youth 1997 Cohort (NLSY97), Lambert, Fugiel, & Henly (2014) found “41 percent of early-career workers in hourly jobs overall—47 percent in part-time hourly jobs—report that they know when they will need to work one week or less in advance of the coming workweek. Half of them say that their employer decides the timing of their work hours and 3 in 4 report at least some fluctuations in the number of hours worked in the prior month.”

INDEPENDENT CONTRACTING – Rinehart & Gitis (2015) found that the number of workers in “alternative work arrangements” grew between 8.8% and 14.4% from 2002 to 2014. See also Government Accountability Office (2015) and Schiller (2010).

CUSHION AGAINST DIPS – Farrell & Greig (2016).

HOW ONE IS PAID – Abras (2010).

FIVE FRIDAY MONTHS – Farrell & Greig (2015).

PERFORMANCE-BASED PAY – Lemieux, MacLeod, & Parent (2011). But see Celik, Juhn, McCue, & Thompson (2012), who found “little evidence of a recent rise in earnings volatility among job stayers that could be attributed to incentive pay contracts” (p. 17).

WAGE THEFT –In a national survey of thousands of day laborers, Valenzuela, et al. (2006) found that “almost half of all day laborers experienced at least one instance of wage theft in the two months prior to being surveyed” (p. ii). See also Malhotra & Lonegan (2010), Bernhardt et al. (2009), and Seton Hall (2011).

UNSTABLE NON-LABOR TRANSFERS

CUSHION – Using SIPP, Mills & Amick (2010) found that “means-tested transfers dampen the variation in household income in the lowest [income] quintile.” Using CPS data, Hardy (2015) determined that “transfer programs lower[ed] family income instability by 18 percent since the early 1980s,” but that there has been a “gradual 30-year decline in the responsiveness of the U.S. safety net to earnings instability for female-headed households, black families, and families in the bottom income quintile.”

NOT TYPICALLY RESPONSIVE – After analyzing PSID data and reviewing the literature, Hacker & Jacobs (2008) found that the “likely causes of rising family income volatility include the growing variability of cash transfers.” Dynan, Elmendorf, & Sichel (2012) found that transfer income is highly volatile and became more so over the last forty years. See also Ben-Ishai (2015).

BENEFIT CLIFFS – Morris et al. (2014) write that “increasing income volatility for the lowest income families is primarily in unearned, rather than earned, sources of income, indicating this is not just about the changing nature of the low-wage labor market, but may have as much to do with the changing structure of public assistance that requires frequent certifications and strict income eligibility cutoffs.”



MODIFICATIONS OF BENEFIT STRUCTURES – Hardy & Ziliak (2013) found that “although transfers intercede to dampen family earnings volatility among lower income households, there is less smoothing from this source in recent years.” See also Ben-Ishai (2015).

UNEMPLOYMENT INSURANCE – Ben-Ishai, McHugh, & McKenna (2015) found that state Unemployment Insurance programs are not well designed for workers with volatile hours. See also Kimball & McHugh (2015) and Nicholson & Needles (2006).

LAW – According to Bania & Leete (2009), between 1992 and 2003, the share of volatility attributable to cash assistance (which was less volatile) dropped from 76% to 7% while share attributable to earnings (more volatile) rose from 55% to 68%. See also Bollinger & Ziliak (2007).

TAX REFUND – Holt (2015).

MANY VOLATILITY RESEARCHERS – For example, Hannagan & Morduch (2015).

UNSTABLE HOUSEHOLD CONFIGURATIONS

LESS VOLATILITY – Using data from the SIPP and SSA, Hryshko, Juhn, & McCue (2015) found that the variance of couples’ earnings in 2009 was 30% lower than the variance of husbands alone. See also Gosselin & Zimmerman (2008), Hertz (2007), Keys (2006), and Monti & Gathright (2013).

DOES NOT PROVIDE THE SAME BUFFER – Hacker & Jacobs (2008) found that “short-term family income variance essentially doubled from 1969-2004” and that the “stabilizing influence on family income of the decrease in female earnings instability is overwhelmed by the rise in men’s earnings instability.” See also Warren & Tyagi (2003).

LOSS OF WAGE EARNER – Acs, Loprest, & Nichols (2009) founds that “losing an adult family member increases the likelihood of a substantial income drop by 5.8 percentage points for individuals in families of four or more adults, by 7.0 percentage points for those moving from three- to two-adult families, and by 7.9 percentage points for those moving from two- to one-adult families” (p. 10). See also Gosselin & Zimmerman (2008) and Newman (2006).

WELCOME – Acs, Loprest, & Nichols (2009) found that “adding a child to the family increases the likelihood of an income drop by 1.4 percentage points” (p. 10). See also Newman (2006).

GROWN – In their analysis of PSID and SIPP data, Gosselin & Zimmerman (2008) found that the likelihood of large income drops increased from 1974 to 2004. Although “the probability of experiencing any of the seven events [divorce, death of a spouse, birth of a child, loss of work due to retirement or disability, major unemployment of the household head, the loss of work hours due to illness, and a decline in the wife’s work hours] in a given year declined from 21.0 percent to 19.2 percent, people who experienced these events grew substantially more likely to experience 50 percent income drops. Overall, the percentage of individuals experiencing income drops associated with destabilizing life events increased by almost half, from 14.3% in 1974-1983 to 20.2% in 1994-2003” (p. 22).

EXPENSE SIDE

FINANCIAL SHOCKS – Pew Charitable Trusts (“Cope” 2015) defines financial shocks as “any expense or loss of income that households do not plan for when budgeting, regardless of the extent to which the shock may harm families financially” (p. 3).

FOOD CONSUMPTION – Gorbachev (2011), with nonwhite household heads experiencing a 53% increase versus a 25% increase for white household heads.

EXPENSE VOLATILITY – Pew Charitable Trusts (“Cope” 2015).

EFFECT OF SHOCKS – Pew Charitable Trusts (“Cope” 2015), finding 62% of black and Hispanic households reported struggling financially as a result of a shock, compared to 53% of white households.

JP MORGAN CHASE – Farrell & Greig (2015).

U.S. FINANCIAL DIARIES – Hannagan & Morduch (2015).



UNEXPECTED EVENTS – The Pew Survey of American Family Finances includes income loss, illness, injury, divorce, death of a family member, car repair, and house repair as examples of expense shocks, or “some other large unexpected expense” (Pew Charitable Trusts “Cope” 2015), p. 4. See also Farrell & Greig (2015) and Khazan (2015) for other examples of expense shocks.

PREDICTABLE OCCURRENCES – Farrell & Greig (2015).

PSYCHOLOGICAL ELEMENT – Using original survey data, Howard, Hardisty, Knoll, & Sussman (2015) found that people predict future expenses 13% lower than actual expenses, mostly due to underestimating the number of future expenses rather than the amount.

WHY NEED TO BE CONCERNED

PERFECTLY SMOOTH – There is some evidence that consumers with predictably greater income uncertainty will accumulate more wealth to “insulate consumption against near-term fluctuations in income,” consistent with the “buffer-stock” model of saving (Carroll & Samwick, 1997). But this accumulated wealth may not be liquid: See, for example, Kaplan, Violante, & Weidner (2014), who found that between 25% and 40% of Americans live “hand-to-mouth” and that two-thirds of this group are wealthy in illiquid assets but have little or no liquid wealth. See also Gelman et al. (2015). And, as the following note shows, many individuals are unable to smooth consumption, whether because of short-run impatience (Hastings & Washington, 2009), failure to adjust to predictable variation in income timing (Leary & Wang, 2016), or other factors.

DELAY AND DISRUPT CONSUMPTION – Several studies demonstrate that income volatility impedes household consumption. Ganong & Noel (2015), Blundell, Pistaferri, & Preston (2008), McKernan, Ratcliffe, & Vinopal (2009), Pew Charitable Trusts (“Cope” 2015), and Venn (2011) found that families face increased hardship due to financial shocks. Gorbachev (2011) found that consumption volatility increased along with annual income volatility in the PSID sample from 1970 to 2004. Baker (2014) found that individuals with high levels of debt reduce their consumption in response to income fluctuations more than those without debt.

FOOD INSECURITY – Bania & Leete (2007) find in their analysis of SIPP data that income volatility increases the probability of food insufficiency. See Heflin, Corcoran, & Siefert (2014) and McKernan, Ratcliffe, & Vinopal (2009) for evidence of food insufficiency/insecurity due to job loss. In contrast, Dahl, DeLeire, & Mok (2012) find that imputed earnings data in the SIPP overstates the relationship between large income drops and food insufficiency.

SAFETY NET PROGRAMS – In a study of National School Lunch Program participants using SIPP data, Newman (2008) finds that two-thirds of NSLP participants experienced changes in their monthly eligibility over the course of a year due to income volatility. See also Ben-Ishai (2015), Lambert & Henly (2013), Moffit & Ribar (2008), and Newman (2006) for evidence of disruptions in benefit eligibility due to income volatility. In contrast, Gunderson & Ziliak (2008) found higher SNAP participation among those with above-average income volatility, and Mills et al. (2014) did not find ineligibility due to increased earnings a major cause of churn in SNAP participation.

HOUSING INSTABILITY – Boguslaw et al. (2013) found in their interviews that “families without an inheritance...typically have to draw down personal assets such as retirement accounts and housing” in the face of economic shocks (p.11).

HEALTH CARE – According to the Pew Survey of American Family Finances, households that suffered financial shocks were more likely to experience shortfalls, including “forgoing medical care” (Pew Charitable Trusts “Cope” 2015), p. 9.

TRANSACTION COSTS – A Center for Financial Services Innovation (CFSI) study (2014) estimated that in 2013, underserved consumers spent over \$9 billion on transaction products, such as money orders and check cashing, and nearly \$7 billion on overdraft fees.

PREDATORY FINANCIAL PRODUCTS – In 2013, consumers spent \$15 billion on single payment credit (such as payday loans and pawning) and \$22.1 billion on short-term credit (such as installment loans and rent-to-own) according to a 2014 CFSI study of industry report data. See Burhouse & Osaki (2012) and Leary & Wang (2016) for more on use of alternative financial products.



SAVINGS – Seventy-one percent of respondents to the Pew Survey of American Family Finances reported that unexpected expenses made it difficult to save (Pew Charitable Trusts, 2016).

RETIREMENT ACCOUNTS – In an analysis of the Survey of Consumer Finances (SCF), Fellowes & Willeman (2013) found that over 25% of U.S. working-age households breached their defined contribution retirement account in 2010, mostly to pay for basic living expenses. See Nichols & Favreault (2008) for more on the effect of volatility on retirement saving.

RACIAL WEALTH GAP – Using the SIPP and the National Asset Scorecard in Communities of Color, Tippet et al. (2014) found that in 2011, African Americans had a median liquid wealth of only \$200 and Latinos had a median liquid wealth of \$340, compared to \$23,000 held by whites; this disparity reduces the ability for people of color to weather financial shocks. See Kiel (2015) for information on debt collection and the racial wealth gap.

HEIGHTENED RISK AVERSION - Using Bank of Italy data, Guiso & Parigi (2008) found that “individuals who are more likely to face income uncertainty or to become liquidity-constrained exhibit a higher degree of risk aversion” (p. 1109). Within their sample, being liquidity-constrained lowers absolute risk tolerance by 4.4% (p.1111). For the theoretical underpinning, see Morduch (1994).

STEADINESS AND SECURITY – Ninety-two percent of respondents to the Pew Survey of American Family Finances said they would prefer to have financial stability rather than move up the income ladder (Pew Charitable Trust “Perception” 2015). See also Hannagan & Morduch (2015) and Cournéde, Garda, & Ziemann (2015).

STRESS – Prause, Dooley, & Huh (2009) found a positive association between income dips and depression, although more research on this subject is recommended. See Collins, Lienhardt, & Smeeding (2014) and Wolf, Gennetian, Morris, & Hill (2014) for more on potential psychological effects of income volatility.

PESSIMISM – Owen & Wu’s (2006) analysis of the SCF showed that unexpected financial shocks are associated with greater pessimism about the future of the economy.

PLANNING – Mullainathan & Shafir (2013) and Shah, Shafir, & Mullainathan (2014) found that scarcity leads to “tunnel vision,” or focus on immediate needs rather than future needs.

FAMILY INSTABILITY – Nunley’s (2007) analysis of the NLSY showed that drops in income increased the probability of divorce for both men and women. See also Voydanoff (1990).

HEALTH – Halliday’s (2007) analysis of PSID data showed an association between negative shocks and health deterioration, especially for working-aged men. See also Smith, Stoddard, & Barnes (2007) for information on the connection between economic insecurity and weight gain.

CHILDREN – Wolf, Gennetian, Morris, & Hill (2014) found that low-income households with higher income instability had more adverse schooling outcomes. See also Hill et al. (2013) and Hardy (2014).

CHILD-REARING – Pugh (2004) found in an ethnographic study that parents with volatile income have trouble making regular purchases for their children, leading to unsteady consumption. See also McLoyd, Jayaratne, Ceballo, & Borquez (1994) and Wolf, Gennetian, Morris, & Hill (2014).

EDUCATIONAL ATTAINMENT – Using 2004 SIPP panel data, Gennetian, Wolf, Hill, & Morris (2015) found that income instability was associated with adolescent school disengagement, suspensions, and expulsions. See also Kalil & Ziol-Guest (2005) for information on the relationship between job loss and academic and behavioral outcomes for children.

INHERITED – Using a Canadian panel data set, Oreopolous, Page, & Stevens (2005) found that children whose fathers experienced an economic shock had earnings 9% lower than children in comparable families. See also Shore (2012) for a discussion on propensity for self-employment across generations.



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