Income Volatility: New Research Results with Implications for Income Tax Filing and Liabilities

Elaine Maag, H. Elizabeth Peters, Anthony Hannagan, Cary Lou, and Julie Siwicki

May 25, 2017

ABSTRACT

Income volatility may complicate tax filing and predicting eligibility for critical tax benefits, such as the earned income tax credit. Half of all working-age adults—and 64 percent of low-income, working-age adults—have household income that for at least one month of the year will spike above or dip below 25 percent of their average monthly income. Nearly 40 percent of low-income, working-age adults have household income that spikes or dips in at least six months of the year. Adults living in households with self-employment income or adults moving in and out of households experience these spikes or dips more frequently than adults in other households.

Elaine Maag is a senior researcher at the Urban-Brookings Tax Policy Center, H. Elizabeth Peters is the director of the Center on Labor, Human Services, and Population (LHP) at the Urban Institute, and Cary Lou is a research associate in LHP. Anthony Hannagan is the data analysis manager and Julie Siwicki is a research associate for the U.S. Financial Diaries project. *We thank Krista Holub, Susan Mason, Jim Nunns, Tim Ogden, Caroline Ratcliffe, and David Williams for helpful comments on earlier drafts of this paper. We also thank Sara Edelstein who contributed significantly to the programming needed for the analysis related to the Survey of Income and Program Participation. The views expressed are those of the authors and should not be attributed to our funders, the Urban-Brookings Tax Policy Center, the Urban Institute, the Brookings Institution, or its trustees. Funders do not determine our research findings or the insights and recommendations of our experts. For more information on Urban's funding principles, go to www.urban.org/support; for more information on Brookings' donor guidelines, go to www.brookings.edu/support-brookings/donor-guidelines.*

INTRODUCTION

Individual and household income has become much more volatile since the 1970s (Jacobs and Hacker 2008). In part, the economy has changed from one characterized by long-term employment with the same employer to one with a greater reliance on informal jobs and with inconsistent work schedules (Kalleberg 2009; Katz and Krueger 2016; Valletta and van der List 2015). Several studies have examined this trend and documented the effects of income volatility on the financial security of individuals and households. In some cases, income volatility can be a household stabilizer. For example, a large tax refund that a family anticipates arriving in the spring could be used to cover bills that accumulated over the winter holidays. On the other hand, income volatility that cannot be predicted can be destabilizing, making it difficult to know how much a family can afford in rent, child care, and other important recurring bills. Income volatility can also affect income tax liabilities and the complexity of income tax filing. This report presents new research results on the frequency and causes of income instability that may affect income tax liabilities and filing, particularly for low-income individuals and families (those at or below 200 percent of the federal poverty level [FPL]).

Every spring, most Americans file federal income tax returns to determine how much tax they owe or (more commonly) how large a tax refund they will receive. The process requires filers to gather financial documentation to determine how much income they received during the year and how much tax has already been paid through withholding or other submissions to the Internal Revenue Service (IRS). In addition, families must sort through their living arrangements throughout the year and marital status at the end of the year to determine who should be included in the tax unit. The process is straightforward for many, but it can be fraught with confusion for others. This confusion stems in part from complex living arrangements, including multigenerational households, households with cohabiting couples, and households with shared custody of children (Maag, Peters, and Edelstein 2016).

Confusion can also arise from financial situations characterized by uneven income swings, which might be caused by inconsistent work schedules, workers piecing multiple income sources together (including self-employment), and households being required to remember and track different income streams, some of which are nontaxable (Morduch and Schneider 2013). Household financial swings and tax liability changes can also be caused by adults moving in and out of the household. Obviously, such uneven swings can affect a household's ability to meet monthly expenses. In addition, income swings caused by multiple income sources can make it difficult for people to gather the information they need to file tax returns. For low- and moderate-income families, income swings can make it difficult to predict how taxes, including refundable credits such as the earned income tax credit (EITC)

and child tax credit (CTC), will affect their tax refunds or the amount they owe at the end of the year. Research has found that these credits lift more working-age people out of poverty than any other government program (Renwick and Fox 2016). Families must also be able to correctly file tax returns and have some sense of the refund they will qualify for, because a family's tax refund may be the largest lump-sum payment they receive all year (Edin et al. 2015).

Refundable Credits Can Significantly Magnify Income Fluctions: Case Study of a Low-Income Family with Two Children

Suppose a family with two children began 2016 with monthly earnings of $1,161 and expected those earnings to continue throughout the year. The family's earnings would have been $13,932 in 2016, which would qualify the family for an EITC of $5,572 and a CTC of $1,640. Because this family would have no income tax liability, they would receive an income tax refund of at least $7,212 ($5,572 + $1,640, plus any tax that had been withheld through the year). If, however, the family's earnings dropped 25 percent during the final four months of 2016, their earnings for the year would be $12,772, a decline of $1,161 from the $13,932 they expected to earn at the beginning of the year. But their EITC would also decline by $464 (from $5,572 to $5,108) and their CTC would decline by $175 (from $1,640 to $1,465), reducing their refund by $638. The total reduction in the family's financial resources would therefore be almost $1,800, 55 percent larger than the $1,161 reduction in earnings alone. Although the family still qualifies for the EITC in this example, many families will move from being eligible for some credit to being ineligible. Although millions of families receive an EITC every year, the population is not stable. Over a 10-year period, analysts found that 61 percent of EITC recipients claimed the credit for two years or less (Dowd and Horowitz 2011).

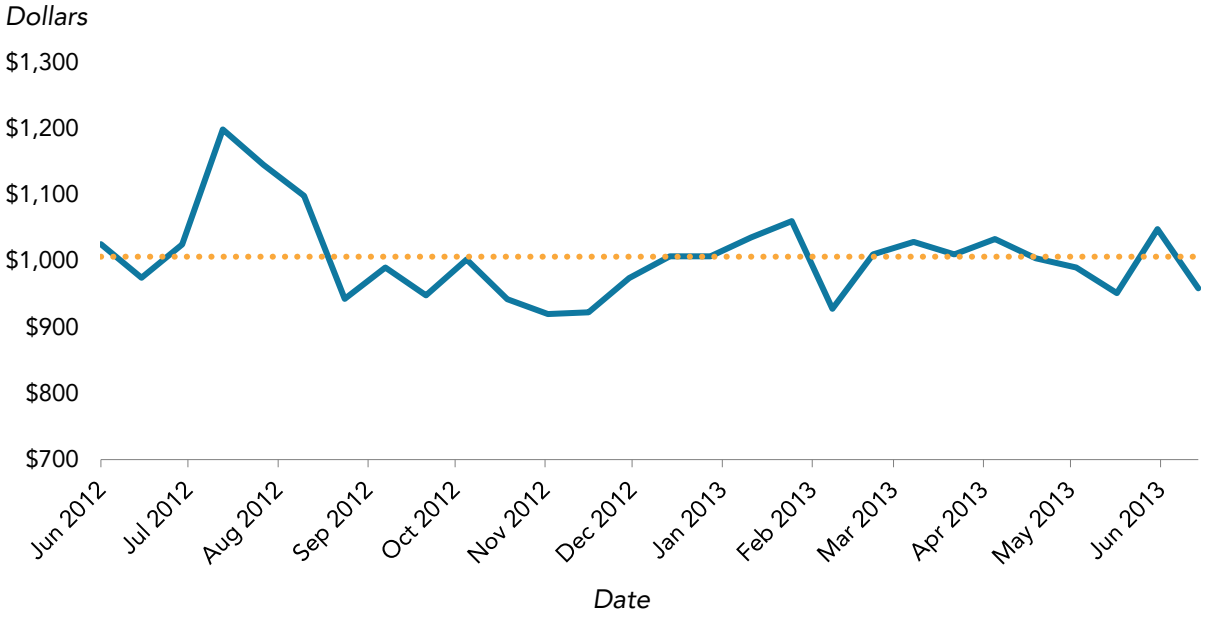
This report uses data for 2008–12 from the Survey of Income and Program Participation (SIPP), a nationally representative survey, to describe and analyze how household income fluctuates through the year. We combine that information with 2012–13 data from the U.S. Financial Diaries (USFD), a study of 235 low- and moderate-income households. The USFD is not nationally representative, but it has the advantage that its researchers spent more time interviewing each household and interviewed households more frequently than SIPP interviewers, aiming to capture more detailed, accurate, and complete data on respondents' finances within the year.

Our interest in how income volatility may affect taxes leads us to focus on taxable income rather than all income. For example, whether a person qualifies for various tax credits does not change because of the amount of transfer income he or she has. Specifically, the EITC is calculated based on a tax unit's[1] earnings and composition. Being able to predict taxable income is critical to being able to predict whether a family will receive the EITC and how large it will likely be.

As an example of how taxable income can change during the year, consider one of the participants in the US Financial Diaries: Janice Evans (a pseudonym), a single mother just over age 50. Evans earned on average $1,000 per paycheck in 2012–13 from her job at a casino in Mississippi, but the average hides considerable fluctuations from check to check. Depending on tips from her customers, the paychecks swung from $1,200 at the highest to near $900 at the lowest, about a 30 percent swing in earnings around her average (figure 1). On a monthly basis her earnings were even more volatile, swinging 60 percent around her average monthly pay. Although Evans' volatility was substantial, the average household in the USFD sample had still greater monthly volatility.

FIGURE 1

Janice's Biweekly Paychecks



Source: U.S. Financial Diaries.

Based on SIPP data, we find that more than half of all prime-working-age adults (those ages 25 to 50) experienced, in at least one month over the course of a year, a change in their household taxable income of at least 25 percent above (an income spike) or below (an income dip) their average monthly household income for the year. Prime-working-age adults in lower-income families appear more vulnerable to income fluctuations than those in higher-income families.[2] Among those families who started the year in low-income households, 64 percent experienced at least one month with a dip or spike. Presumably, dips are more difficult to deal with than spikes. About 39 percent of all prime-working-age adults had income in at least one month that dipped at least 25 percent below their average monthly household income over the course of the year. For those who started the year in low-income households, 56 percent experienced at least one month with a dip. Just under half (48 percent) of those in low-income families experienced an income spike of at least 25 percent.

Other than having low income, factors correlated with income volatility include being younger or single, having someone in the household be self-employed, working part time, starting or ending a job, having someone move in or out of the household, and, for low-income families, having no children in the household. Those relationships held constant even when controlling for demographic and other related characteristics in multivariate regression analyses.

For many, relatively large month-to-month income swings are the norm. Between 2009 and 2012, just over one-quarter of all prime-working-age adults had at least five months in a single year in which their household's income deviated at least 25 percent above or below their average monthly income for the year. Among those who started the year in a low-income household, 42 percent had at least 5 months with such an income dip or spike.

PRIOR RESEARCH ON INCOME VOLATILITY

A growing body of research documents income volatility, particularly for low- and moderate-income families. The volatility stems from many factors related to both jobs and family. Many studies rely on annual income and year-over-year volatility to document increasing income volatility over time. But some new studies aim to understand income swings that occur over periods shorter than a year. Some of the surveys are administered annually, with questions about monthly changes. In other studies, participants are interviewed very frequently. The Federal Reserve Board fielded an annual survey in which one-third of respondents reported having income that was not roughly the same from month to month (Larrimore, Dodini, and Thomas 2016). Closer analysis of the data shows that volatility was more common among lower-income respondents. Importantly, that survey asked respondents to identify what they considered volatility rather than suggesting that a certain variation indicated instability. It is unclear how much income would have needed to vary for respondents to report that it was volatile versus roughly the same each month. That survey also documented a high frequency of nonwage income sources, which tend to be more volatile than other income sources.

In contrast, the USFD[3] derived objective measures of volatility directly from respondents' regularly reported income and documented that 90 percent of households surveyed had at least one spike or dip during the year. Further, the average family in the USFD had as many as five months of the year with income 25 percent above or below average annual household income (Hannagan and Morduch 2015). Though the measures are not directly comparable, USFD seems to observe more income variability than the Federal Reserve Board's survey.

Previous literature found that economic factors such as low income and job loss are significantly related to earnings and income instability (Western et al. 2016; Acs, Loprest, and Nichols 2009). Factors negatively related to individuals' ability to work, such as having a disability or health issue, are also positively correlated with increased instability (Acs, Loprest, and Nichols 2009). Previous studies have also found that family composition and changes are associated with income instability. Losing a parent or adult from the family is related to increases in the probability of experiencing a significant income dip (Acs, Loprest, and Nichols 2009). Additionally, Western and colleagues (2016) found that volatility is highest among single parent families.

DATA SOURCES

SIPP

This report relies on information from the SIPP, which is a panel survey administered every four months to a nationally representative sample of the US civilian, noninstitutionalized population. The SIPP asks households to report on work, income, and demographic characteristics during the preceding four months. The panel we used provides information on a consistent group of people from September 2008 through December 2012, but our analysis focuses on the 2009–12 period, for which full calendar years of data are available. That period includes the later part of the Great Recession, which officially ended in June 2009, and the early recovery.[4]

We used SIPP data first to examine the frequency of significant income fluctuations during a calendar year and to analyze how each of several household characteristics, such as sources of income and the presence of children, affect the income volatility of the household in which a person is living. We then performed multivariate regressions to analyze how all such characteristics taken together affect that income volatility. In other words, we looked at how much income a person has access to in a household each month, and we measured how much that income changes and what characteristics are most correlated with those changes.

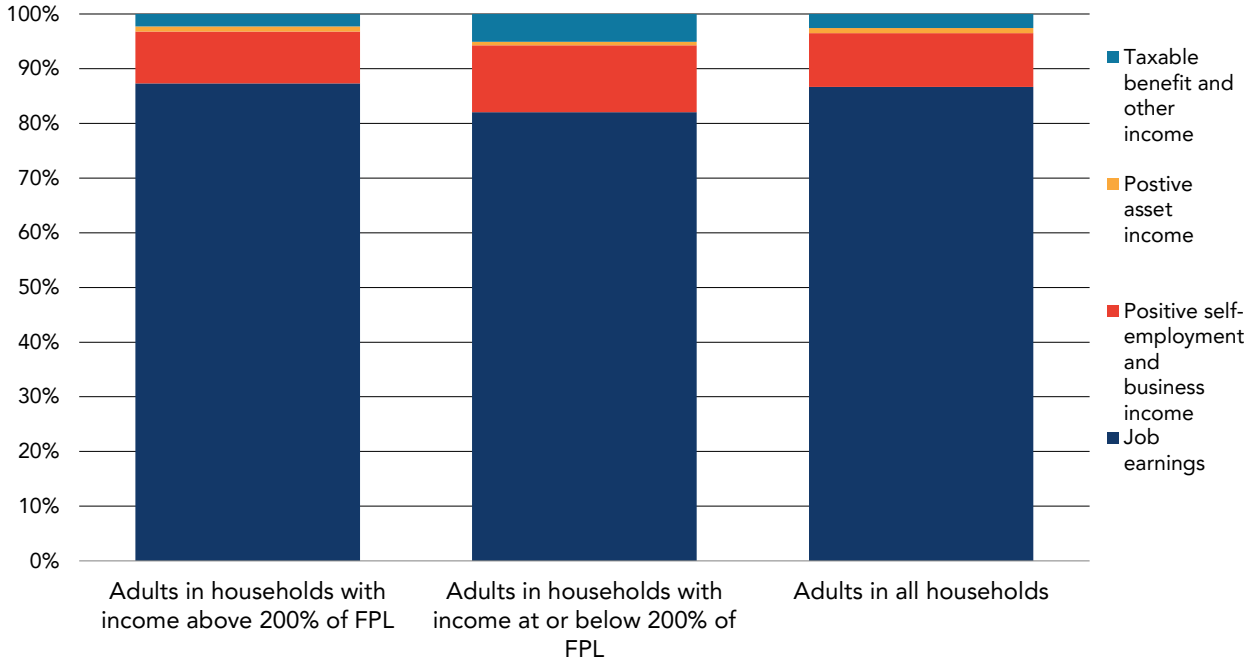
We focused our analysis on responses concerning the household and individual characteristics of 30,316 adults. To be included in our analytical sample, the individual had to have responded in the first wave of the panel, be of prime working age (25 to 50 years old) in January of the calendar year, have information included in the survey for all 12 months, and have a determinable relationship type in all months.[5] We ran univariate and regression analyses using individuals' survey weight in January of each year.

Taxable income includes earnings from jobs, self-employment income, asset income, and taxable benefit income.[6] For the average household, nearly 90 percent of income consisted of earnings from jobs (figure 2). Another 10 percent came from positive self-employment and business income; asset and benefit (and other) income each made up only 1 to 3 percent of taxable income (except among low-income households, among which around 5 percent of total taxable income came from benefit income or other sources).

FIGURE 2

Components of Taxable Household Income

Share of adults' taxable annual household income by source and total household income in January



Source: Survey of Income and Program Participation 2008 Panel.
Note: FPL = the federal poverty level.

US FINANCIAL DIARIES

The monthly income data in the SIPP allow us to measure dips and spikes in income within a year, whereas much existing research is based on annual data. However, the SIPP data may still be less accurate than data acquired through a more frequently administered survey simply because people may have difficulty recalling infrequent financial transactions, short-term jobs, and the date of transitions, even over a four-month period (Johnson et al. 2013; Lynn et al. 2005; Ver Ploeg et al. 2002).

We therefore supplemented the analysis of SIPP data with results from the USFD data. We referenced household stories and sample-wide summaries that draw from these data to help generate or refine hypotheses that may be tested at a larger scale in the SIPP, then we returned to the USFD data, attempting to compare the SIPP results against relevant USFD findings.

The USFD data contains high-frequency (daily) financial data for 235 low- and moderate-income households spread evenly across 10 research sites in four US regions (Northern California, New York City, Eastern Mississippi, and the Kentucky-Ohio border). It

also includes notes about large and small events in the household's life and deep-dive surveys into topics such as financial literacy and knowledge, patience and time-preferences, and formal and informal financial tools. The USFD methodology involves visiting households every two to six weeks, typically for 12 continuous months (May 2012 through September 2013, though the start and end month varied by household) and documenting every financial transaction (including informal and in-kind transfers) in the household (Morduch and Schneider 2017).

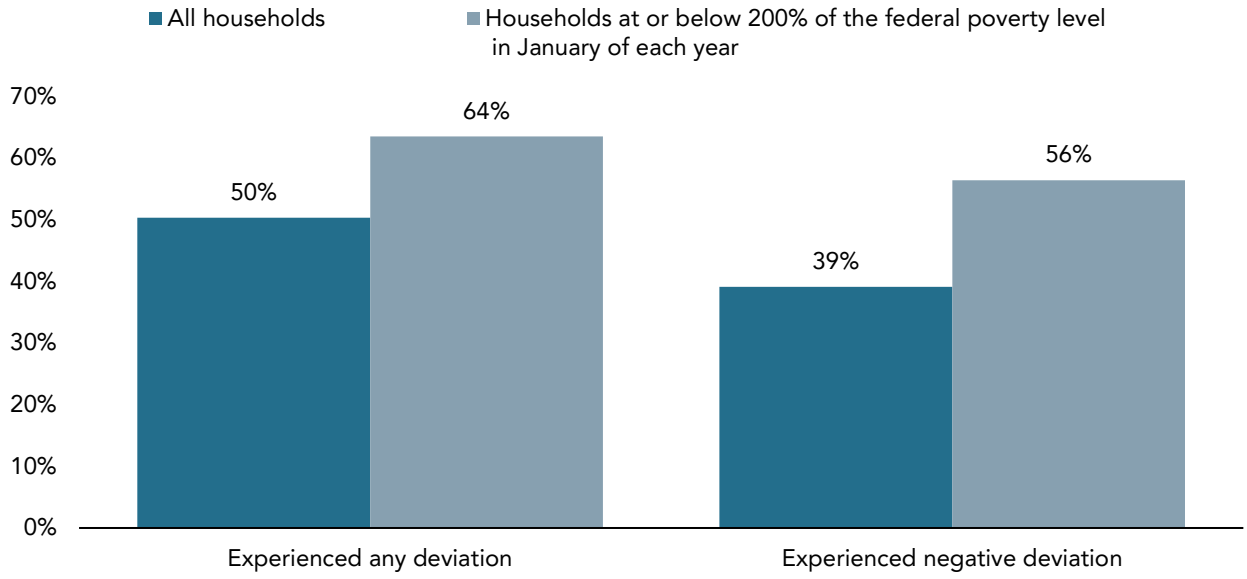
Surveys were administered in person by 12 field researchers. The USFD project collected just under 300,000 cash flows for the 235 households. We categorized income flows at a detailed level into an individual's job earnings, self-employment revenue and costs, and various transfers to the entire household (including, for example, informal transfers from friends and family as well as SNAP and other public benefits). This sample includes about 470 adults and has an average household size of 3.2 members. About 46 percent of households contained two or more adults plus children, 17 percent of households contained single parents, and 37 percent of households contained only adults. The USFD project recruits only working households. On average across households in the USFD data, 84 percent of taxable income consisted of earning from jobs, 10 percent came from self-employment, and the rest came from taxable transfers. Those shares resemble the SIPP's average for those with income at or below 200 percent of the federal poverty level (that group constitutes the majority of USFD households).

UNIVARIATE DATA ANALYSIS

We found that 50 percent of prime-working-age adults live in households that in at least one month experienced a change in their taxable income of at least 25 percent above (a spike) or below (a dip) their average monthly income for the year (figure 3). A larger share of people living in households that started the year with low income experienced an income spike or dip than did the share of people in all households. Specifically, the share of low-income households experiencing at least one month with a dip or spike was 64 percent. Negative dips were less common than spikes, occurring for 39 percent of all prime-working-age adults and 56 percent of those living in low-income households.

FIGURE 3

Share of Adults with a Spike or Dip in Taxable Household Income in any Month of the Year, 2009–12



Source: Survey of Income and Program Participation 2008 Panel.

Although spikes and dips were widespread in the USFD sample (more than 90 percent of households showed at least one), spikes or dips were more frequent for households that were below the relevant supplemental poverty measure, even after controlling for geographical and ethnic differences and measures of data quality.[1]

[1] The USFD data is better suited to be compared to the supplemental poverty measure than to the FPL, in part because most households were not confident about the exact pretax size of some income streams.

The average size of a spike in the USFD sample was close to 50 percent (above the household average) for each income group, and the average size of a dip was near 45 percent (below the household average) for each group. Thus, actual volatility was substantially larger than a 25 percent threshold would suggest.

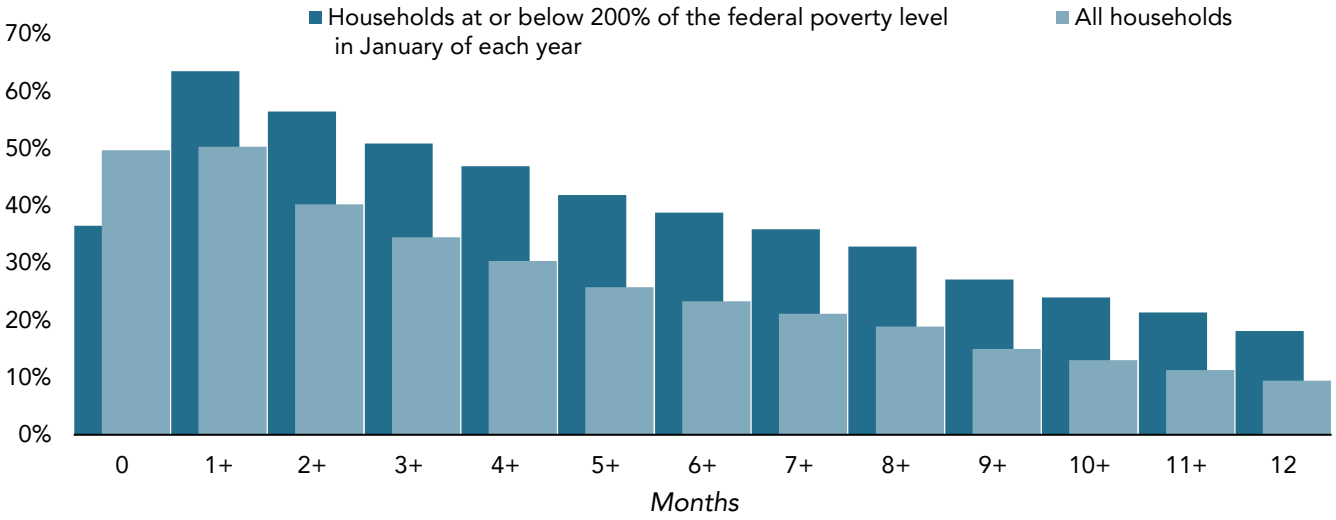
In the SIPP data, the average size of income swings was 74 percent for spikes and 60 percent for dips for the entire sample and 87 percent and 69 percent, respectively, for the low-income group. That means the actual swings experienced by these individuals were also generally much greater than the 25 percent threshold.

Further, although many individuals experienced just one such spike or dip in household income, these spikes and dips appeared to be the norm for some adults. Just over half of individuals starting the year in low-income households had at least three months with a dip or spike in household income (figure 4). For households at all income levels, the share of adults experiencing dips and spikes in household income over multiple months was lower, with about one-third experiencing a spike or dip in at least three months. Notably, 18 percent of individuals in low-income households never had a month in which their taxable household income was within 25 percent of their average monthly income over the year (true for about 9 percent of all adults). Predicting annual income could be nearly impossible for people experiencing such swings, making it difficult to plan a tax refund's effect on household finances.

Income dips were less common than total income changes, which is to say that monthly income for most people is characterized by fluctuations in both directions. Although dips in income may be more difficult for a household's monthly obligations, both dips and spikes are important for tax calculations. Tax benefits are predicated on annual income, and accurately predicting that income is necessary for households to anticipate how much assistance the tax system will provide.

FIGURE 4

Number of Months with a Spike or Dip in Adults' Taxable Household Income during the Year, 2009–12



Source: Survey of Income and Program Participation 2008 Panel.
Note: A household in the "12 months" category had monthly taxable income that was never within 25 percent of the annual average.

We found that income spikes and dips are correlated with several factors. Figures 5 through 8 show the share of adults living in households with income deviations by the characteristics most pronounced in the SIPP data: whether or not someone in the household had self-employment income, the individual's age, whether or not children were in the household, and whether the number of adults living in the household changed during the year. We tested each of these factors using a multivariate regression framework accounting for various characteristcs (see the Regression Analysis section), and the findings were consistent. Most striking was the influence of self-employment income, an income type that can be particularly tricky to document when filing taxes.

Households reporting self-employment income, predictably, saw their incomes fluctuate throughout the year. Although 55 percent of adults in households without self-employment income saw no months in which household income spiked or dipped, only 29 percent of those in households with self-employment income reported the same (figure 5). If individuals lived in a household that was low-income and had self-employment income, they were even less likely to experience no significant fluctuations (just 14 percent of these households had no spikes or dips in a year). Moreover, the number of months households with self-employment income experienced significant fluctuations was striking. Over half of adults living in low-income households that included self-employment income saw their household income spike or dip in at least eight months of the year. Less than one-third (28 percent) of adults in low-income households that did not include self-employment income experienced that many months of of an income spike or dip. In other words, having self-employment income was correlated with highly variable income.

FIGURE 5

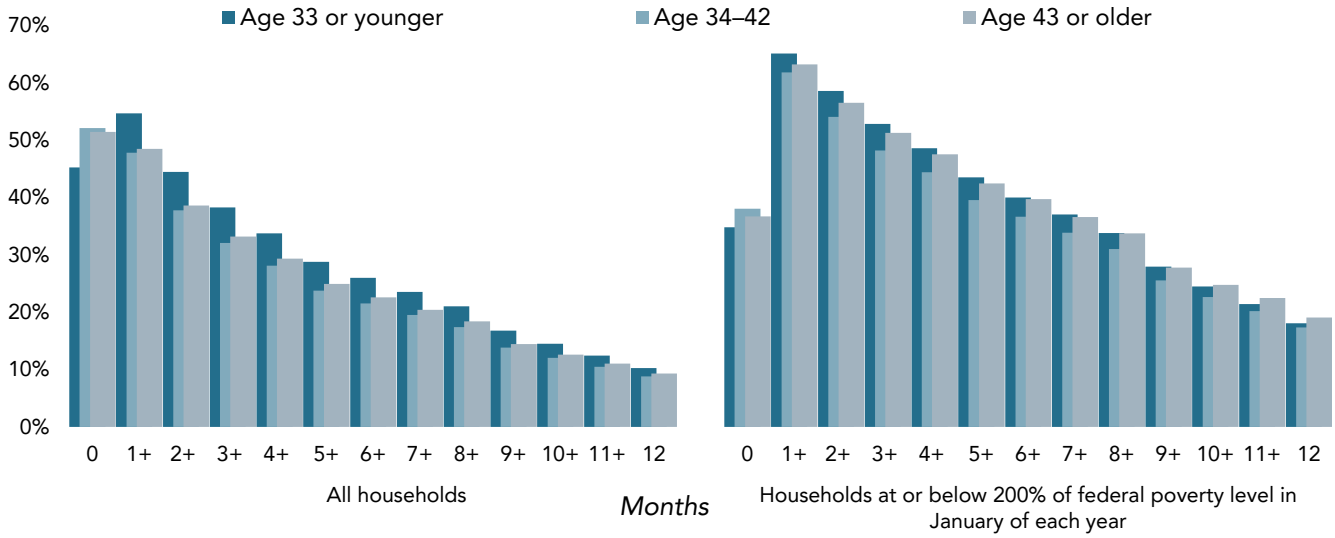
Number of Months with a Spike or Dip in Adults' Taxable Household Income in the Year, by Self-Employment Income Status, 2009–12

Source: Survey of Income and Program Participation 2008 Panel.

Further, we found that age is also an important factor associated with stability. The literature on job continuity shows that younger workers are more likely to change jobs as they search for a good match (Abel and Deitz 2015). Consistent with that literature, we found that 55 percent of individuals ages 25 to 33 had at least one month with a spike or dip in taxable household income; compare this with older adults, of which 48 percent of ages 34 to 42 and 49 percent of adults age 43 or above had at least one month with a spike or a dip. For the older two groups, the share that experienced an income deviation during the calendar year differs little from the overall sample (figure 6). Among individuals in low-income households, however, there is less of an age gradient; those age 43 or older experienced about as many household income deviations as the youngest group.

FIGURE 6

Number of Months with a Spike or Dip in Adults' Taxable Household Income in the Year by Age, 2009–12

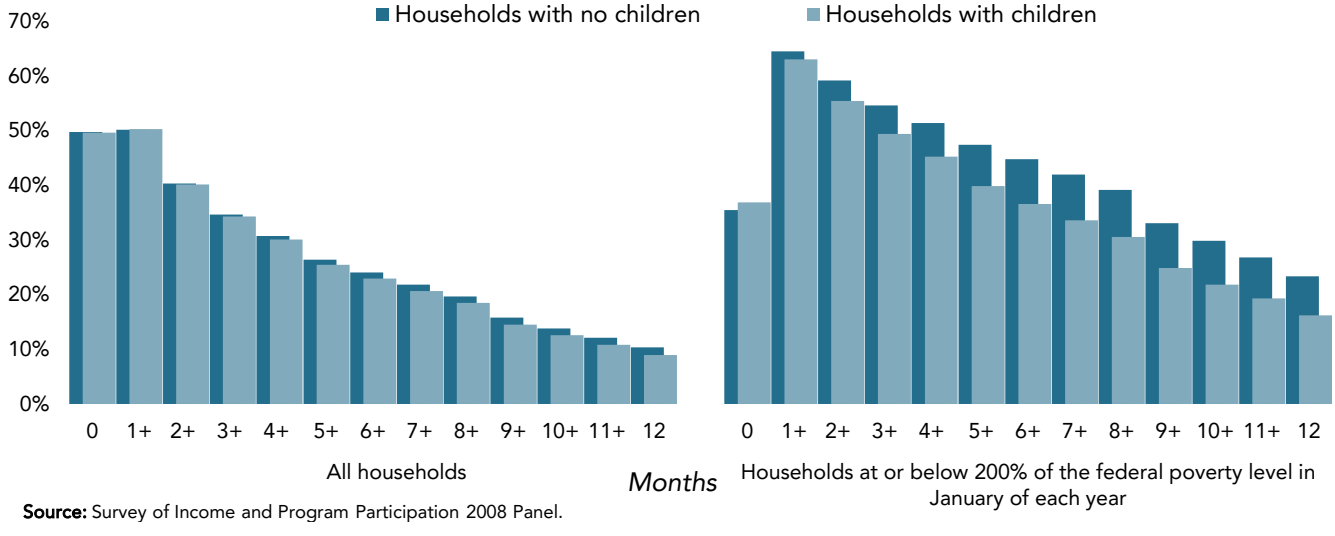


Source: Survey of Income and Program Participation 2008 Panel.

The presence of children in the household could theoretically have two different effects on income instability. Having children could reduce income instability if the responsibility of being a parent brings pressure to keep income steady. Alternatively, the presence of a child could increase instability if the cost of child care or the instability of child care arrangements make work more unstable. In these univariate figures, a child in the household is correlated with more- rather than less-stable incomes. Differences were relatively small for adults in all households and larger for those in low-income households (figure 7).

FIGURE 7

Number of Months with a Spike or Dip in Adults' Taxable Household Income in the Year, by Presence of Children, 2009–12

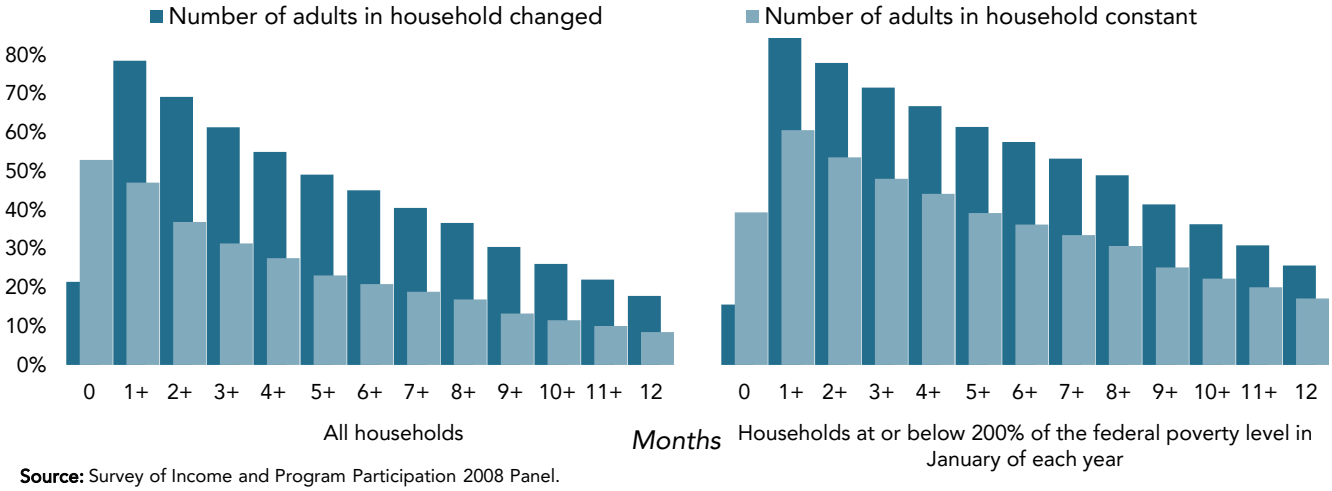


Source: Survey of Income and Program Participation 2008 Panel.

Finally, we found that households in which adults move in or out of the household are more likely to experience income spikes and dips. Working adults moving into a household arrive with income of their own, which can cause a positive spike; nonworking adults entering the household might disrupt the work schedules of existing household members if they are disabled or need care. Conversely, having an adult leave the household can disrupt household resources by taking away a source of income. A change in the number of adults in the household is associated with greater instability (figure 8).

FIGURE 8

Number of Months with a Spike or Dip in Adults' Taxable Household Income in Year, by Whether Number of Adults Changed, 2009–12



Source: Survey of Income and Program Participation 2008 Panel.

Adults and children moving in and out of the household can make it difficult to understand who ought to be included in a tax unit (Maag, Peters, and Edelstein 2016). Because moves in and out are also correlated with volatile income, they compound the difficulty of accurately predicting tax benefits. Beyond that, gathering appropriate documentation becomes complicated because individuals must reflect on income that might have changed a lot over a year.

The USFD research helps illustrate the many ways that income volatility emerges and the various forms it takes. Janice Evans, a participant mentioned earlier in this report, saw her paychecks and monthly income from her main income source vary a great deal each month. During the study year, Janice's son and grandchild moved back in with her after her son lost his job. Eventually, the son's unemployment benefits smoothed some of the household's total taxable income volatility, but overall volatility also increased when some benefits were withheld because of confusion at the state agencies about the composition of the household and its sources of income.

Another respondent, Sandra Young, has huge variability in her household income within the year because of her choice of jobs—she works as a tax preparer during tax season

but only part time during the rest of the year. Her income and tax liability changed further during the year when a friend passed away and she took in her friend's daughter and grandchildren temporarily, receiving some public assistance as a result.

Another household, the Cox family, saw an adult earner come and go during the year because he was incarcerated. Early in the year, this adult was on parole and bringing in income only informally; later, he was reincarcerated and then lived in a halfway house before he returned to the household and began earning income from formal sources. During some but not all months, the household received SNAP benefits on his behalf.

Elena Navarro, an adult woman in California, changed jobs twice during the year, leading to substantial spikes and dips during the study. Just before the study began, she separated from her husband and moved in with her sister and her mother. Elena's expenses were subsidized by her sister, while Elena substantially subsidized her mother.

As each of these cases illustrates, the volatility of income and of household arrangements can make tax planning and prediction quite difficult for households. It is not clear that a specific pattern could be detected or predicted in these changes that would allow for "rules of thumb" for tax planning.

REGRESSION ANALYSIS

Some people may fall into multiple groups that tend to experience higher volatility. For example, a person may be both young and self-employed. To better understand our findings, we used standard statistical techniques to test the relative importance of each characteristic. The method we used, ordinary least squares regression, also allowed us to assess whether the univariate results described above persist even when controlling for the multiple characteristics each person and household have. To that end, we included explanatory variables to capture household characteristics (family structure, presence and age of children, and whether an adult or child has entered or left the household), sociodemographic characteristics of the individual adult at the center of the analysis (race, ethnicity, age, and gender) and household head (education), work behavior and outcomes of the adults in the household (low-income status in January, presence of workers, if anyone worked part time, and if anyone lost or started a job), type of income (public assistance and self-employment) and the year being observed (allowing us to control for broader economic conditions).

Although the number of months that a person experiences a spike or dip is an intuitively appealing measure, we considered additional measures of instability to confirm whether results are consistent across different definitions. Those measures included the coefficient of variation of household income (a standard statistical measure of how much income varies over the year), the number of months in a year with any spike or dip (again

defined as deviations of at least 25 percent of annual average household income), the number of months in a year with a dip, and the number of months in a year with a spike.

We focused on taxable income, but we also looked at total income to provide a more complete picture of instability. We report the results below, providing specific magnitudes from the SIPP data and adding examples from USFD that provide additional insights. Presumably, the intensity of instability a person experiences would be correlated with their ability to predict eligibility for tax credits.

Our primary analysis was by household because it allowed us to capture household members' aggregate effects on volatility and because a household more closely reflects a tax unit than does an individual. Because specific households can form and dissolve throughout the year, however, it is easier to follow individuals living in households. Thus, our analysis focused on all adults ages 25 to 50, and we tracked the income stability or volatility in the households in which those individuals live. The household is also an important context because it allows for some risk spreading. For example, if one household member becomes unemployed, the impact of that event on household income instability may be buffered by increased work by other household members (except, of course, when unemployment is caused by a common economic shock, such as a recession). To analyze instability in individual income, we looked at volatility for individuals using this same framework. As with the descriptive analysis, we separated regressions for the full sample and for the low-income sample. Full regression results for the taxable and total income of all individuals, those living in low-income households, all households, and low-income households are reported in appendix D.

Mechanisms Related to Household Income Volatility

Household income can change over time for two primary reasons. The income of individuals in the household can change because of changes in wages, hours worked, or other types of income (e.g., self-employment, public assistance, child support). We call this "economic change." Alternatively, the number of people in the household who provide income can change. We call this a "change in household composition." These two types of changes can be related. For example, a person may join a household after losing a job (e.g., doubling up), or job loss could cause a breakup of a couple (Lindner and Peters 2014). The addition of another person to a household may also reduce household employment. For example, if a child or disabled adult enters the household, the number of workers in that household may decrease if there is a need to provide care for the new member. Finally, individuals leaving or entering a household could change the household's eligibility for certain types of public assistance benefits. Consistent with the results reported previously, we consider a volatile month to be one in which a person's household income rises at least 25 percent above

(spike) or below (dip) his or her average monthly household income over the year. Unless noted, these results reflect changes in taxable income.

Economic Change

Even after controlling for other household and individual characteristics, we found that people who start the year in low-income households (that is, having income at or below 200 percent of FPL) tend to experience greater instability than others; this is consistent with our univariate findings. Having low income is related to a nearly two-month increase in the number of months with a spike or dip in taxable income. Being low-income is associated with a slightly greater increase in the average number of months with a dip (1.1), than the increase in spikes (0.8 months).

The different sources or types of income (e.g., wage earnings, self-employment, and public assistance) that households rely on are also related to income volatility. For example, wage earners (e.g., those who have a job working for an employer) tend to have more stable earnings than those who rely exclusively on self-employment or business income. If self-employment and business income are used to counter or buffer uncertain wage income or job loss, however, income stability could be less. We measured how much the household relies on self-employment by finding self-employment earnings as a share of total earnings in the household. Our results show that the group with the least stable income is made up of those living in households where 75 to 100 percent of household earnings come from self-employment. Adults living in such households have an average of 3.6 more months with an income spike or dip than those living in households in which all workers are exclusively wage earners.

As shown by the USFD data and another study of high-frequency data (Farrell and Greig 2015), variation in job earnings is the largest component of income instability for households overall, and most of the variation from jobs comes from changes in monthly pay within the same job (rather than from switching jobs). Therefore, we controlled for two aspects of employment: whether household members experience job changes and whether workers were employed exclusively full time or if they were part time for at least one week. As expected, we found that job instability of any one household member increases the instability of household income. Having an individual start or end a job are both correlated with greater income instability across many measures. However, our results show that having a household member end a job has a greater effect on instability (an increase of 1.3 months with a spike or dip) than beginning a job (an increase of 0.8 months), in large part because of a larger increase in the number of months with a negative income change (0.7 versus 0.4 months).

Further, household income is also more unstable if anyone in the household worked part time; this is consistent with literature describing the uncertain nature of part-time work

(Lambert 2008). Having only full-time workers is associated with 0.8 fewer monthly income spikes or dips in a year. Of note, those living in households in which no adults worked (less than 5 percent of our sample) had the most stable income. Such households must have relied on types of income that were more stable overall.

The relationship between public assistance income and volatility differs depending on whether we look at taxable income or all income. Living in a household that receives public assistance is consistently associated with an increase in the volatility of taxable income, possibly because a loss in wage earnings triggers receipt of public assistance. However, the estimated increase in the number of months with a spike or dip in taxable household income for someone living in a household that received public assistance (0.8 months) is substantially smaller than the increase associated with starting the year in a low-income household (1.9 months) or a high share of self-employment income (3.6 months).

For all households, we found that having public assistance income is also correlated with an increase in the number of months with a spike or dip in total household income, but the correlation is much smaller than when considering only taxable income (0.3 months with a spike or dip in all income versus 0.8 months with one in taxable income). That relationship is likely because a significant portion of public assistance is counted in total income but not in taxable income, and such assistance offsets some (but not all) of the instability experienced by the population that receives it. When the analysis is limited to the low-income sample, we see a similar pattern: public assistance receipt is correlated with increased instability for taxable income (where that public assistance income is not counted) but correlated with decreased instability (relative to those that did not receive public assistance) for measures of total income.

Household Composition

Aspects of household composition and stability also relate to income instability. Household members entering or leaving within the year represent one source of household income instability. When working adults enter or leave, household income directly increases or decreases. Our results show that a working adult entering the household increases the number of months an individual has income spikes or dips by an average of 1.5 over the course of the year. A working adult leaving the household is correlated with an average increase of 1.1 months with an income spike or dip. Income variability can be indirectly affected when the entrance or exit of household members alters the work or eligibility for transfers of remaining household members. For example, the entrance of a child or a nonworking, disabled adult might reduce the labor supply of some household members if they are needed to provide care. Alternatively, a grandmother might enter the household to provide child care and free up the mother's time for work.

We found that individuals living in households in which nonworking adults enter or leave experience more spikes or dips in household income. The entrance or exit of a nonworking adult to a household is correlated with an increase of 0.4 or 0.5, respectively, in the number of months with a spike or dip in taxable household income. Similarly, a change in the number of children in the household is associated with a 0.6 month increase in the number of monthly spikes and dips a household experiences.

Other aspects of household composition are also associated with stability or instability of income. Living in a single-adult household is correlated with having less-stable income compared with living in a married-couple household, though the average difference is relatively small. Adults living in a single-adult households experience, on average, 0.7 months more with an income change than those living in a married-couple household. Consistent with our earlier descriptive results, we found that on average, households with children are less likely to experience income swings than households without children. However, we also found that having children age 4 or under is only about half as stabilizing as having children ages 5 to 18. This is consistent with our earlier hypothesis: balancing work and family is likely more difficult for families with young children and such difficulty might destabilize incomes, partly offsetting the general stabilizing effect of children.

Individual versus Household Income

Variability in individual incomes drives the variability in household income. The household can diversify risk and stabilize income if household members' incomes are negatively correlated. Alternatively, household income could increase instability if individual incomes are positively correlated, which could happen if individuals with similar risk fastors tend to live together. We estimated the covariance in household members' incomes and found that on average, incomes are slightly positively correlated.[7] Specifically, household members' incomes are postively correlated for 55 percent of households.[8] However, that suggests that in many households (45 percent), incomes are negatively correlated and households act to diversify risk. We checked whether observable economic or demographic household characteristics were systematically related to whether the household members' incomes were positively or negatively correlated with each other, but we did not find any consistent patterns.

We also tested the association between economic and demographic characteristics and the variability of individual incomes, similar to what we did for housholds (see appendix D). Generally, we found similar variables were significantly associated with the variability in individuals' incomes as were associated with the variability in household incomes, although the magnitudes of the associations differed.

CONCLUSION

A majority of adults live in households in which income in at least one month will fluctuate at least 25 percent above or below their average monthly income over the course of the year. This monthly variation can lead to difficulties during tax return filing for at least two reasons. First, individuals and couples must report their annual income to accurately file a tax return. People who live in households with highly volatile income likely have several income sources, inconsistent income sources, or changes in who contributes to the household income. All of those situations complicate tax filing.

Second, receipt of the EITC, the single largest antipoverty program for working-age people in the United States, is dependent on both the number of children in a tax unit and earnings. Complexity in households may make it difficult to understand what tax credits a person will qualify for, particularly when multiple adults care for a single child across multiple households (Maag, Peters, and Edelstein 2016). Equally vexing can be predicting income for households that experience large month-to-month swings.

Volatile taxable income is correlated with economic conditions (that is, whether a household has self-employment income, relies on part-time jobs, started or ended a job, or is low-income in general). Family changes are also correlated with changes in monthly income, and such changes can be both direct (through earnings attributed to members who entered or left the household) or indirect (through changes in labor supply of existing household members in response to changes in household composition or income). Households with adults moving in and out are more volatile, and households with children, particularly older children are less volatile.

If people are unable to accurately predict their annual income because their monthly income varies, they may guess incorrectly at the tax refund they will receive. In some cases, the EITC will be larger than anticipated, a situation that could be welcome in many low-income households. In other cases, a family might anticipate receiving a large credit from their return and receive no credit or a smaller credit. Because families tend to plan how they will spend their refund, not receiving the anticipated refund could disrupt the household. For example, they might be opting to delay medical care or a car repair. That missed income could produce an additional economic strain.

APPENDIX A. HOUSEHOLD CHARACTERISTICS OF ANALYTIC SAMPLE AND OMITTED GROUP

To be included in our analytic sample, individuals needed to be present in wave one of the survey, be age 25 to 50 in January, respond in all 12 months, and have a determinable family type during the year. Annual person observations that did not meet those criteria were dropped. As shown in table A1, individuals in the analytic sample were slightly more likely than the omitted group to reside in a household that has a cohabiting or single head, a head with a bachelor's degree or above, a change in the number of children present, all workers employed full-time exclusively, and someone start or end a job. This group is also more likely to be white, non-Hispanic; age 34 and above; and surveyed four times during the year. Analytic group individuals were less likely to live in a household that was low-income in January; received public assistance; had 25 to 49 percent of earnings from self-employment or businesses; had children present; had a nonworking adult join the household or either a working or nonworking adult leave the household; and had no workers or at least one worker that worked part time during the year. The omitted group also has slightly less income volatility, so the analytic sample may overstate the level of household income instability individuals face.

TABLE A1

Characteristics of Analytic and Omitted Groups

Annual household income variation and individual and household explanatory characteristics

Outcomes	Average of omitted individuals	Average of analytic sample individuals
Coefficient of variation, taxable household income	0.27	0.27[a]
Coefficient of variation, total household income	0.22	0.23
Number of months with any 25% deviation in taxable household income	2.5	2.9
Number of months with a negative 25% deviation in taxable household income	1.4	1.6
Number of months with a positive 25% deviation in taxable household income	1.2	1.3
Number of months with any 25% deviation in total household income	2.2	2.7
Number of months with a negative 25% deviation in total household income	1.2	1.4
Number of months with a positive 25% deviation in total household income	1.0	1.3
Explanatory characteristics	**Share of omitted individuals (%)**	**Share of analytic sample individuals (%)**
Household head married in December	67	65
Household head cohabiting in December	5	7
Household head single in December	27	28
Total household income is at 200% of FPL or below in January	38	32

Explanatory characteristics	Share of omitted individuals (%)	Share of analytic sample individuals (%)
Household head has less than a high school education	12	10
Household head has a high school education	24	21
Household head attended some college or has an associate's degree	36	35
Household head has a bachelor's degree or higher	28	34
Household received public assistance income	31	24
Self-employment and business earnings are 0% of household earned income	80	81[a]
Self-employment and business earnings are 1–24% of household earned income	8	8[a]
Self-employment and business earnings are 25–49% of household earned income	3	3
Self-employment and business earnings are 50–74% of household earned income	3	2[a]
Self-employment and business earnings are 75–100% of household earned income	6	6[a]
Children age 4 and under present in household	30	28
Children ages 5–18 present in household	71	54
Change in the number of children present in household	7	8
Working adult joined the household	2	2[a]
Nonworking adult joined the household	2	2
Working adult left the household	4	3
Nonworking adult left the household	3	2
No household member worked	6	5
All household workers were employed full time while working	38	42
At least one worker in household was employed part time at least one week	56	53
Someone in household started a job	24	25
Someone in household ended a job	23	24
Individual is white, non-Hispanic	57	64
Individual is black, non-Hispanic	13	12
Individual is Hispanic	21	17
Individual is other, non-Hispanic	9	7
Individual is male	51	49[a]
Individual is female	49	51[a]
Individual was age 33 or younger in January	72	32
Individual was age 34–42 in January	7	34
Individual was age 43 or older in January	21	34
Four survey waves in year	44	74
Three or fewer survey waves in year	56	26

Source: Survey of Income and Program Participation 2008 Panel.
Note: Percentages may not total 100 because of rounding. Figures reflect person level weighting. All differences between the two groups, except those marked with [a], are significant at the 95 percent level.

APPENDIX B. INCOME DEFINITIONS

TAXABLE INCOME

Job income consists of total earnings from primary and secondary jobs plus any severance pay; self-employment income consists of total earnings from primary and secondary sources of self-employment or owned businesses plus incidental or casual earnings and positive net profits; positive asset income consists of net positive income from all assets; and taxable benefit income consists of unemployment compensation, employer disability payments, alimony, withdrawals from tax-deferred retirement accounts (such as an IRA, KEOGH, 401k, or thrift plan), and pension payments except those for veterans' disability, survivors, or other retirement.

TOTAL INCOME

Total income includes all the components of taxable income plus additional sources of benefit and other income which include: social security income; railroad retirement income; veterans compensation or pensions related to a disability; retirement disability or survivor payments; paid-up life insurance policy income; supplemental security income; workers compensation; payments from a sickness, accident, or disability insurance policy purchased for oneself; foster child care payments; child support payments; food stamps; Women, Infants, and Children program compensation; food assistance; transportation assistance gas vouchers and subway tokens; clothing assistance; short-term cash assistance; public assistance payments (including Temporary Assistance for Needy Families); general assistance or relief; other government income; other welfare; money from relatives or friends; and lump sum payments received.

Detailed results of our univariate analysis are presented in the tables below. The share of individuals with the specified number of monthly deviations in household taxable income is reported by key household and individual characteristics. Table C1 presents figures for the entire sample; table C2 concentrates on adults living in households with total incomes at or below 200 percent of FPL in January.

TABLE C1

Share of Adults with a 25 Percent Deviation in Taxable Household Income, by Explanatory Characteristic and Number of Months with a Deviation

Explanatory characteristic	0	1+	2+	3+	4+	5+	6+	7+	8+	9+	10+	11+	12
Living in household with total income at or below 200% of FPL in January	37	63	56	51	47	42	39	36	33	27	24	21	18
Living in household with no positive self-employment or business earnings	55	45	35	30	26	21	19	17	16	13	11	10	8
Living in household with positive self-employment or business earnings	29	71	61	55	51	44	40	37	33	24	20	17	14
Individual is age 33 or younger in January	45	55	44	38	34	29	26	24	21	17	15	12	10
Individual is age 34–42 in January	52	48	38	32	28	24	22	20	17	14	12	10	9
Individual is age 43 or older in January	51	49	39	33	29	25	23	20	18	14	13	11	9
Living in household with no children present	50	50	40	35	31	26	24	22	20	16	14	12	10
Living in household with children present	50	50	40	34	30	25	23	21	18	15	13	11	9
Living in household with no change in the number of adults present	53	47	37	31	28	23	21	19	17	13	12	10	8
Living in household with change in the number of adults present	21	79	69	61	55	49	45	41	37	30	26	22	18
Living in household that did not receive public assistance income	54	46	36	30	26	21	19	17	15	12	10	8	7
Living in household that received public assistance income	37	63	55	49	45	40	37	34	31	26	23	20	17
All adults in sample	50	50	40	34	30	26	23	21	19	15	13	11	9

Source: Survey of Income and Program Participation 2008 Panel.
Note: FPL = the federal poverty level. Percentages may not total 100 because of rounding. Figures reflect person-level weighting.

TABLE C2

Share of Adults in Low-Income Households by Number of Months with a 25% Deviation in Taxable Household Income and Explanatory Characteristics

Annual income variation and explanatory characteristics

Explanatory characteristics	0	1+	2+	3+	4+	5+	6+	7+	8+	9+	10+	11+	12
Living in household with no positive self-employment or business earnings	42	58	51	45	41	36	33	31	28	24	21	19	16
Living in household with positive self-employment or business earnings	14	86	80	74	71	64	61	57	52	39	34	30	25
Individual is age 33 or younger in January	35	65	59	53	49	44	40	37	34	28	25	21	18
Individual is age 34-42 in January	38	62	54	48	44	40	37	34	31	26	23	20	17
Individual is age 43 or older in January	37	63	57	51	48	42	40	37	34	28	25	22	19
Living in household with no children present	35	65	59	55	51	47	45	42	39	33	30	27	23
Living in household with children present	37	63	55	49	45	40	37	34	31	25	22	19	16
Living in household with no change in the number of adults present	39	61	54	48	44	39	36	34	31	25	22	20	17
Living in household with change in the number of adults present	16	84	78	72	67	61	58	53	49	41	36	31	26
Living in household that did not receive public assistance income	36	64	56	50	46	41	38	35	32	25	23	20	17
Living in household that received public assistance income	37	63	57	51	47	43	40	37	34	29	25	23	19
All adults in sample living in a household with total income at 200% of poverty or below in January	37	63	56	51	47	42	39	36	33	27	24	21	18

Source: Survey of Income and Program Participation (SIPP) 2008 Panel.
Note: Percentages may not total 100 because of rounding. Figures reflect person-level weighting.

APPENDIX D. REGRESSION TABLES

The full results of our preferred regression specifications summarized in the Regression Analysis section appear in tables D1 through D8. Each column represents a separate model with a different measure of income instability and the same set of explanatory and control variables. The various measures of income instability vary by whether they are a standard statistical measure of deviation (the coefficient of variation) or based on the 25 percent threshold used by USDF, which are further divided into any, negative, and positive deviations. All regression models use individuals' January weight, use robust standard errors clustered by original household (tables D1 through D4) or individual (tables D5 through D8), and are run at the annual-person level. Tables D1 through D8 differ by whether they present outcomes for the entire adult sample or only those living in low-income households in January, examine total or only taxable income, and concentrate on household or personal income.

TABLE D1

Regression Results: Deviations in Taxable Household Income

Relationships between annual measures of variation in taxable household income and household and individual explanatory characteristics of sample persons

Explanatory characteristics	Group share (%)	Coefficient of variation, taxable household income (mean 0.27)	Number of months with any 25% deviation in taxable income (mean 2.9)	Number of months with a negative 25% deviation in taxable income (mean 1.6)	Number of months with a positive 25% deviation in taxable income (mean 1.3)
Household head married in December (baseline)	66				
Household head cohabiting in December	7	0.0194*	0.252**	0.155**	0.0967*
Household head single in December	28	0.0732***	0.684***	0.390***	0.294***
Total household income is at 200% of FPL or below in January	32	0.178***	1.948***	1.114***	0.834***
Household head has less than a high school education	10	-0.0171	-0.103	-0.0547	-0.0487
Household head has a high school education	21	-0.0162**	-0.144*	-0.0707	-0.0732*

Explanatory characteristics	Group share (%)	Coefficient of variation, taxable household income (mean 0.27)	Number of months with any 25% deviation in taxable income (mean 2.9)	Number of months with a negative 25% deviation in taxable income (mean 1.6)	Number of months with a positive 25% deviation in taxable income (mean 1.3)
Household head attended some college or has an associate's degree	35	-0.00842	-0.0796	-0.0361	-0.0435
Household head has a bachelor's degree or higher (baseline)	34				
Household received public assistance income	24	0.0972***	0.845***	0.534***	0.311***
Self-employment and business earnings are 0% of household earned income (baseline)	81				
Self-employment and business earnings are 1–24% of household earned income	8	0.0398***	0.580***	0.256***	0.324***
Self-employment and business earnings are 25–49% of household earned income	3	0.139***	2.420***	1.442***	0.978***
Self-employment and business earnings are 50–74% of household earned income	3	0.167***	2.577***	1.545***	1.032***
Self-employment and business earnings are 75–100% of household earned income	6	0.343***	3.644***	2.199***	1.445***
Children age 4 or under present in household	28	-0.0266***	-0.262***	-0.152***	-0.110***
Children age 5–18 present in household	54	-0.0354***	-0.484***	-0.278***	-0.206***
Change in the number of children present in household	9	0.0570***	0.624***	0.367***	0.257***
Working adult joined the household	2	0.0844***	1.452***	0.810***	0.642***
Nonworking adult joined the household	2	0.0443**	0.376**	0.208*	0.169*
Working adult left the household	3	0.0710***	1.147***	0.612***	0.536***
Nonworking adult left the household	2	0.0596***	0.472***	0.304***	0.168**
No household member worked	5	-0.0484**	-1.298***	-0.565***	-0.732***
All household workers were employed full time while working	42	-0.0663***	-0.795***	-0.456***	-0.339***
At least one worker in household was employed part time at least one week (baseline)	53				
Someone in household started a job	25	0.0562***	0.823***	0.402***	0.421***
Someone in household ended a job	24	0.102***	1.305***	0.720***	0.585***

Explanatory characteristics	Group share (%)	Coefficient of variation, taxable household income (mean 0.27)	Number of months with any 25% deviation in taxable income (mean 2.9)	Number of months with a negative 25% deviation in taxable income (mean 1.6)	Number of months with a positive 25% deviation in taxable income (mean 1.3)
Individual is white, non-Hispanic (baseline)	64				
Individual is black, non-Hispanic	11	-0.0131	-0.1	-0.059	-0.0415
Individual is Hispanic	17	-0.0461***	-0.280***	-0.183***	-0.0963**
Individual is other, non-Hispanic	7	0.0103	0.068	0.0428	0.0253
Individual is male (baseline)	49				
Individual is female	52	0.00331	-0.0198	0.00022	-0.02
Individual was age 33 or younger in January (baseline)	32				
Individual was age 34–42 in January	34	-0.00428	-0.143**	-0.0609*	-0.0818***
Individual was age 43 or older in January	34	-0.0119*	-0.252***	-0.126***	-0.126***
Year 2009 (baseline)	26				
Year 2010	25	-0.00725*	-0.0258	-0.0228	-0.00305
Year 2011	25	-0.00229	-0.0176	-0.0118	-0.00573
Year 2012	25	-0.0135**	-0.142**	-0.0902**	-0.0520*
Four survey waves in year (baseline)	74				
Three survey waves in year	26	-0.0132**	0.124**	0.0289	0.0951***
Constant		0.172***	1.867***	0.984***	0.883***
Observations		81484	81484	81484	81484
R-squared		0.19	0.225	0.197	0.176

Source: Survey of Income and Program Participation 2008 Panel.
Notes: Standard errors clustered by original survey household. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

TABLE D2

Regression Results: Deviations in Taxable Household Income for Low-Income Households

Relationships between annual measures of variation in taxable household income and household and individual characteristics of sample persons living in households with income at 200 percent of poverty or below in January

Explanatory characteristics	Group share (%)	Coefficient of variation, taxable household income (mean 0.43)	Number of months with any 25% deviation in taxable income (mean 4.6)	Number of months with a negative 25% deviation in taxable income (mean 2.6)	Number of months with a positive 25% deviation in taxable income (mean 2.0)
Household head married in December (baseline)	56				
Household head cohabiting in December	8	0.0317	0.125	0.128	-0.00301
Household head single in December	36	0.103***	0.675***	0.426***	0.249***
Household head has less than a high school education	22	-0.0724***	-0.652***	-0.409***	-0.243**
Household head has a high school education	29	-0.0740***	-0.730***	-0.441***	-0.290***
Household head attended some college or has an associate's degree	36	-0.0637***	-0.555***	-0.341***	-0.214**
Household head has a bachelor's degree or higher (baseline)	14				
Household received public assistance income	53	0.102***	0.660***	0.458***	0.202***
Self-employment and business earnings are 0% of household earned income (baseline)	80				
Self-employment and business earnings are 1–24% of household earned income	7	0.0125	0.495**	0.242*	0.253**
Self-employment and business earnings are 25–49% of household earned income	3	0.126***	1.928***	1.123***	0.805***
Self-employment and business earnings are 50–74% of household earned income	2	0.168***	2.454***	1.527***	0.927***
Self-employment and business earnings are 75–100% of household earned income	8	0.460***	4.164***	2.597***	1.568***
Children age 4 or under present in household	35	-0.0549***	-0.476***	-0.265***	-0.211***

Explanatory characteristics	Group share (%)	Coefficient of variation, taxable household income (mean 0.43)	Number of months with any 25% deviation in taxable income (mean 4.6)	Number of months with a negative 25% deviation in taxable income (mean 2.6)	Number of months with a positive 25% deviation in taxable income (mean 2.0)
Children age 5–18 present in household	66	-0.0597***	-0.673***	-0.405***	-0.268***
Change in the number of children present in household	10	0.0751***	0.566***	0.359***	0.206***
Working adult joined the household	2	0.158***	2.357***	1.339***	1.019***
Nonworking adult joined the household	3	0.0720*	0.458*	0.307*	0.152
Working adult left the household	3	0.0376	0.602**	0.309*	0.293**
Nonworking adult left the household	3	0.0556*	0.239	0.161	0.0784
No household member worked	13	-0.102***	-1.709***	-0.824***	-0.886***
All household workers were employed full time while working	28	-0.104***	-1.255***	-0.735***	-0.521***
At least one worker in household was employed part time at least one week (baseline)	60				
Someone in household started a job	30	0.108***	1.604***	0.800***	0.803***
Someone in household ended a job	25	0.121***	1.243***	0.771***	0.472***
Individual is white, non-Hispanic (baseline)	48				
Individual is black, non-Hispanic	16	-0.0452**	-0.445***	-0.274***	-0.171**
Individual is Hispanic	29	-0.0829***	-0.585***	-0.373***	-0.212***
Individual is other, non-Hispanic	6	-0.00369	-0.125	-0.109	-0.0158
Individual is male (baseline)	45				
Individual is female	55	0.00981	-0.0307	0.00872	-0.0394
Individual was age 33 or younger in January (baseline)	36				
Individual was age 34–42 in January	34	-0.00754	-0.182*	-0.0736	-0.108*
Individual was age 43 or older in January	30	-0.00292	-0.175	-0.0600	-0.115*

Explanatory characteristics	Group share (%)	Coefficient of variation, taxable household income (mean 0.43)	Number of months with any 25% deviation in taxable income (mean 4.6)	Number of months with a negative 25% deviation in taxable income (mean 2.6)	Number of months with a positive 25% deviation in taxable income (mean 2.0)
Year 2009 (baseline)	24				
Year 2010	25	-0.00184	-0.00729	-0.00974	0.00245
Year 2011	26	0.000143	-0.0243	0.0360	-0.0603
Year 2012	26	-0.0140	-0.252**	-0.114	-0.138**
Four survey waves in year (baseline)	74				
Three survey waves in year	26	-0.0264**	0.136	-0.00416	0.140**
Constant		0.411***	4.714***	2.582***	2.132***
Observations		26,202	26,202	26,202	26,202
R-squared		0.133	0.198	0.168	0.153

Source: Survey of Income and Program Participation 2008 Panel.
Notes: Standard errors clustered by original survey household. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

TABLE D3

Regression Results: Deviations in Total Household Income

Relationships between annual measures of variation in total household income and household and individual explanatory characteristics of sample individuals

Explanatory characteristics	Group share (%)	Coefficient of variation, total household income (mean 0.23)	Number of months with any 25% deviation in total income (mean 2.7)	Number of months with a negative 25% deviation in total income (mean 1.4)	Number of months with a positive 25% deviation in total income (mean 1.3)
Household head married in December (baseline)	66				
Household head cohabiting in December	7	0.0131*	0.230*	0.145**	0.0856*
Household head single in December	28	0.0418***	0.518***	0.282***	0.236***
Total household income is at or below 200% of FPL in January	32	0.143***	1.788***	1.012***	0.776***
Household head has less than a high school education	10	-0.0278***	-0.230**	-0.147**	-0.0831*
Household head has a high school education	21	-0.0206***	-0.184**	-0.0958**	-0.0886**
Household head attended some college or has an associate's degree	35	-0.0134***	-0.146**	-0.0791**	-0.0666**
Household head has a bachelor's degree or higher (baseline)	34				
Household received public assistance income	24	-0.00529	0.257***	0.139***	0.118***
Self-employment and business earnings are 0% of household earned income (baseline)	81				
Self-employment and business earnings are 1–24% of household earned income	8	0.0496***	0.608***	0.294***	0.314***
Self-employment and business earnings are 25–49% of household earned income	3	0.142***	2.373***	1.416***	0.958***
Self-employment and business earnings are 50–74% of household earned income	3	0.169***	2.579***	1.556***	1.023***
Self-employment and business earnings are 75–100% of household earned income	6	0.295***	3.400***	2.043***	1.358***
Children age 4 or under present in household	28	-0.0139***	-0.216***	-0.116***	-0.0994***
Children age 5–18 present in household	54	-0.0383***	-0.474***	-0.280***	-0.194***

Explanatory characteristics	Group share (%)	Coefficient of variation, total household income (mean 0.23)	Number of months with any 25% deviation in total income (mean 2.7)	Number of months with a negative 25% deviation in total income (mean 1.4)	Number of months with a positive 25% deviation in total income (mean 1.3)
Change in the number of children present in household	9	0.0449***	0.691***	0.383***	0.308***
Working adult joined the household	2	0.0938***	1.483***	0.826***	0.657***
Nonworking adult joined the household	2	0.0375***	0.497***	0.242**	0.255***
Working adult left the household	3	0.0727***	1.162***	0.635***	0.526***
Nonworking adult left the household	2	0.0369***	0.463***	0.267***	0.195***
No household member worked	5	-0.0149	-0.577***	-0.276***	-0.301***
All household workers were employed full time while working	42	-0.0509***	-0.652***	-0.363***	-0.289***
At least one worker in household was employed part time at least one week (baseline)	53				
Someone in household started a job	25	0.0474***	0.772***	0.372***	0.400***
Someone in household ended a job	24	0.0872***	1.179***	0.644***	0.535***
Individual is white, non-Hispanic (baseline)	64				
Individual is black, non-Hispanic	11	-0.0135**	-0.0482	-0.0127	-0.0355
Individual is Hispanic	17	-0.0124**	-0.0854	-0.0446	-0.0408
Individual is other, non-Hispanic	7	0.0155*	0.120	0.0735	0.0467
Individual is male (baseline)	49				
Individual is female	52	-0.00461*	-0.0441*	-0.0198	-0.0243*
Individual was age 33 or younger in January (baseline)	32				
Individual was age 34–42 in January	34	-0.00967**	-0.194***	-0.0960***	-0.0976***
Individual was age 43 or older in January	34	-0.0160***	-0.303***	-0.156***	-0.147***
Year 2009 (baseline)	26				
Year 2010	25	-0.00734**	-0.0548	-0.0289	-0.0259
Year 2011	25	-0.00500	-0.0680	-0.0360	-0.0320

Explanatory characteristics	Group share (%)	Coefficient of variation, total household income (mean 0.23)	Number of months with any 25% deviation in total income (mean 2.7)	Number of months with a negative 25% deviation in total income (mean 1.4)	Number of months with a positive 25% deviation in total income (mean 1.3)
Year 2012	25	-0.0134***	-0.136**	-0.0712*	-0.0652**
Four survey waves in year (baseline)	74				
Three survey waves in year	26	-0.00634	0.142**	0.0440	0.0983***
Constant		0.182***	1.875***	0.990***	0.885***
Observations		81,484	81,484	81,484	81,484
R-squared		0.192	0.200	0.174	0.160

Source: Survey of Income and Program Participation 2008 Panel.
Notes: Standard errors clustered by original survey household. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

TABLE D4

Regression Results: Deviations in Total Household Income for Low-Income Households

Relationships between annual measures of variation in total household income and household and individual explanatory characteristics of sample individuals living in households with income at or below 200 percent of FPL in January

Explanatory characteristics	Group share (%)	Coefficient of variation, total household income (mean 0.33)	Number of months with any 25% deviation in total income (mean 4.1)	Number of months with a negative 25% deviation in total income (mean 2.2)	Number of months with a positive 25% deviation in total income (mean 1.9)
Household head married in December (baseline)	56				
Household head cohabiting in December	8	0.00286	-0.0473	0.0400	-0.0873
Household head single in December	36	0.0351***	0.350***	0.213***	0.136**
Household head has less than a high school education	22	-0.0944***	-0.802***	-0.531***	-0.271***
Household head has a high school education	29	-0.0896***	-0.785***	-0.477***	-0.308***
Household head attended some college or has an associate's degree	36	-0.0775***	-0.671***	-0.427***	-0.244***
Household head has a bachelor's degree or higher (baseline)	14				
Household received public assistance income	53	-0.0395***	-0.0898	-0.0647	-0.0251
Self-employment and business earnings are 0% of household earned income (baseline)	80				
Self-employment and business earnings are 1–24% of household earned income	7	0.0394***	0.606***	0.350***	0.255**
Self-employment and business earnings are 25–49% of household earned income	3	0.131***	1.823***	1.106***	0.716***
Self-employment and business earnings are 50–74% of household earned income	2	0.180***	2.504***	1.538***	0.965***
Self-employment and business earnings are 75–100% of household earned income	8	0.353***	3.630***	2.234***	1.396***

Explanatory characteristics	Group share (%)	Coefficient of variation, total household income (mean 0.33)	Number of months with any 25% deviation in total income (mean 4.1)	Number of months with a negative 25% deviation in total income (mean 2.2)	Number of months with a positive 25% deviation in total income (mean 1.9)
Children age 4 or under present in household	35	-0.0253***	-0.395***	-0.203***	-0.192***
Children age 5–18 present in household	66	-0.0777***	-0.785***	-0.482***	-0.303***
Change in the number of children present in household	10	0.0504***	0.686***	0.376***	0.310***
Working adult joined the household	2	0.165***	2.307***	1.323***	0.984***
Nonworking adult joined the household	3	0.0632***	0.773***	0.452***	0.320**
Working adult left the household	3	0.0261	0.604**	0.327*	0.277**
Nonworking adult left the household	3	0.0238	0.126	0.0591	0.0667
No household member worked	13	-0.0161	-0.647***	-0.297***	-0.350***
All household workers were employed full time while working	28	-0.0670***	-0.937***	-0.514***	-0.423***
At least one worker in household was employed part time at least one week (baseline)	60				
Someone in household started a job	30	0.0812***	1.434***	0.723***	0.711***
Someone in household ended a job	25	0.0843***	1.024***	0.601***	0.423***
Individual is white, non-Hispanic (baseline)	48				
Individual is black, non-Hispanic	16	-0.0401***	-0.292**	-0.157*	-0.135**
Individual is Hispanic	29	-0.0220**	-0.193	-0.0862	-0.107*
Individual is other, non-Hispanic	6	0.0203	0.108	0.0299	0.0786
Individual is male (baseline)	45				
Individual is female	55	-0.00660	-0.0650	-0.0260	-0.0390
Individual was age 33 or younger in January (baseline)	36				
Individual was age 34–42 in January	34	-0.0148*	-0.272**	-0.145**	-0.126**

Explanatory characteristics	Group share (%)	Coefficient of variation, total household income (mean 0.33)	Number of months with any 25% deviation in total income (mean 4.1)	Number of months with a negative 25% deviation in total income (mean 2.2)	Number of months with a positive 25% deviation in total income (mean 1.9)
Individual was age 43 or older in January	30	-0.0156	-0.287**	-0.149**	-0.138**
Year 2009 (baseline)	24				
Year 2010	25	-0.00266	-0.0989	-0.0456	-0.0533
Year 2011	26	-0.00397	-0.137	-0.0263	-0.111*
Year 2012	26	-0.0146	-0.257**	-0.100	-0.157***
Four survey waves in year (baseline)	74				
Three survey waves in year	26	-0.0105	0.210*	0.0380	0.172***
Constant		0.433***	4.763***	2.633***	2.130***
Observations		26,202	26,202	26,202	26,202
R-squared		0.160	0.167	0.147	0.128

Source: Survey of Income and Program Participation 2008 Panel.
Notes: Standard errors clustered at the individual level. *** p < 0.001, ** p < 0.01, * p < 0.05.

TABLE D5

Regression Results: Deviations in Taxable Personal Income

Relationships between annual measures of variation in taxable personal income and household and individual explanatory characteristics of sample persons

Explanatory characteristics	Group share (%)	Coefficient of variation, taxable personal income (mean 0.33)	Number of months with any 25% deviation in taxable income (mean 3.2)	Number of months with a negative 25% deviation in taxable income (mean 1.8)	Number of months with a positive 25% deviation in taxable income (mean 1.4)
Household head married in December (baseline)	66				
Household head cohabiting in December	7	-0.00610	-0.00593	-0.00345	-0.00247
Household head single in December	28	0.00613	0.182***	0.0785*	0.103***
Total household income is at or below 200% of FPL in January	32	0.158***	1.362***	0.825***	0.537***
Household head has less than a high school education	10	-0.0354***	-0.364***	-0.194***	-0.170***
Household head has a high school education	21	-0.0225***	-0.275***	-0.146***	-0.129***
Household head attended some college or has an associate's degree	35	-0.00649	-0.115*	-0.0420	-0.0732**
Household head has a bachelor's degree or higher (baseline)	34				
Household received public assistance income	24	0.0640***	0.356***	0.273***	0.0834**
Self-employment and business earnings are 0% of household earned income (baseline)	81				
Self-employment and business earnings are 1–24% of household earned income	8	0.155***	1.458***	0.902***	0.556***
Self-employment and business earnings are 25–49% of household earned income	3	0.168***	2.137***	1.211***	0.926***
Self-employment and business earnings are 50–74% of household earned income	3	0.122***	1.704***	0.973***	0.731***
Self-employment and business earnings are 75–100% of household earned income	6	0.312***	3.146***	1.931***	1.214***
Children age 4 or under present in household	28	-0.00224	-0.0166	-0.0124	-0.00414

Explanatory characteristics	Group share (%)	Coefficient of variation, taxable personal income (mean 0.33)	Number of months with any 25% deviation in taxable income (mean 3.2)	Number of months with a negative 25% deviation in taxable income (mean 1.8)	Number of months with a positive 25% deviation in taxable income (mean 1.4)
Children age 5–18 present in household	54	-0.0422***	-0.370***	-0.200***	-0.170***
Change in the number of children present in household	9	0.0329***	0.360***	0.176***	0.184***
Working adult joined the household	2	-0.000969	-0.0180	-0.00651	-0.0115
Nonworking adult joined the household	2	0.00686	0.107	0.0738	0.0337
Working adult left the household	3	-0.00905	-0.147	-0.0860	-0.0610
Nonworking adult left the household	2	0.0320*	0.168	0.130	0.0375
No household member worked	5	-0.133***	-1.552***	-0.803***	-0.749***
All household workers were employed full time while working	42	-0.107***	-1.172***	-0.656***	-0.516***
At least one worker in household was employed part time at least one week (baseline)	53				
Someone in household started a job	25	0.0948***	0.993***	0.546***	0.447***
Someone in household ended a job	24	0.130***	1.236***	0.680***	0.556***
Individual is white, non-Hispanic (baseline)	64				
Individual is black, non-Hispanic	11	-0.0147	-0.167*	-0.0943*	-0.0727*
Individual is Hispanic	17	-0.0471***	-0.364***	-0.239***	-0.126***
Individual is other, non-Hispanic	7	0.0229*	0.123	0.0869	0.0362
Individual is male (baseline)	49				
Individual is female	52	0.0407***	0.223***	0.194***	0.0290
Individual was age 33 or younger in January (baseline)	32				
Individual was age 34–42 in January	34	-0.0226***	-0.223***	-0.0907**	-0.133***
Individual was age 43 or older in January	34	-0.0443***	-0.416***	-0.215***	-0.202***
Year 2009 (baseline)	26				

Explanatory characteristics	Group share (%)	Coefficient of variation, taxable personal income (mean 0.33)	Number of months with any 25% deviation in taxable income (mean 3.2)	Number of months with a negative 25% deviation in taxable income (mean 1.8)	Number of months with a positive 25% deviation in taxable income (mean 1.4)
Year 2010	25	-0.0184***	-0.0923*	-0.0911***	-0.00125
Year 2011	25	-0.0128*	-0.0904*	-0.0809**	-0.00951
Year 2012	25	-0.0301***	-0.268***	-0.182***	-0.0852***
Four survey waves in year (baseline)	74				
Three survey waves in year	26	-0.0305***	0.0763	-0.0428	0.119***
Constant		0.289***	2.833***	1.529***	1.303***
Observations		81,484	81,484	81,484	81,484
R-squared		0.109	0.139	0.123	0.107

Source: Survey of Income and Program Participation 2008 Panel.
Notes: Standard errors clustered at the individual level. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

TABLE D6

Regression Results: Deviations in Taxable Personal Income in Low-Income Households

Relationships between annual measures of variation in taxable personal income and household and individual explanatory characteristics of sample individuals living in households with income at or below 200 percent of FPL in January

Explanatory characteristics	Group share (%)	Coefficient of variation, taxable personal income (mean 0.46)	Number of months with any 25% deviation in taxable income (mean 4.3)	Number of months with a negative 25% deviation in taxable income (mean 2.5)	Number of months with a positive 25% deviation in taxable income (mean 1.8)
Household head married in December (baseline)	56				
Household head cohabiting in December	8	-0.00546	-0.117	-0.0348	-0.0825
Household head single in December	36	0.0432***	0.524***	0.276***	0.248***
Household head has less than a high school education	22	-0.0923***	-0.978***	-0.535***	-0.443***
Household head has a high school education	29	-0.0764***	-0.886***	-0.481***	-0.404***
Household head attended some college or has an associate's degree	36	-0.0625***	-0.683***	-0.372***	-0.311***
Household head has a bachelor's degree or higher (baseline)	14				
Household received public assistance income	53	0.0374***	0.0805	0.104*	-0.0233
Self-employment and business earnings are 0% of household earned income (baseline)	80				
Self-employment and business earnings are 1–24% of household earned income	7	0.197***	1.690***	1.075***	0.614***
Self-employment and business earnings are 25–49% of household earned income	3	0.211***	2.365***	1.378***	0.986***
Self-employment and business earnings are 50–74% of household earned income	2	0.149***	2.050***	1.203***	0.846***
Self-employment and business earnings are 75–100% of household earned income	8	0.372***	3.350***	2.127***	1.223***

Explanatory characteristics	Group share (%)	Coefficient of variation, taxable personal income (mean 0.46)	Number of months with any 25% deviation in taxable income (mean 4.3)	Number of months with a negative 25% deviation in taxable income (mean 2.5)	Number of months with a positive 25% deviation in taxable income (mean 1.8)
Children age 4 or under present in household	35	-0.0183	-0.172	-0.0611	-0.111**
Children age 5–18 present in household	66	-0.0481***	-0.423***	-0.256***	-0.167***
Change in the number of children present in household	10	0.0411*	0.352**	0.206**	0.146**
Working adult joined the household	2	0.0506	0.575*	0.347*	0.228*
Nonworking adult joined the household	3	0.0246	0.195	0.127	0.0681
Working adult left the household	3	-0.0468	-0.306	-0.286*	-0.0209
Nonworking adult left the household	3	0.0326	0.0518	0.0741	-0.0223
No household member worked	13	-0.173***	-1.880***	-0.986***	-0.894***
All household workers were employed full time while working	28	-0.142***	-1.333***	-0.777***	-0.556***
At least one worker in household was employed part time at least one week (baseline)	60				
Someone in household started a job	30	0.149***	1.624***	0.896***	0.728***
Someone in household ended a job	25	0.149***	1.196***	0.732***	0.464***
Individual is white, non-Hispanic (baseline)	48				
Individual is black, non-Hispanic	16	-0.0410**	-0.413***	-0.255***	-0.158**
Individual is Hispanic	29	-0.0836***	-0.677***	-0.463***	-0.213***
Individual is other, non-Hispanic	6	0.00429	-0.00292	-0.0418	0.0389
Individual is male (baseline)	45				
Individual is female	55	-0.000777	-0.328***	-0.0932	-0.234***
Individual was age 33 or younger in January (baseline)	36				
Individual was age 34–42 in January	34	-0.0337**	-0.279**	-0.116*	-0.163***

Explanatory characteristics	Group share (%)	Coefficient of variation, taxable personal income (mean 0.46)	Number of months with any 25% deviation in taxable income (mean 4.3)	Number of months with a negative 25% deviation in taxable income (mean 2.5)	Number of months with a positive 25% deviation in taxable income (mean 1.8)
Individual was age 43 or older in January	30	-0.0446***	-0.379***	-0.201**	-0.178***
Year 2009 (baseline)	24				
Year 2010	25	-0.0382***	-0.204**	-0.178***	-0.0256
Year 2011	26	-0.0298**	-0.224**	-0.156**	-0.0681
Year 2012	26	-0.0391**	-0.393***	-0.237***	-0.156***
Four survey waves in year (baseline)	74				
Three survey waves in year	26	-0.0373***	0.116	-0.0497	0.166***
Constant		0.544***	5.217***	2.934***	2.283***
Observations		26,202	26,202	26,202	26,202
R-squared		0.104	0.163	0.138	0.127

Source: Survey of Income and Program Participation 2008 Panel.
Notes: Standard errors clustered at the individual level. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

TABLE D7

Regression Results: Deviations in Total Personal Income in Low-Income Households

Relationships between annual measures of variation in total personal income and household and individual explanatory characteristics of sample individuals

Explanatory characteristics	Group Share (%)	Coefficient of variation, total personal income (mean 0.32)	Number of months with any 25% deviation in total income (mean 3.3)	Number of months with a negative 25% deviation in total income (mean 1.8)	Number of months with a positive 25% deviation in total income (mean 1.5)
Household head married in December (baseline)	66				
Household head cohabiting in December	7	-0.0129	-0.0886	-0.0454	-0.0432
Household head single in December	28	-0.0404***	-0.130**	-0.115***	-0.0154
Total household income is at or below 200% of FPL in January	32	0.148***	1.385***	0.832***	0.552***
Household head has less than a high school education	10	-0.0113	-0.161	-0.0862	-0.0743
Household head has a high school education	21	-0.0226***	-0.246***	-0.142***	-0.104***
Household head attended some college or has an associate's degree	35	-0.0127*	-0.166***	-0.0794*	-0.0869***
Household head has a bachelor's degree or higher (baseline)	34				
Household received public assistance income	24	0.0191**	0.496***	0.261***	0.235***
Self-employment and business earnings are 0% of household earned income (baseline)	81				
Self-employment and business earnings are 1–24% of household earned income	8	0.142***	1.366***	0.835***	0.531***
Self-employment and business earnings are 25–49% of household earned income	3	0.164***	2.057***	1.175***	0.882***
Self-employment and business earnings are 50–74% of household earned income	3	0.127***	1.685***	0.975***	0.710***
Self-employment and business earnings are 75–100% of household earned income	6	0.291***	3.044***	1.852***	1.192***

Explanatory characteristics	Group Share (%)	Coefficient of variation, total personal income (mean 0.32)	Number of months with any 25% deviation in total income (mean 3.3)	Number of months with a negative 25% deviation in total income (mean 1.8)	Number of months with a positive 25% deviation in total income (mean 1.5)
Children age 4 or under present in household	28	-0.00842	-0.0745	-0.0448	-0.0296
Children age 5–18 present in household	54	-0.0507***	-0.409***	-0.226***	-0.183***
Change in the number of children present in household	9	0.0316***	0.402***	0.207***	0.196***
Working adult joined the household	2	-0.00774	-0.0690	-0.0638	-0.00524
Non-working adult joined the household	2	-0.00842	0.0338	0.00543	0.0283
Working adult left the household	3	0.0129	0.0486	0.0303	0.0183
Non-working adult left the household	2	0.0459***	0.282*	0.230**	0.0527
No household member worked	5	-0.0511***	-0.646***	-0.328***	-0.318***
All household workers were employed full time while working	42	-0.0885***	-1.043***	-0.580***	-0.463***
At least one worker in household was employed part time at least one week (baseline)	53				
Someone in household started a job	25	0.0733***	0.854***	0.456***	0.399***
Someone in household ended a job	24	0.111***	1.165***	0.629***	0.536***
Individual is white, non-Hispanic (baseline)	64				
Individual is black, non-Hispanic	11	-0.0149*	-0.136*	-0.0703	-0.0661*
Individual is Hispanic	17	-0.0184**	-0.179**	-0.114**	-0.0647*
Individual is other, non-Hispanic	7	0.0244**	0.161*	0.0972*	0.0637
Individual is male (baseline)	49				
Individual is female	52	0.0353***	0.265***	0.208***	0.0571**
Individual was age 33 or younger in January (baseline)	32				
Individual was age 34–42 in January	34	-0.0216***	-0.244***	-0.112***	-0.132***
Individual was age 43 or older in January	34	-0.0441***	-0.457***	-0.233***	-0.224***
Year 2009 (baseline)	26				

Explanatory characteristics	Group Share (%)	Coefficient of variation, total personal income (mean 0.32)	Number of months with any 25% deviation in total income (mean 3.3)	Number of months with a negative 25% deviation in total income (mean 1.8)	Number of months with a positive 25% deviation in total income (mean 1.5)
Year 2010	25	-0.0119**	-0.0930*	-0.0814***	-0.0116
Year 2011	25	-0.0132**	-0.120**	-0.0916***	-0.0282
Year 2012	25	-0.0287***	-0.259***	-0.175***	-0.0840***
Four survey waves in year (baseline)	74				
Three survey waves in year	26	-0.0185***	0.131**	-0.00681	0.137***
Constant		0.299***	2.868***	1.564***	1.304***
Observations		81,484	81,484	81,484	81,484
R-squared		0.099	0.131	0.114	0.103

Source: Survey of Income and Program Participation 2008 Panel.
Notes: Standard errors clustered at the individual level. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

TABLE D8

Regression Results: Deviations in Total Personal Income in Low-Income Households

Relationships between annual measures of variation in total personal income and household and individual explanatory characteristics of sample individuals living in households with income at or below 200 percent of FPL in January

Explanatory characteristics	Group share (%)	Coefficient of variation, total personal income (mean 0.43)	Number of months with any 25% deviation in total income (mean 4.4)	Number of months with a negative 25% deviation in total income (mean 2.5)	Number of months with a positive 25% deviation in total income (mean 2.0)
Household head married in December (baseline)	56				
Household head cohabiting in December	8	-0.0179	-0.266	-0.130	-0.136*
Household head single in December	36	-0.0620***	-0.209*	-0.184***	-0.0244
Household head has less than a high school education	22	-0.0641***	-0.758***	-0.442***	-0.315***
Household head has a high school education	29	-0.0770***	-0.849***	-0.495***	-0.354***
Household head attended some college or has an associate's degree	36	-0.0687***	-0.752***	-0.442***	-0.310***
Household head has a bachelor's degree or higher (baseline)	14				
Household received public assistance income	53	-0.00962	0.291***	0.131**	0.160***
Self-employment and business earnings are 0% of household earned income (baseline)	80				
Self-employment and business earnings are 1–24% of household earned income	7	0.156***	1.386***	0.883***	0.503***
Self-employment and business earnings are 25–49% of household earned income	3	0.192***	2.073***	1.221***	0.852***
Self-employment and business earnings are 50–74% of household earned income	2	0.166***	1.990***	1.215***	0.775***

Explanatory characteristics	Group share (%)	Coefficient of variation, total personal income (mean 0.43)	Number of months with any 25% deviation in total income (mean 4.4)	Number of months with a negative 25% deviation in total income (mean 2.5)	Number of months with a positive 25% deviation in total income (mean 2.0)
Self-employment and business earnings are 75–100% of household earned income	8	0.321***	3.064***	1.921***	1.143***
Children age 4 or under present in household	35	-0.0302**	-0.329***	-0.163**	-0.166***
Children age 5–18 present in household	66	-0.0811***	-0.635***	-0.396***	-0.239***
Change in the number of children present in household	10	0.0424**	0.502***	0.289***	0.212***
Working adult joined the household	2	0.0309	0.299	0.154	0.145
Nonworking adult joined the household	3	-0.0170	-0.0140	-0.0610	0.0469
Working adult left the household	3	-0.00514	0.0890	-0.0424	0.131
Nonworking adult left the household	3	0.0490*	0.332	0.275*	0.0569
No household member worked	13	-0.0562***	-0.759***	-0.371***	-0.388***
All household workers were employed full time while working	28	-0.0913***	-1.050***	-0.586***	-0.464***
At least one worker in household was employed part time at least one week (baseline)	60				
Someone in household started a job	30	0.107***	1.343***	0.734***	0.609***
Someone in household ended a job	25	0.0997***	0.999***	0.586***	0.413***
Individual is white, non-Hispanic (baseline)	48				
Individual is black, non-Hispanic	16	-0.0417***	-0.354***	-0.191**	-0.163**
Individual is Hispanic	29	-0.0366***	-0.331***	-0.226***	-0.104*
Individual is other, non-Hispanic	6	0.0150	0.114	0.00992	0.104
Individual is male (baseline)	45				
Individual is female	55	-0.00294	-0.125	-0.00356	-0.121**

Explanatory characteristics	Group share (%)	Coefficient of variation, total personal income (mean 0.43)	Number of months with any 25% deviation in total income (mean 4.4)	Number of months with a negative 25% deviation in total income (mean 2.5)	Number of months with a positive 25% deviation in total income (mean 2.0)
Individual was age 33 or younger in January (baseline)	36				
Individual was age 34–42 in January	34	-0.0301**	-0.298***	-0.150**	-0.149***
Individual was age 43 or older in January	30	-0.0412***	-0.426***	-0.222***	-0.204***
Year 2009 (baseline)	24				
Year 2010	25	-0.0230*	-0.217**	-0.159**	-0.0581
Year 2011	26	-0.0305**	-0.297***	-0.185***	-0.113**
Year 2012	26	-0.0394***	-0.415***	-0.240***	-0.175***
Four survey waves in year (baseline)	74				
Three survey waves in year	26	-0.0114	0.259**	0.0373	0.221***
Constant		0.574***	5.426***	3.100***	2.326***
Observations		26,202	26,202	26,202	26,202
R-squared		0.083	0.114	0.099	0.086

Source: Survey of Income and Program Participation 2008 Panel.
Notes: Standard errors clustered at the individual level. *** p < 0.001, ** p < 0.01, * p < 0.05.

NOTES

[1] A tax unit is typically a married couple and the children who live with that couple for the majority of the year, or an unmarried person and the children who live with that person for the majority of the year. For a more complete description see Internal Revenue Service (2016).
[2] All differences reported are significant at the 95 percent level or greater.
[3] Which is not a nationally representative sample.
[4] The Great Recession and the following recovery are likely to have been a period of high income volatility. To control for changes in the business cycle over the period, we included year indicator variables in the analyses. See "US Business Cycle Expansions and Contractions," National Bureau of Economic Research, accessed April 19, 2017, http://www.nber.org/cycles.html.
[5] There are 91,249 individuals in the SIPP data for 2009–12. Restricting the sample to persons present in the first wave of the panel (September to December 2008) omits 17,678 individuals; restricting to working-age adults drops an additional 36,342 individuals; including only those in the survey for all 12 months of the calendar year omits another 6,690 adults; and requiring sample individuals to have a determinable relationship type in all months reduces the sample by an additional 223 adults. A detailed comparison of the analytic and omitted groups is provided in appendix A.
[6] See appendix B for a description of the components of taxable and total income.
[7] The statistical formula that relates the variance of total household income to the variance of individual member's income for a household with two members who contribute income is the following: Var (Y_{total}) = Var (Y_1) + Var (Y_2) + 2cov (Y_1, Y_2). We used that formula, where Var (Y_{total}) is the variance of total household income, Var (Y_1) and Var (Y_2) are the variances of the income of household member 1 and 2, respectively, and cov (Y_1, Y_2) is the covariance between the incomes of householdmember 1 and 2. Because we can directly measure the variance in total household income and in individual's incomes, we calculated the covariance as a residual. The formula is similar for households with more than two members that contribute income.
[8] This calculation eliminated households with only one member that contributed income, because the covariance is undefined for that group.

REFERENCES

Abel, Jaison, and Richard Deitz. 2015. "Underemployment in the Early Careers of College Graduates Following the Great Recession." Staff report 749. New York: Federal Reserve Bank of New York. https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr749.pdf?la=en.

Acs, Gregory, Pamela Loprest, and Austin Nichols. 2009. "Risk and Recovery: Documenting the Changing Risks to Family Incomes." Low-Income Working Families paper 14. Washington, DC: Urban Institute. http://www.urban.org/url.cfm?ID=411971.

Dowd, Tim, and John B. Horowitz. 2011. "Income Mobility and the Earned Income Tax Credit: Short-Term Safety Net or Long-Term Income Support." *Public Finance Review* 39 (5): 619–52.

Edin, Kathryn, Sara S. Greene, Sarah Halpern-Meekin, and Ezra Levin. 2015. "The Rainy Day EITC: A Reform to Boost Financial Security by Helping Low-Wage Workers Build Emergency Savings." Washington, DC: Corporation for Enterprise Development. http://cfed.org/assets/pdfs/The_Rainy_Day_EITC.pdf.

Farrell, Diana, and Fiona Greig. 2015. "Weathering Volatility: Big Data on the Financial Ups and Downs of U.S. Individuals." New York: JPMorgan Chase Institute. https://www.jpmorganchase.com/corporate/institute/document/54918-jpmc-institute-report-2015-aw5.pdf.

Hannagan, Anthony, and Jonathan Morduch. 2015. "Income Gains and Month-to-Month Income Volatility: Household evidence from the US Financial Diaries." St Louis, MO: Federal Reserve Bank of St. Louis. https://www.stlouisfed.org/~/media/Files/PDFs/Community%20Development/Econ%20Mobility/Sessions/MorduchPaper508.pdf.

Internal Revenue Service. 2016. "Tax Guide 2016 for Individuals." Publication 17. Washington, DC: Internal Revenue Service. https://www.irs.gov/pub/irs-pdf/p17.pdf.

Jacobs, Elisabethe, and Jacob Hacker. 2008. "The Rising Instability of American Family Incomes, 1969-2004: Evidence from the Panel Survey of Income Dynamics." Briefing paper 213. Washington, DC: Economic Policy Institute. http://www.epi.org/publication/bp213/.

Johnson, David, Jason Fields, Kurt Bauman, Megan Benetsky, Matthew Brault, Rebecca Chenevert, Jamie Choi, et al. 2013. *SIPP-EHC 2011 and 2012 Field Test Evaluation*.

Washington, DC: US Census Bureau. http://www2.census.gov/programs-surveys/sipp/2015/2013_SIPP-EHC_Evaluation_Report.pdf.

Kalleberg, Arne L. 2009. "Precarious Work, Insecure Workers: Employment Relations in Transition." *American Sociological Review* 74 (1): 1–22. http://journals.sagepub.com/doi/abs/10.1177/000312240907400101.

Katz, Lawrence F., and Alan B. Krueger. 2016. "The Rise and Nature of Alternative Work Arrangements in the United States, 1995-2015." Working paper 22667. Cambridge, MA: National Bureau of Economic Research. http://www.nber.org/papers/w22667.ack.

Larrimore, Jeff, Sam Dodini, and Logan Thomas. 2016. "Report on the Economic Well-Being of U.S. Households in 2015." Washington, DC: Board of Governors of the Federal Reserve System. https://www.federalreserve.gov/2015-report-economic-well-being-us-households-201605.pdf.

Lindner, Stephan, and H. Elizabeth Peters. 2014. "How Does Unemployment Affect Family Arrangements for Children?" Washington, DC: Urban Institute. http://www.urban.org/research/publication/how-does-unemployment-affect-family-arrangements-children.

Lynn, Peter, Nicholas Buck, Jonathan Burton, Annette Jäckle, and Heather Laurie. 2005. "A Review of Methodological Research Pertinent to Longitudinal Survey Design and Data Collection." Working Paper no. 2005-29. Colchester, England: University of Essex, Institute for Social and Economic Research. https://www.iser.essex.ac.uk/files/iser_working_papers/2005-29.pdf.

Maag, Elaine, H. Elizabeth Peters, and Sara Edelstein. 2016. "Increasing Family Complexity and Volatility: The Difficulty in Determining Child Tax Benefits." Washington, DC: Urban-Brookings Tax Policy Center. http://www.urban.org/research/publication/increasing-family-complexity-and-volatility-difficulty-determining-child-tax-benefits.

Morduch, Jonathan, and Rachel Schneider. 2013. "Spikes and Dips: How Income Uncertainty Affects Households." New York: U.S. Financial Diaries. http://www.usfinancialdiaries.org/issue1-spikes/.

———. 2017. *The Financial Diaries: How American Households Cope in a World of Uncertainty*. Princeton, NJ: Princeton Univeristy Press.

Renwick, Trudi, and Liana Fox. 2016. "The Supplemental Poverty Measure: 2015." Current population report P60-258 (RV). Washington, DC: US Census Bureau. http://www.census.gov/content/dam/Census/library/publications/2016/demo/p60-258.pdf.

Ver Ploeg, Michele, Robert A. Moffitt, and Constance F. Citro, eds. 2002. *Studies of Welfare Populations: Data Collection and Research Issues: Panel on Data and Methods for Measuring the Effects of Changes in Social Welfare Programs*. Washington, DC: National Academy Press. https://www.nap.edu/read/10206/.

Valletta, Rob, and Catherine van der List. 2015. "Involuntary Part-Time Work: Here to Stay?" Economic Letter 2015-19. San Francisco, CA: Federal Reserve Bank of San Francisco. http://www.frbsf.org/economic-research/publications/economic-letter/2015/june/involuntary-part-time-work-labor-market-slack-post-recession-unemployment/.

Western, Bruce, Deirdre Bloome, Benjamin Sosnaud, and Laura M. Tach. 2016. "Trends in Income Insecurity among U.S. Children, 1984–2010." *Demography* 53 (2): 419. https://link.springer.com/article/10.1007/s13524-016-0463-0.

The Tax Policy Center is a joint venture of the
Urban Institute and Brookings Institution.

BROOKINGS

For more information, visit taxpolicycenter.org
or email info@taxpolicycenter.org