

# THE LIFECYCLE OF THE 47 PERCENT

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*News that 47 percent of Americans in 2009 paid no federal income tax drew considerable attention. For a longer view of not paying tax and of receiving transfers, we use the Panel Survey of Income Dynamics. Over all individuals, we find that 68 percent owe no income tax at least one year; of which 21 percent pay the following year and 45 percent pay within five years. Also, overall, 60 percent receive transfers other than Social Security at least one year; of which nearly 47 percent stop the next year and more than 94 percent stop within 10 years.*

*Keywords: income tax, transfers, distribution*

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## I. INTRODUCTION

In any given year, many Americans either do not pay tax or receive transfers — and in some cases both. The fact that 47 percent of Americans were estimated to pay no federal income tax in 2009 drew considerable attention during the 2012 presidential election cycle. Most noted was Republican candidate Mitt Romney’s comment: “All right, there are 47 percent who are with him, who are dependent upon government, who believe that they are victims, [...]. 47 percent of Americans pay no income tax.”<sup>1</sup> This comment was part of a larger public debate about who contributes to society, who takes away, and whether fiscal policy fosters dependency.

Concerns about the use and effects of tax and transfer programs can be informed by data on the length of periods that individuals owe no federal income tax or receive transfers. If they remain in either status for long periods, we may be concerned that these programs encourage dependency, with government effectively subsidizing the obsolescence of skills and labor force dis-attachment. This paper uses panel income

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<sup>1</sup> For the full quote, see <http://www.newyorker.com/news/amy-davidson/mitts-forty-seven-per-cent-problem>. This widely reported share of tax filers not owing federal tax is from the Urban-Brookings Tax Policy Center (TPC) Microsimulation Model estimates for 2009. For further background on the TPC estimate, see Williams (2009). As we discuss later, the TPC looks at “tax units,” while we examine individuals.

data to assess the persistence of zero federal income tax liability or receipt of transfers. We ask: does such status include many people for a small part of their lives or fewer people for longer periods?

Studies using annual data show that many who do not owe tax are very low-income individuals, elderly, and students. For example, of the 46 percent of tax units that did not owe federal income tax in 2011, 22 percent were age 65 or over, 3 percent were students, 7 percent were not working due to illness or disability, and 61 percent were working but had sufficiently low income not to owe tax (Marr, 2012).<sup>2</sup> Roughly half of those who do not pay federal income tax are removed from the tax rolls by personal exemptions and standard deductions, while the other half are removed by tax expenditures such as the Earned Income Tax Credit (EITC), Child Tax Credit, and itemized deductions (Johnson et al., 2011).<sup>3</sup>

Internal Revenue Service (IRS) data show that zero tax liabilities are heavily concentrated at the bottom of the annual income distribution. In 2010, no tax was owed by 40.9 percent of all tax units, by more than 75 percent of returns with under \$13,000 in adjusted gross income (AGI), and by more than half of returns with less than \$25,000 in AGI. Meanwhile, no tax was owed by only 3.5 percent of returns with \$75,000–\$100,000 in AGI and by 0.5 percent of returns with \$500,000+ in AGI.

The U.S. Congressional Budget Office (CBO) (2013) found that in 2010 both old-age transfers (Social Security and Medicare) and other transfers largely accrued to low-income households, although old-age benefits were less concentrated among the lowest income groups. They found that households in the lowest quintile received 36.2 percent of old-age benefits, while the middle quintile received 16.7 percent and the highest quintile claimed 11.4 percent. The bottom 40 percent of the income distribution received the bulk of other transfers such as Supplemental Nutrition Assistance Program benefits, Medicaid, and Temporary Assistance for Needy Families (TANF).

These analyses show that the lowest income individuals each year contribute little federal tax and receive the bulk of transfers. They all, however, examine a single year — a snapshot that might not be representative of a person's typical circumstances. A one-year snapshot may catch a young person with low income and no tax who later earns more and pays high tax. Or it may observe a random bad year in which a person owes no tax due to unusually low income or large but temporary deductions. In other words, a one-year window does not tell us whether and when these individuals start paying tax again or when they leave social safety net programs.

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<sup>2</sup> Workers with incomes too low to owe federal income tax still face payroll tax. For example, Williams (2013) finds that two-thirds of tax units without federal income tax liability in 2013 still incur payroll tax. Only 14 percent of tax units pay neither income nor payroll tax. Aron-Dine (2012) finds that in 2007 even the lowest quintile of households with average incomes of \$18,000 pay 4 percent of income in total federal tax, which includes income, payroll, and excise taxes.

<sup>3</sup> Effects of the recession on incomes in 2009 allowed deductions and credits to offset tax liabilities for more taxpayers than is typical (Greenstone and Looney, 2012). Further, both the Economic Stimulus Act of 2008 and American Recovery and Reinvestment Act of 2009 included temporary tax breaks to stimulate the economy.

Using a 10-year IRS panel that reflects actual realizations, Heim, Lurie, and Pearce (2014) find that 50.9 percent of tax units had no positive federal tax liability in 2009. While Heim, Lurie, and Pearce (2014) have the huge advantage of tracking U.S. income tax returns with actual tax liabilities and payments, we turn to the Panel Study of Income Dynamics (PSID) for three reasons: (1) it has a longer window of 40 years, (2) it tracks cash transfers in addition to other income, and (3) it affords rich demographic detail not on tax returns. These three advantages of the PSID come with certain disadvantages, however, as discussed below.

The longer time horizon has two advantages. First, it can account for the social insurance role of both the progressive federal tax and transfer systems, where positive tax paid in some years serves the role of insurance premiums that cover bad years with no tax liability and with transfers. Second, some benefits and tax provisions have lifecycle patterns, making a long-run assessment of liability and transfer receipt more meaningful. Some programs, such as Social Security, formally target older individuals, while others target families with children, including cash welfare, food assistance, and tax provisions such as the EITC and Child Tax Credit. As families enter and exit these programs, their taxes and transfers will change. If most individuals move across the income distribution, then the incidence and implications of these subsidies are very different from a situation where the same individuals receive transfers for most of their lives.

The PSID allows an expansive look at how individual tax status and benefit take up evolve over as many as 40 years. Because our analysis is based on historical income changes and policies, it is by nature backward-looking. The findings do not tell us how alternative income dynamics would translate into owing no tax or receiving transfers under current or future policy. Both tax and transfer rules changed during this period, and we are unable to parse changes in rules from the effects of changes in individual incomes. Documenting changes in individual tax paid or transfers received can nonetheless help us understand whether non-contribution and dependency are chronic, or whether the insurance aspects of progressive federal income taxes and social safety net were helping to provide temporary assistance.

We find that many individuals at some point do not owe federal income tax or do receive cash transfers.<sup>4</sup> About 67.7 percent of individuals in the PSID owe no tax in at least one observed year. Roughly 79.2 percent receive some type of transfer, and 59.9 percent receive a transfer other than Social Security in at least one year. Social Security benefits are much larger than other transfers and are concentrated among the elderly.<sup>5</sup>

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<sup>4</sup> We do not include Medicare or Medicaid services in our analysis of transfers, as the PSID does not provide a dollar value for publicly provided medical services received. We also cannot assess other in-kind transfers, such as food stamps or housing assistance, as questions regarding receipt are not asked consistently in the PSID.

<sup>5</sup> In the PSID, Social Security transfers include not only old age insurance but also disability insurance through Social Security (which accounts for an increasing share of Social Security payments in the time period of this study).

Among taxpayers of any age who do not owe tax at some point during the sample period, 20.1 percent owe no tax in only one year and approximately 53 percent owe no tax in five or fewer years. A sizable minority, 27.1 percent, owe no tax in 10 or more years. Prime-age individuals (those 20–62 years old) owe no tax in fewer years than the “any-age” sample. Within either the any-age or prime-age group, about 30 percent receive non–Social Security transfers in one year and more than three-quarters of those receive them in five or fewer years.

We also examine the duration of these states. Of all those who owe no tax, more than 21 percent do owe tax the following year and more than 55 percent owe tax within 10 years. Prime-age individuals transition more quickly to owing tax, with 37 percent owing the very next year and only 21.6 percent still not owing tax 10 years later. Of those receiving transfers other than Social Security, roughly 47 percent of either the any-age or prime-age groups stop receiving such transfers the next year and more than 94 percent of both age groups stop within 10 years.<sup>6</sup> While the majority of individuals exit the status of not owing tax or of receiving transfers relatively quickly, some individuals persist in these states for many years.

Finally, we use the PSID to construct rolling panels of different cohorts where individuals not owing tax or receiving transfers in a given year are followed for the next 10 years. We find that zero tax states have become more persistent over time, with increases in all survival rates 1–10 years later. Survival rates for receipt of transfers other than Social Security show upswings and drops over short periods but no meaningful secular trend over longer timeframes. A great advantage of the PSID data for each household is that we can determine taxes owed, transfers received, and both at the same time. Space limitations preclude showing results for all possible combinations, but we return at the end of the paper to consider net contributions over extended periods: how many receive cash transfers in excess of taxes paid.

Our work connects to a broader literature on recent changes to income volatility, since underlying income volatility may help drive transitions between owing and not owing tax, or receiving and not receiving transfers. Dynan, Elmendorf, and Sichel (2012) track household income using the PSID from 1970 through 2008 and find a large increase in volatility. Dowd and Horowitz (2011) also find evidence of income mobility, in that most EITC recipients receive the credit for only one or two years, but they also find that 20 percent of recipients in a given year receive the EITC for longer than five years. In contrast, Dahl, DseLeire, and Schwabish (2011) use administrative earnings data matched to transfer data from the Survey of Income and Program Participation and find that household income volatility did not rise between 1985 and 2005. Other work supports both results, without finding a clear cause of the discrepancy. Our finding that individuals exit states of not owing federal tax more slowly than in earlier decades is generally consistent with recent work by Heim, Lurie, and Pearce (2017) and Splinter (forthcoming), which finds rising rates of non-positive tax liabilities.

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<sup>6</sup> These durations partly reflect time limits on benefit receipt for programs such as cash welfare. Time limits differ by state and even within states, as some individuals qualify for waivers. As these limits are part of the design of safety net programs, they help determine the degree of dependence the system affords potential recipients.

The next section describes our PSID sample. Section III examines who receives benefits and owes no federal income tax. Section IV details how individuals move between states of owing and not owing federal income tax and between receiving and not receiving transfers. Section V shows how these transitions have evolved over time. Section VI concludes.

## II. DATA

To investigate how chronically individuals face zero income tax liabilities or receive transfers, we require data that follow the same individuals over time. We rely on data from the PSID, which follows individuals and their spouses for many years, providing a wide (though not complete) view of their lifetime earnings and income.<sup>7</sup> The PSID began following families in 1968, and by 2010, it covered approximately 8,000 families.<sup>8</sup> Only members of original PSID families are assigned weights, so our weighted analysis examines only individuals that include original sample members.<sup>9</sup> As the children of original families leave home and form new individuals, they are added to this PSID sample and followed along with any spouses they marry and children they have; these individuals are also included in our analysis.<sup>10</sup> The number of observations varies by year due to aging, mortality, and marriage. Further, 2,000 low-income families were dropped from the study in 1997. PSID weights, which are used throughout our analysis, were adjusted in light of this sample change. By 2010, only 3,551 individuals remained in this subsample, but we use all available data for all such individuals available in each year between 1970 and 2010.<sup>11</sup> The data are annual until 1996. Starting in 1998, the survey becomes biennial and the data describe only even-numbered years.

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<sup>7</sup> The PSID began with a sample of roughly 18,000 individuals from 5,000 families, with low-income families over-sampled. PSID weights adjust the sample composition to yield nationally representative estimates. These individuals, their spouses, and descendants have been followed continuously, with data collected yearly until 1997 and then every other year. Data collected in a given year describe income and characteristics of the previous year.

<sup>8</sup> Observations are weighted by their individual weights in each year. These weights are calculated to account for differential sampling rates, mortality rates, non-response rates across demographic groups, and changes in family composition. The resulting cross sections are representative of 1968 America as it evolved through the following years, excluding Alaska and Hawaii. The weights themselves do not attempt to account for immigration since 1968.

<sup>9</sup> In 1990, the PSID added a Latino special sample. As in most longitudinal studies using PSID data, we exclude this special sample because of its limited data and the lack of weights. In addition, we do not include the 551 immigrant families added to the PSID in 1997 and 1999 because they were only followed for a handful of survey years.

<sup>10</sup> Though these new spouses are followed, they are considered non-sample family members if they divorce or separate from original sample members and have a weight of zero. Non-sample family members include anyone who joined the study through marriage, cohabitation, or as the child of a non-sample member. Sample members are members of a household that was interviewed in the first wave in 1968, were born to an original 1968 sample family, or moved out of a first wave family and formed a new family. Spouses who were original sample members but subsequently divorce will be followed along with any children or new spouses they may have.

<sup>11</sup> All references to years in this paper refer to years described by the data, not the reporting year. For example, 2010 data describe incomes in 2010 that are reported in the 2011 PSID.

The PSID asks questions about incomes, transfers, and individual characteristics such as age, race, and highest grade completed. It does not ask about taxes paid. For each individual year, we draw these self-reported data on incomes and transfers and we use them to calculate tax due (as described below). The PSID tracks earned and asset incomes as well as various transfers, including Social Security, for household heads and their spouses. Data for household heads are more detailed and complete than for other sample members, particularly early in the sample. In some early years, the PSID reports only aggregate transfers for both heads and spouses.

We then construct measures of *individual* incomes, tax liabilities, and transfer receipts. First, we combine the incomes of each married couple to calculate their joint income tax liability and joint transfer receipt.<sup>12</sup> Then, to calculate the tax and transfers for each, we split that joint tax liability and transfer receipt evenly between the head and spouse, as long as they are reported as married in the PSID. For unmarried individuals, incomes and transfers are left unaltered. Tax and transfer receipt patterns are then analyzed at the individual level.

Over the entire 40-year period, we tabulate an average of 23.7 years of data for each of 6,675 individuals (158,161 observations).<sup>13</sup> Figure 1 describes the number of observations in our sample by year; it shows how the sample grows for many years as original sample members leave home, marry, and bring new individuals into the sample, and a precipitous decline when the low-income families are discontinued in 1997. We drop individual-year observations if income or demographic data are missing. We limit the sample to individuals who are at some point a household head or spouse, since less extensive income data are gathered for other individuals.<sup>14</sup> Data prior to 1969 are excluded, after which data completeness improved markedly (particularly for variables describing the income of wives). We restrict our sample to individuals with at least 10 years of data.<sup>15</sup> Using the gross domestic product (GDP) deflator, economic variables are inflated to 2011 dollars.

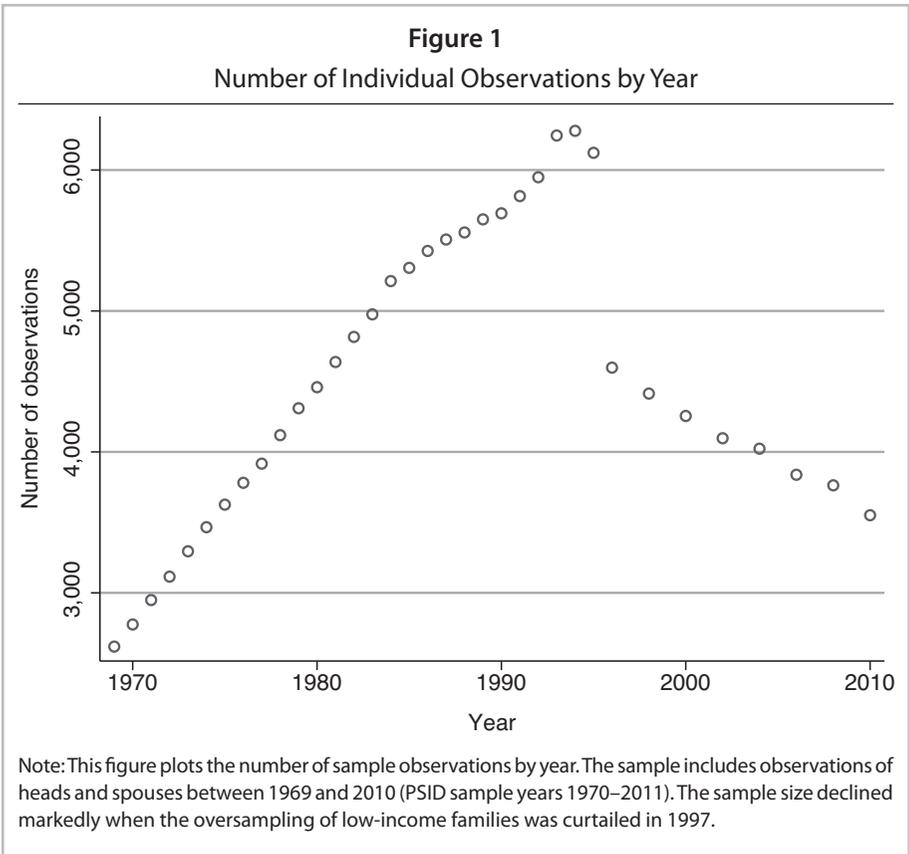
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<sup>12</sup> The only exception is unemployment insurance (UI) income between 1975 and 1984. For these years, the only variable available cumulates UI income for all individuals in the family who are not the household head. For 1985 and after, the PSID reports the UI income of wives separately, and we use these measures.

<sup>13</sup> Because the PSID became biennial after 1996, an individual can only have a maximum of 35 observations between 1969 and 2010 (PSID years 1970–2011). Sample members may have fewer than 35 observations if they enter the sample after 1969; if they leave the sample due to death, divorce, or attrition; or if they were not interviewed in a particular year. Because of our interest in transitions, imputing their behavior is not appropriate. Selection effects may occur, but we do not use these data to estimate regression coefficients.

<sup>14</sup> We do not count the incomes of children when determining total income for the tax calculations.

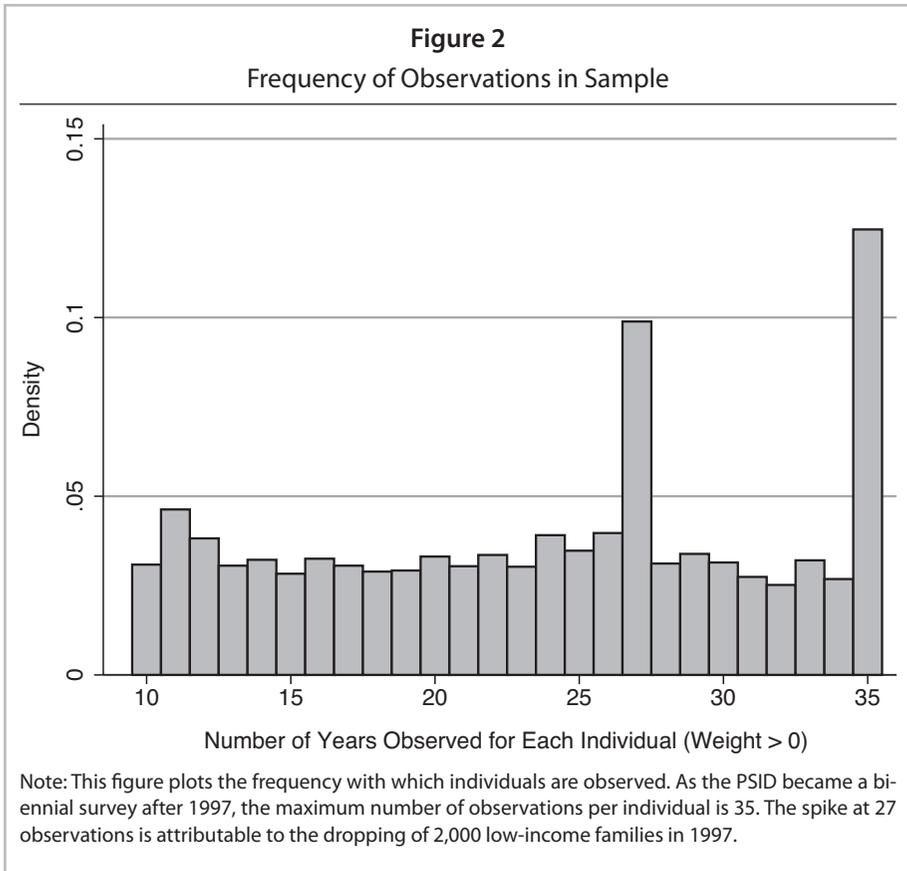
<sup>15</sup> Of the 466,807 observations for which we have income data, 215,992 are dropped because they are neither a head nor a spouse. Another 4,304 are dropped for lack of information on educational attainment, and 7 are dropped due to missing gender information. An additional 6,150 are dropped for lack of information regarding race. We drop another 239 observations of minors and 311 observations for missing information regarding transfers. Another 31 observations are dropped for lack of relation to the household head, and 6 are dropped for lack of age information. For the analysis, we drop 16,574 remaining observations of individuals for whom the PSID has fewer than 10 years of data. Finally, we disregard 65,102 observations of non-sample individuals with zero weights, such as non-sample elderly followed only from 1990 to 1996 or non-sample parents who were followed only from 1994 to 2003.



The PSID designates males as household heads and their wives as spouses; a female is only a household head when unmarried. Of 106,474 heads in the sample, 71.1 percent are male — 73.5 percent of whom are married — while 28.9 percent are female. Figure 2 plots the frequency of the total number of years that individuals are observed. Because the survey became biannual after 1997, the maximum number of observations per individual is 35. Because 2,000 low-income families were dropped in 1997, we see a spike at 27 observations as well as at 35.

Prior to 1986, the PSID reported only total transfers received by the household head and spouse. These transfers are reported separately for the head and spouse beginning in 1986, but we sum these transfers in later years to construct a measure of total transfers that is comparable across all years. As in Fullerton and Rogers (1993), transfer income here consists of payments from Aid to Families with Dependent Children (AFDC), or in later years TANF, plus Supplemental Security Income (SSI), UI, and other welfare payments.<sup>16</sup> Transfer measures do not include in-kind benefits, such as nutrition or

<sup>16</sup> Until 1976, the PSID's UI measure is called Unemployment Compensation and includes Workers' Compensation payments. In all years, the measure also includes any strike benefits received.



housing support, because the PSID does not report receipts of these benefits in all years. In some tabulations, as indicated below, we include Social Security benefits as well. Roughly 29.2 percent of the pooled sample observation years show transfers received, including Social Security benefits. The fraction falls to 10.0 percent when Social Security payments are excluded.

Our assessment of the prevalence and duration of zero tax liability among PSID individuals requires constructing separate measures of labor and asset income, since some asset income is tax advantaged at the federal level. From the various components of earned income, we construct a consistent measure of total head and spouse labor income that excludes all returns from capital ownership. It includes the labor part of business income in addition to wages and salary plus overtime and bonuses. Earned income also includes self-employment income, which like all income in the PSID is self-reported. Any underreporting of self-employment or any other income will result

in a downward bias in our estimate of federal individual income taxes and potentially overstate the number of individuals who do not owe tax. Asset income includes investment income such as dividends and rent, the asset portion of business income, and all returns from farming, market gardening, and roomers and boarders. Further details can be found in Online Appendix A.<sup>17</sup> From these income measures and information regarding marital status and number of dependents, we calculate tax liabilities using TAXSIM, the National Bureau of Economic Research (NBER) simulation program for calculating liabilities under U.S. federal and state income tax laws.<sup>18</sup> While TAXSIM can calculate an individual's federal income tax for any year after 1960, which covers our full sample period, it can only provide state tax calculations after 1976. Thus, for consistency across all years, we disregard state taxes.<sup>19</sup> Any individual with a zero or negative calculated federal income tax liability is assumed not to owe or pay tax.<sup>20</sup>

PSID respondents report certain items from which we can calculate some itemized deductions. Unfortunately, most of these items are not available in all years. While property taxes paid is available from 1968 forward, itemized charitable contributions, medical expenses, and key variables needed for determining mortgage interest are only reported starting in 1999, and only in odd years because the PSID is biennial after 1997. Because of the limited scope for incorporating itemized deductions, we assume that all individuals take the standard deduction. Online Appendix B evaluates impacts of including itemized deductions in the years they are available, using the method of Kimberlin, Kim, and Shaefer (2015). Since some individuals would have found itemizing advantageous, we may overestimate tax burdens and overstate the fraction of the sample paying tax (if low-income families could wipe out their tax liability by itemizing rather than taking the standard deduction). This bias could impact our transition estimates if during low-income years an individual can make greater use of itemizing. This concern is somewhat mitigated by the fact that those with low income are most likely to change

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<sup>17</sup> For farm income and roomer and boarder income, the PSID does not separate labor and asset components after 1994, so Online Appendix A describes how we had to aggregate those components in earlier years to be consistent across years. The aggregate for each individual-year could have been labeled labor income, but we have chosen to call it capital income. As such, we apply capital income tax rates to this income when determining tax liabilities.

<sup>18</sup> For further detail, please see <http://www.nber.org/~taxsim/>.

<sup>19</sup> A post-1976 sub-sample could be used in TAXSIM to analyze state income taxes, which tend to be more regressive than federal taxes, but such analysis would miss the fact that states without an income tax use other taxes with their own distributional effects. In addition, while we use PSID calculations of federal tax for some years to check our TAXSIM calculations of federal tax, the PSID undertakes no comparable calculation of state taxes for us to check. In any case, our goal here is to address questions about federal income tax policy, not all tax policies.

<sup>20</sup> It is worth noting that the distinction drawn here between cash transfers and features of the tax code that reduce tax, such as the EITC, is arbitrary. Indeed, the "tax expenditure" literature shows how any credit or deduction could equivalently be implemented as a direct transfer. As such, any attempt to undertake a breakdown other than the legal statutory breakdown is equally arbitrary and not necessarily better. Hence, we use the legal breakdown.

into or out of paying tax, and they rarely itemize.<sup>21</sup> Because the various forms of asset income, such as dividends and capital gains, are not separately identified in most years, they are grouped together for all years. Long-term capital gains are more tax favored than dividends, and we wish to err toward conservative estimates of tax liability, so we treat this sum as if it were all long-term capital gains.<sup>22</sup>

Before we get to our detailed analysis, Table 1 provides simple summary statistics for the pooled sample of 158,161 observations over all years. It reports that the average individual is roughly 46 years old, with an inter-quartile range from 34 to 57 years. Mean annual *Labor Income* among those working is \$40,638, while the median is \$31,782 and the 25<sup>th</sup> and 75<sup>th</sup> percentiles are \$16,096 and \$51,717, respectively. Transfers are received by 29 percent of the pooled sample. The average total cash transfer over all individual-years is \$2,279, while the average transfer from programs other than Social Security is only \$275. Among the 10 percent of the sample that receive cash transfers from general social safety net programs (not Social Security), the mean transfer is \$2,779. The mean annual Social Security transfer among those receiving Social Security is much higher, \$9,619 (not reported in the table).<sup>23</sup> Demographically, 87 percent of household heads are white, 54 percent are female, and 66 percent are married at the time of the survey.

Based on the same pooled PSID sample of all individual-years from 1970 to 2010, we find that 22.2 percent have zero federal income tax liabilities or receive a net payment from the IRS (also reported in Table 1). This number is quite different from the 47 percent quoted during the 2012 election, and so in Table 2 we describe alternative data sources, calculations, and interpretations. The first row explains that the 47 percent quotation in 2012 referred to a study published by the Urban-Brookings TPC, as described in Williams (2009). This estimate was a projection for tax units drawing upon 1999 data from the IRS that were “aged” using forecasts from CBO and the Census Bureau. Those who do not file returns (non-filers) are added through a statistical match

<sup>21</sup> Harris and Baneman (2011) estimate how many taxpayers in each marginal tax rate bracket were itemizers in 2010. They find that itemizers constituted 3.9 percent of those with no taxable income, p. 345. s Deductions?”r than income brackets, this concern is somewhat mitigated. king the standard deduction of transitions 16.2 percent of those in the 10 percent marginal tax rate bracket, 70.9 percent of those in the 33 percent tax rate bracket, and 89.4 percent of those in the 35 percent tax rate bracket. Nearly 20 percent more taxpayers itemized prior to 1986 than afterwards, because the Tax Reform Act of 1986 increased the value of the standard deduction. Still, the decision to itemize was more relevant for higher taxable income groups than for others.

<sup>22</sup> Until 1990, the PSID reported calculated tax liabilities using income inputs and their own algorithm to determine tax. For the 21 years the PSID provides their calculation of tax liability, the PSID tax liability data show that 19.0 percent of individuals (unweighted) have zero federal tax liabilities. By comparison, our assumptions and TAXSIM-based calculations for the same years suggest that 19.1 percent of individuals (unweighted) face zero tax liabilities. The similarities of these estimates suggest that our TAXSIM-based tax liability estimates are similar to the PSID’s best effort. Thus, we use our TAXSIM calculations for consistent assumptions about taxes over all years 1970–2010.

<sup>23</sup> Tabulations by the Social Security Administration show that average monthly Social Security benefits topped \$1,000 for those receiving Social Security, suggesting that our PSID sample either receives smaller than typical benefits or underreports benefits ([https://www.ssa.gov/policy/docs/chartbooks/fast\\_facts/2010/fast\\_facts10.html](https://www.ssa.gov/policy/docs/chartbooks/fast_facts/2010/fast_facts10.html)).

**Table 1**  
Summary Statistics for our Pooled Sample from the PSID 1970–2010

	Mean	Median	25 <sup>th</sup> Percentile	75 <sup>th</sup> Percentile
Age	46.3	44	34	57
Labor income (individuals, \$)	30,517	21,366	73	44,012
Labor income if >0 (75.1% of sample, \$)	40,638	31,782	16,096	51,717
Total transfers (\$)	2,279	0	0	1,223
Total transfers if >0 (29.2% of sample, \$)	7,799	7,423	3,049	11,145
Transfers excluding Social Security (\$)	275	0	0	0
Transfers excluding Social Security if >0 (10.0% of sample, \$)	2,779	1,534	545	3,799
Federal taxes (zero for 22.2%, \$)	5,855	3,060	387	7,195
Years of education	13	12	12	15
White (fraction)	0.869			
Female (fraction)	0.536			
Married (fraction)	0.655			

Notes: The sample consists of all individuals with at least 10 years of data. All income values are inflated to 2011 dollars using the GDP index. All estimates are weighted using PSID person weights. Each row (such as for transfers) shows the mean and median for that row (not the transfers of the individual at the mean or median income).

with the March Current Population Survey (CPS), a monthly survey of roughly 60,000 U.S. households.<sup>24</sup> Thus, the TPC estimate was not based on hard data on a past year's realized tax burdens but was instead a forecast made in 2009 using the best data available. The analogous TPC estimate for 2010 is 45.0 percent, as reported in the second row (to compare with PSID data available for only even years).

As shown in the third and fourth rows of Table 2, Heim, Lurie, and Pearce (2014) draw on IRS data to produce estimates for both tax units and individuals. They assemble a 1-in-1,000 random panel sample of individuals from the IRS Compliance Data Warehouse universe of tax returns for 2001–2011. They find that 50.9 percent of tax units and 43.7 percent of individuals paid no federal income tax in 2009. Both this estimate and the TPC estimate exceed our PSID estimate because of differences in demographics of individuals covered by the data, adjustments made to the data, and the fact that the IRS and TCP data analyze tax units while we examine individuals. The IRS data may not include undocumented workers who are less likely to pay tax, but they include non-residents who likely have income high enough to owe tax. Survey data exclude institutionalized persons such as prisoners, nursing home residents, or those

<sup>24</sup> <http://www.census.gov/programs-surveys/cps.html>

**Table 2**  
**Estimated Share Not Owing Federal Income Tax,  
 Comparing Different Data Sources**

Share without Positive Tax Liability (%)	Year and Data	Source
47.0	2009, IRS and others	Urban-Brookings TPC Microsimulation Model starts with the 1999 Public Use File from the Statistics of Income of the IRS. Data are aged using forecasts from the CBO and Census Bureau, and the TPC adds non-filers (Williams, 2009). Estimates are produced for 2009 and 2010.
45.0	2010, IRS and others	
50.9	2009, IRS	Heim, Lurie, and Pearce (2014) use confidential IRS data. They assemble a 1-in-1000 random panel sample of individuals from the IRS Compliance Data Warehouse universe of tax return data for years 2001–2011 and produce estimates for both tax units and individuals (primary and secondary filers).
43.7	2009, IRS	
38.0	2010, PSID	Authors' tabulations using our PSID sample and TAXSIM calculations for the 2010 year only.
35.7	2010, CPS	Authors' tabulations from 2011 and 2010 March CPS data describing 2010 and 2009 incomes.
35.4	2009, CPS	

Note: All authors' tabulations use the survey's relevant weights.

housed in armed forces barracks (typically with lower income and less likely to owe tax). Adjustments made by Heim, Lurie, and Pearce (2014) and the TPC to account for these non-filers may capture these populations, while the PSID wholly misses them, leading both Heim, Lurie, and Pearce (2014) and the TPC to find higher estimates of the percentage not paying tax.

For three reasons, we conduct our analysis at the individual level. First, the PSID does not exactly identify a tax unit. Second, we could conduct the analysis at the PSID household level, but a household could contain one tax unit that owes federal tax and another tax unit that owes no tax. In that case, any analysis based on households would say this observation owes tax, while Heim, Lurie, and Pearce (2014) and the TPC would find that half of these tax units owe tax. Third, because we want to study transitions in and out of owing tax and receiving transfers, our analysis of individuals will be less influenced by the dynamics of household formation and dissolution.

Because the PSID was biennial after 1997, and data describing odd years are no longer collected, we calculate the PSID's share of individuals with zero tax liabilities in 2010 rather than 2009. While 22.2 percent pay no income tax in our pooled sample for *all* years, the fifth row of Table 2 shows that 38.0 percent do not pay tax in the low-income recession year of 2010. This 38.0 percent number is closer to the 45 percent of the TPC, but a substantial difference remains.<sup>25</sup> For further comparison, the final two rows of Table 2 report tabulations from the 2010 and 2009 March CPSs. These rows show that 35.7 percent paid no income tax in 2010 (and 35.4 percent in 2009). These percentages are quite similar to our 38.0 percent estimate from the much smaller 2010 PSID sample. Yet the PSID sample differs systematically from a representative cross section of current U.S. residents such as the CPS. Our sample does not fully encompass changes in the U.S. population since 1968 (e.g., due to immigration and births), so it is older and more likely to be white.

Our PSID sample includes those from the original sample started in 1968, plus those added as spouses, children, and new families started later by those children.<sup>26</sup> Table 3 compares variables for the PSID sample in 2010 to the March 2010 CPS. The average individual in our PSID subsample was 59.3 years old in 2010, while the average in the CPS sample was only 50.2; median ages show a similar gap. Our PSID sample is older because PSID weights are only created for members of original 1968 PSID sample households. By 2010, the youngest sample member is 34 years old. Looking only at individuals 34 years and older, the CPS sample average age rises to 55.2, older but still not as old as our PSID sample.

Bear in mind that our PSID sample must be older, simply for us to be *able* to observe individuals for a large number of years — in order to see who moves in and out of tax-paying status and who moves in and out of transfer recipient status. As a consequence, our sample has other differences. The PSID sample members in 2010 have higher *Labor Income* on average, \$33,916, compared to CPS sample members at \$30,217 (though median incomes are closer together, \$14,976 for the PSID versus \$16,000 for the CPS). Individuals in the CPS have lower federal tax liability on average (\$4,219 versus \$5,294 for PSID individuals). But they have more similar liability at the median (\$1,387 versus \$1,421 for PSID). Yet those in the PSID receive a larger average of all *Transfers* (\$5,091) than CPS individuals (\$3,685). At the same time, CPS sample members receive more transfers *other* than Social Security. On average, they draw \$735 in such benefits, while PSID individuals collect only \$407 in such transfers.

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<sup>25</sup> The 22.2 percent not paying federal income tax in the pooled sample is smaller than the 38.0 percent we calculate for just 2010, partly because of the recession and at least partly because the recent expansion of the EITC and personal exemptions have zeroed out tax liabilities for many individuals (or left them with net tax credits).

<sup>26</sup> As the children of original sample households form their own households, they likely marry non-sample members who reflect some of the general demographic changes the U.S. experienced over this period. Nonetheless, non-sample spouses are small in number compared to the stock of original sample members, so this impact is muted.

**Table 3**  
Comparison of 2010 Summary Statistics, PSID Data versus March CPS

	PSID		United States (CPS)	
	Mean	Median	Mean	Median
Age	59.3	58.0	50.2	50.0
Age if 34 or older	59.3	58.0	55.2	54.0
Labor income (individuals, \$)	33,916	14,976	30,217	16,000
Federal income taxes (\$)	5,294	1,421	4,219	1,387
Pays no federal income tax	0.380		0.357	
Transfers (\$)	5,091	0	3,685	0
Transfers excluding Social Security (\$)	407	0	735	0
Years of education	Some college	Some college	Some college	Some college
White (fraction)	0.853		0.818	
Female (fraction)	0.540		0.534	
Married (fraction)	0.661		0.669	
Observations	3,551	3,551	113,865	113,865

Notes: Our full sample from the PSID includes individuals with at least 10 years of data between 1970 and 2010. This table reports 2010 data for the subset of those individuals who report income in 2010. The U.S. statistics come from the 2011 March CPS, which describes 2010 incomes. Both sets of statistics are weighted.

Demographically, PSID sample members are indeed more frequently white, 85.3 percent versus 81.8 percent. In addition to the fact that the PSID misses demographic changes from new births and immigration, its sample attrition may also differ by race and income. However, marriage rates and gender composition are similar across the two data sources.

Taken together, the tabulations reported in Tables 1–3 make clear that while the PSID and current U.S. cross section have some similarities, they also have real differences. The PSID sample is generally older and on average higher income, as more sample members are in their prime earning years. The share of individuals in the PSID that do not owe federal tax in 2010 is similar to the share estimated from 2010 CPS data, despite these substantial demographic differences. Perhaps the PSID's greater inclusion of older individuals who pay no federal tax on their relatively low retirement income is offset by the inclusion of younger individuals in the CPS who also have low tax liabilities. By offering a window of up to 40 years into the lifetime incomes of a particular sample of individuals, the PSID by structure simply cannot be a representative cross section of the current U.S. population. It does, however, provide a uniquely long view of the role of fiscal policy in the incomes of U.S. taxpayers.

### III. WHO PAYS IN AND WHO TAKES OUT?

We begin by examining who receives transfers or pays no federal income tax at any point during their years in the pooled sample of PSID data.<sup>27</sup> Only in the next section do we exploit the panel nature of the PSID over 40 years, to gauge the frequency and length of positive or negative income shocks that lead to transitions into or out of owing no federal tax or receiving transfers.

Because the PSID includes only a few thousand individuals in any given year, pooling them across years in this section can provide a more general assessment of how zero tax liability or benefit receipt varies by age or family composition. This pooling ignores changes in tax and transfer policy, changes in the economy, and changes in demographics or behavior.<sup>28</sup>

We begin by investigating the age distribution of transfer receipt in the pooled sample. Figure 3 plots the share of individuals receiving any government transfer, with and without including Social Security benefits, by age, for all years 1970–2010. The difference between the light and dark bar heights for any age is the share receiving only Social Security. Figure 3 shows that transfers markedly increase between age 62, the early entitlement age for Social Security, and age 65, the historic normal retirement age, with the increase entirely attributable to more individuals receiving Social Security retirement benefits. Only 36.8 percent of 61-year-olds receive transfers, with 9.6 percent receiving transfers other than Social Security. The share rises to 50.0 percent at age 62, with 7.8 percent receiving transfers other than Social Security, and it jumps to 83.8 percent at age 65, when the share receiving transfers other than Social Security actually declines to 5.5 percent.

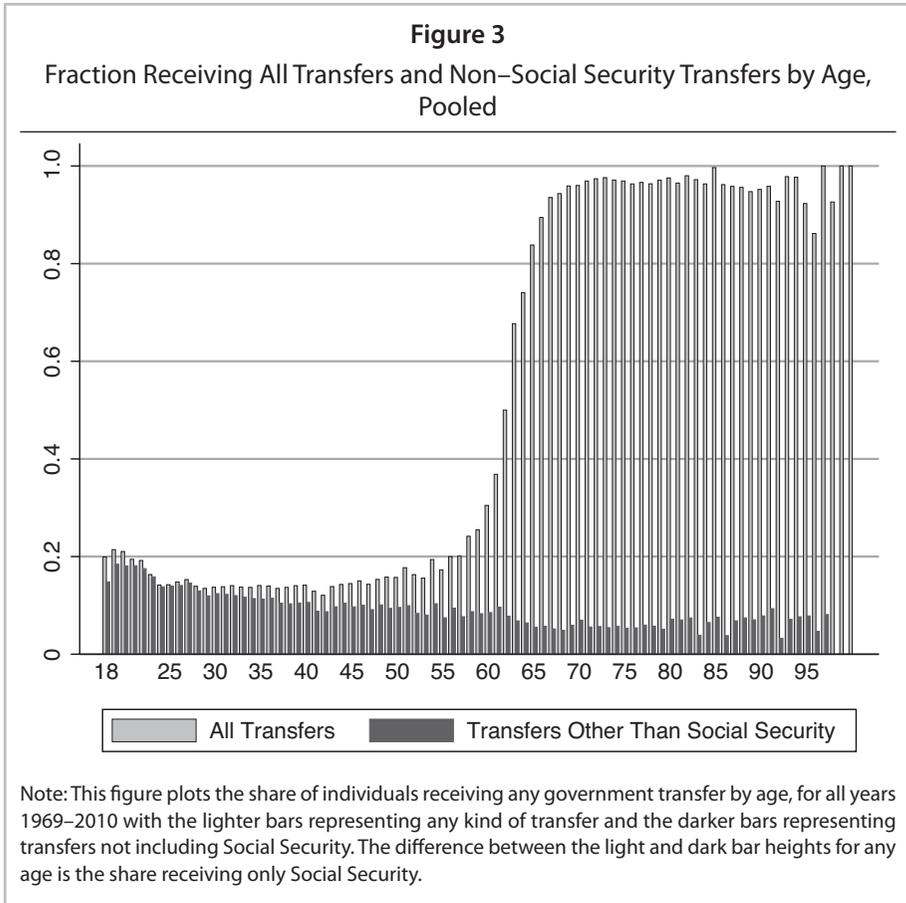
Younger individuals are more likely to receive transfers other than Social Security largely due to UI benefits that accrue only to working-age individuals.<sup>29</sup> Non-Social Security transfers are received by 10.9 percent of those under age 60, but by 6.5 percent of those 60 or over. Not counting UI, these shares are much closer (3.3 percent and 4.4 percent, respectively).

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<sup>27</sup> We employ economic incidence assumptions common to the CBO, the U.S. Treasury, the Joint Committee on Taxation, and the TPC. We assume individuals bear the economic incidence of taxes they owe and accrue the economic benefit of transfers received. Evidence in Gruber (1997) supports the assumption that payroll tax burdens fall entirely on the worker. Kubik (2004) and Leigh (2010) suggest that pre-tax wages fell in reaction to tax cuts and EITC expansions, though not fully offsetting income tax changes. Although local prices might react to transfer generosity, we assume that individuals enjoy the full economic benefit of transfers they receive.

<sup>28</sup> Even a person with unchanged income may have qualified for benefits in one year but then become ineligible later due to changes in policy. Similarly, the threshold level of income where an individual has a positive tax liability has changed over time due to tax provisions, including the EITC. Changing cohabitation rates could also lead to changes over time in tax paid or zero tax status. Heim, Lurie, and Pearce (2017) find that population changes account for the bulk of the decline in positive tax liabilities between 2001 and 2013, while Splinter (forthcoming) finds that tax policy changes explain almost all of the increase in non-positive tax liability among working age adults between 1985 and 2015.

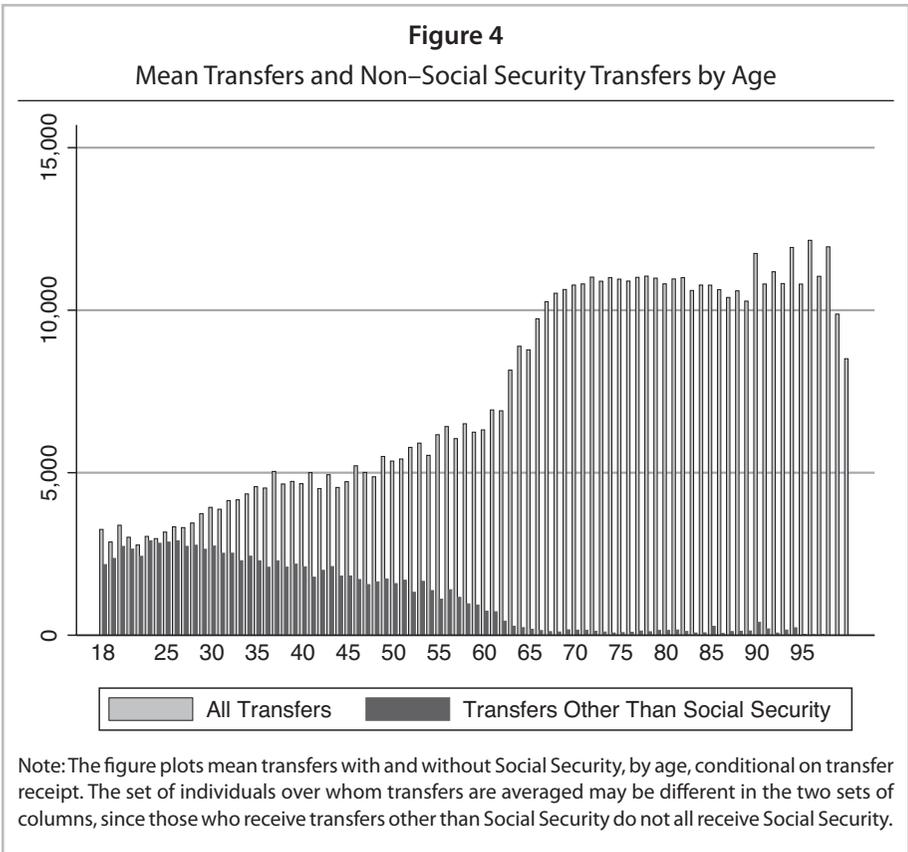
<sup>29</sup> Transfers other than Social Security include the following cash transfers: AFDC/TANF, SSI, Unemployment Compensation, and Other Welfare Income (as defined by the PSID). The PSID does not delineate what comprises “Other Welfare Income,” but since no valuation methods are disclosed, we presume it consists of cash transfers and not in-kind benefits.



Not only are individuals over 60 more likely to receive transfers, but Figure 4 shows that the mean transfers increase as well. This figure plots average benefits in the pooled sample by age for individuals who receive some type of transfer. Older individuals received markedly larger transfers, largely due to Social Security. Conditional on receiving government transfers, those under the age of 60 receive an average transfer of \$4,734, while those 60 and older receive average annual benefits of \$9,977. While non-Social Security transfers comprise the bulk of transfers for individuals age 51 and younger, Social Security, which includes Social Security disability payments, is the source of the majority of benefits received by those age 52 and over.

Together, Figures 3 and 4 make clear that the bulk of transfer dollars goes to older individuals, and Social Security comprises most of these transfers.<sup>30</sup> Next, Figure 5 shows the fraction of the pooled sample by age not paying tax. Having a zero tax liability is much more common among those who are past retirement age and those who are very

<sup>30</sup> For the 47,437 observations with transfers, Social Security accounts for more than 70 percent of transfers on average.

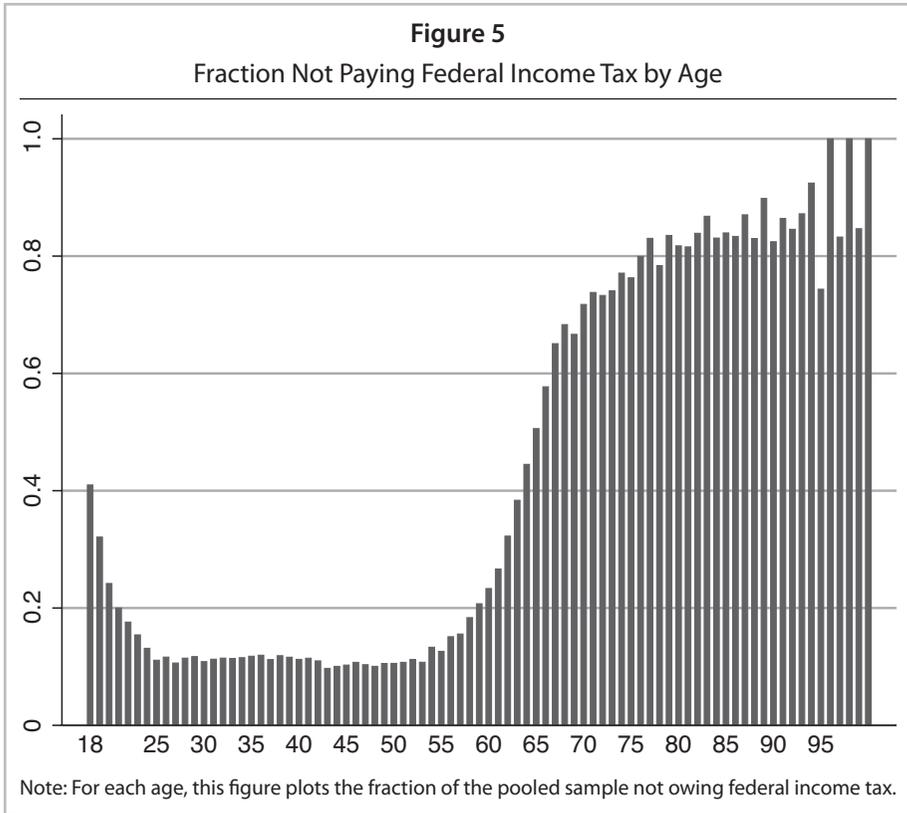


young, compared to those who are middle-aged, echoing the analysis of data from 2001 to 2011 by Heim, Lurie, and Pearce (2014). Roughly 18.4 percent of those under age 25 and 11.1 percent of those between 25 and 55 do not pay tax, while 47.5 percent of those over age 55 and 72.3 percent of those age 65 and older do not owe federal income tax. Interestingly, we see that the share of individuals not owing federal tax is greater in late middle age compared to younger years, perhaps reflecting a greater ability to take advantage of tax expenditures to offset their tax liabilities.

Pooling these data and tabulating summary statistics about who receives benefits and who faces no federal tax liability is akin to the analyses seen in prior work that use a single year of data. Even looking back in time and averaging over a 40-year period from 1970 to 2010, we see many of the same patterns found in more recent cross-sectional data.

**IV. TRANSITIONS IN AND OUT OF TRANSFER RECEIPT AND NON-TAX STATUS**

The assessments above use 40 years of pooled annual data to show how zero tax liabilities and transfers vary by age. They are, however, only annual estimates and do not show how such status changes over longer time horizons. Our key question is how



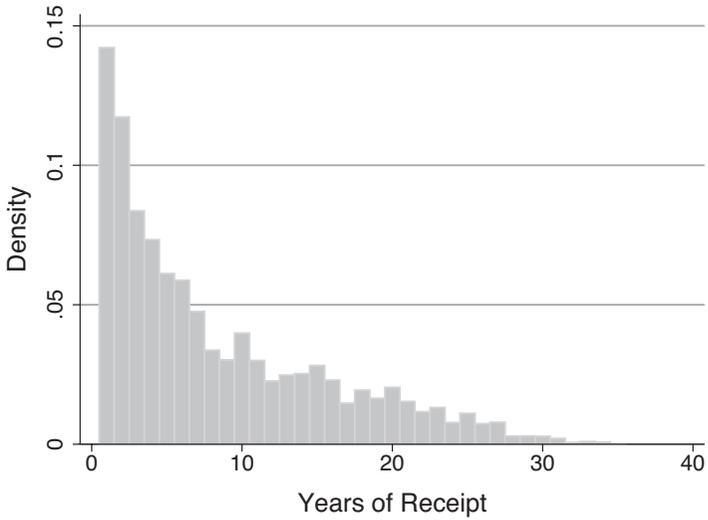
many individuals who receive benefits today or pay no federal income tax remain in that status for another year, five years, or longer? In this section, we exploit the panel nature of our 40 years of data to analyze whether some individuals receive transfers or pay no tax for a long time or if instead a larger number receive benefits or pay no tax for short times.

In addition to examining the frequency and duration of zero tax liabilities and transfer receipts in the PSID sample members of all ages, we also look at these patterns for prime-age individuals (aged 20–62). This parallel analysis helps avoid lifecycle effects related to teenagers and retired recipients of Social Security. It also helps avoid pitfalls related to the aging of the overall sample (since the PSID did not add a representative number of young members).

Figures 6A and 6B present histograms showing the years of any transfer receipt, for any-age and for prime-age individuals, respectively, among those who have received transfers of any kind in at least one sample year. In these figures, the years of benefit receipt are not necessarily consecutive. That is, an individual with transfers for 10 years may not have received them continuously but simply in 10 different years between 1970 and 2010. Because we only see a portion of each person's life, this type of duration or cumulative analysis is censored at some high number of years. After 2010, we do not know whether an individual continues to receive transfers.

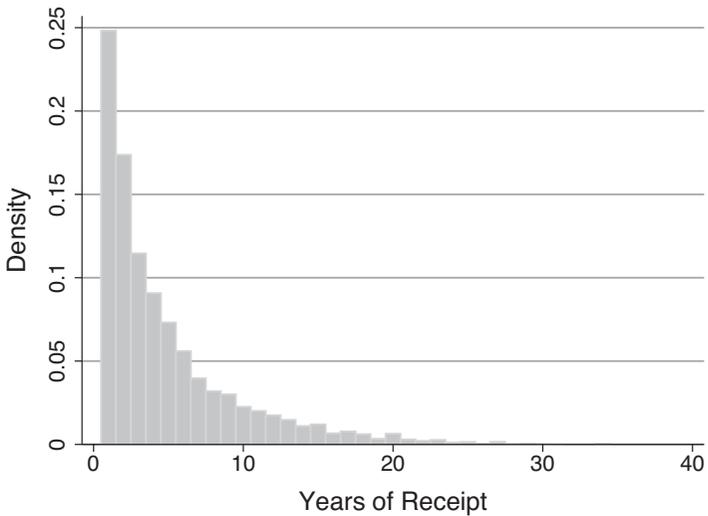
**Figure 6A**

For Individuals That Ever Receive Any Transfers,  
the Number of Years Any Transfer Is Received  
(Full Sample)



**Figure 6B**

For Individuals That Ever Receive Any Transfers,  
the Number of Years Any Transfer Is Received  
(Prime-Age Sample)



Note: These figures present histograms of the years any kind of transfer is received by those ever receiving a transfer for the all-age (6A) and prime-age (6B) samples. These plots exclude the 20.8 percent of the any-age sample and 32.9 percent of the prime-age sample that never receive any kind of transfer.

Those who never receive any kind of transfer comprise 20.8 percent of the any-age sample and 32.9 percent of the prime-age sample and are excluded from these charts to enhance readability. Of the 79.2 percent of all individuals who do receive some kind of transfer, Figure 6A shows that 14.2 percent receive those transfers only once over the entire sample period and 26.0 percent receive them only once or twice (sum of the first two bars). As Figure 6B shows, 22.8 percent of prime-age individuals who ever receive transfers receive them for just 1 year and 42.2 percent receive them for just 1–2 years. Roughly 47.8 percent of the all-age sample receive transfers in five or fewer years (sum of the first five bars), while 70.1 percent of the prime-age sample receive them for five or fewer years.<sup>31</sup> Prime-age individuals tend to receive transfers for fewer years, because Social Security receipt is concentrated among those older and is typically an absorbing state that lasts for many years.

For both groups, mean annual transfers are larger for those who receive transfers for more years. Among all ages who ever receive a transfer, those who receive transfers for only 1–2 years receive an average \$4,565; for prime-age individuals, that average is \$3,771. Average transfers are somewhat larger for individuals who receive transfers for 3–5 years; those who receive transfers for more than five years have the largest transfers on average, \$8,211 for all individuals and \$5,536 for prime-age individuals. UI is the most frequently received transfer among those who receive transfers for five or fewer years, which is natural given UI receipt time limits (typically 26 weeks, with some exceptions during recessionary periods). AFDC/TANF and other transfers are more frequent over longer durations.<sup>32</sup>

Focusing on transfers other than Social Security attenuates the difference in receipt patterns between individuals of any age and those of prime age. Figures 7A and 7B exclude Social Security and plot the number of years other transfers are received by those who ever receive non-Social Security transfers. Substantial but similar fractions of all, 40.8 percent, and prime-age, 44.8 percent, individuals never receive such transfers and are excluded from these figures. For both groups, non-Social Security transfer receipt is more likely to last for just a handful of years rather than longer. For transfers other than Social Security, approximately 49.1 percent of those of any age and 50.7 percent of prime age receive them for only one or two years.<sup>33</sup> More than 77.5 percent in Figure 7A and 80.0 percent in Figure 7B receive transfers for five or fewer years. In other words, of the 59.2 percent of the any-age sample and 55.2 percent of the prime-age sample who ever receive non-Social Security transfers, more than three-quarters receive them for five or fewer years.

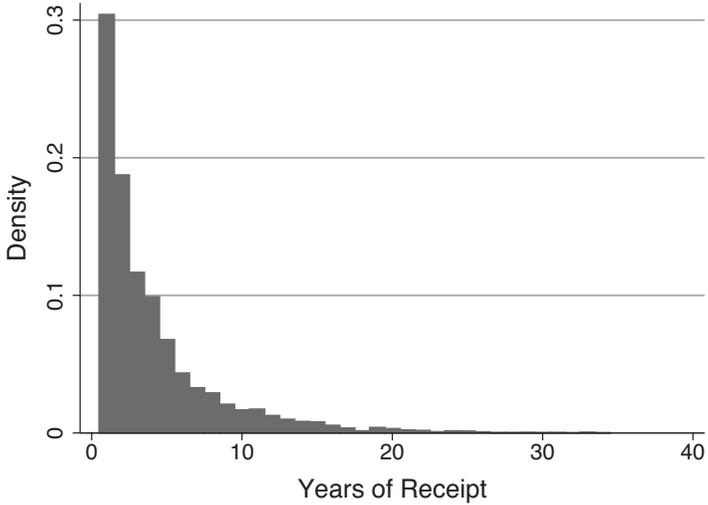
<sup>31</sup> Figures 6A and 6B use the full sample of those who receive transfers, while the numbers in Table 4 are conditional on 10 consecutive years of data. Thus, receipt patterns are somewhat different. In Figure 6A, 47.8 percent of all individuals who ever receive transfers may receive them for five or fewer non-consecutive years, but in Table 4, approximately 55.3 percent of individuals who receive them in one year continue for five consecutive years.

<sup>32</sup> This persistence may vary with policy changes. Moffitt (2003) found that changes to TANF work requirements had a significant impact on welfare exit rates.

<sup>33</sup> These individuals may or may not receive Social Security in some years. This tabulation describes only their receipt of transfers other than Social Security. In Table 4, where the sample is conditional on 10 consecutive years of data, 33.4 percent of those of any age who receive transfers outside of Social Security still receive them two years later.

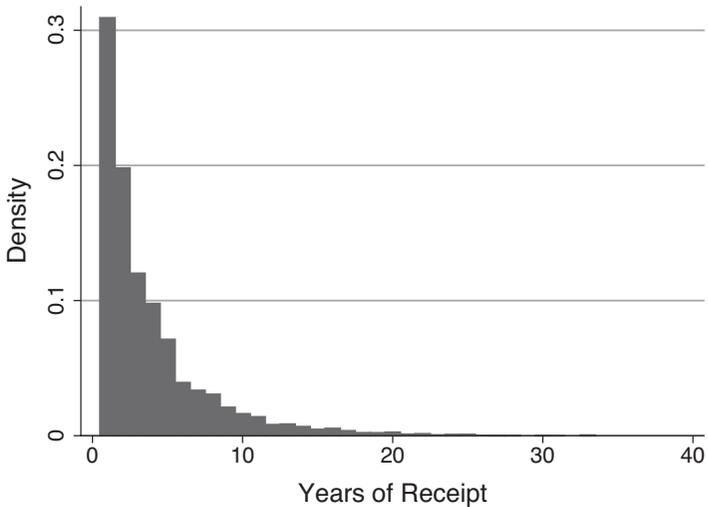
**Figure 7A**

For Individuals That Ever Receive Transfers Other than Social Security,  
the Number of Years That Any Such Transfer Is Received  
(Full Sample)



**Figure 7B**

For Individuals That Ever Receive Transfers Other than Social Security,  
the Number of Years That Any Such Transfer Is Received  
(Prime-Age Sample)



Note: These figures present histograms of the years transfers other than Social Security are received by those ever receiving such transfers for the all-age (7A) and prime-age (7B) samples. These plots exclude the 40.8 percent of the any-age sample and the 44.8 percent of the prime-age sample that never receive any kind of transfer.

As in the case of total transfers, individuals who receive transfers other than Social Security for more years receive larger average annual transfers than individuals who only receive such benefits for 1–2 years, though the difference is much smaller than for all transfers discussed above.<sup>34</sup> Individuals of any age and prime age who receive such benefits for one or two years receive transfers averaging \$138 and \$232 per year, respectively. Transfers are larger for those receiving them for 3–5 years. Individuals of any age and prime age who receive transfers other than Social Security for more than five years receive substantially larger transfers than those who receive transfers for fewer years, averaging \$1,139 and \$1,617, respectively.

The effects of positive and negative income shocks on after-tax income are compressed by the progressive rate structure of the federal income tax: high incomes are attenuated by higher average tax burdens, while low incomes bear lower average tax burdens. This compression effectively makes the federal income tax into a form of insurance. How we view the insurance value of the income tax system may be influenced by how often and for how long some individuals find themselves in the low-income state of the world (with low tax or no tax). The cumulative distribution function (CDF) of years with zero tax liability is plotted in Figure 8A for individuals of all ages and Figure 8B for just prime-age individuals. These figures exclude the 50.6 percent of the prime-age sample and 32.3 percent of the any-age sample that owe tax in all sample years. Of those of any age who ever owe *no* federal tax, Figure 8A shows that 20.1 percent face zero tax liability for only one year. Roughly 40 percent of that group do not pay tax for three or fewer years. Approximately 53 percent do not pay tax for five or fewer years. A sizable share pays no tax for many years. More than a quarter, 27.1 percent, of those of any age who ever pay zero tax stay in that status for 10 or more years. Prime-age individuals find themselves in non-tax status less often, and they stay in that status for fewer years than older individuals. Of the half of prime-age individuals who ever owe no tax, 30.8 percent do not pay for just one year, 57.7 percent for three or fewer years, and 71.5 percent for five or fewer years. Of this half of the prime-age group ever owing no tax, only 12.7 percent pay no federal income tax for 10 or more years.

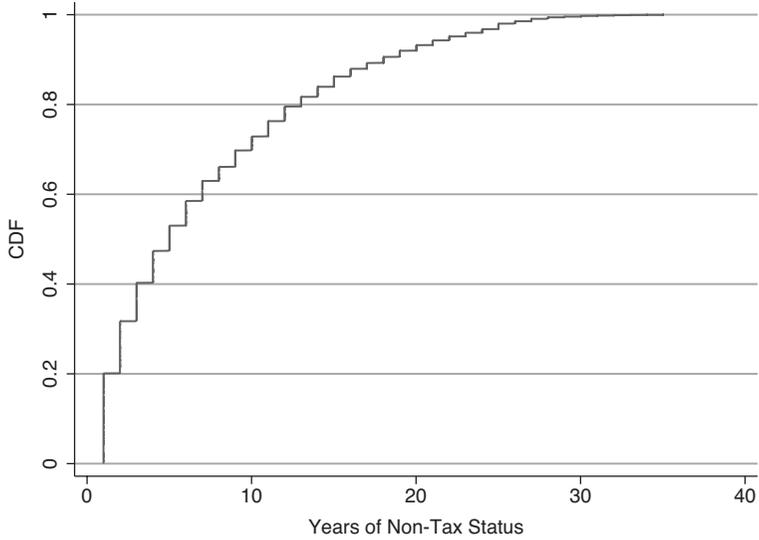
The figures above show the total number of years in the sample that a person receives transfers or does not pay federal income tax, but those years may not be contiguous. In contrast, Table 4 reports survival probabilities over consecutive years for six different tax and transfer states (for all ages in Panel A and prime-age individuals in Panel B).<sup>35</sup> For each state, the sample used to calculate these statistics is conditioned on observing the individual for 10 consecutive years after they first enter that state. For an

<sup>34</sup> Prior work on the duration of cash welfare spells finds that exit rates are not strongly affected by the duration of the current spell (Blank, 1989). Other research on the relationship between cash welfare receipt and eligibility finds that less than a third of eligibility spells lead to actual take-up of cash welfare. Most women who take cash welfare do so upon eligibility; roughly half of those who exit are still eligible for benefits (Blank and Ruggles, 1996).

<sup>35</sup> Individuals in the six different states may leave the sample at different rates, so attrition across the six states reported in Table 4 may differ. We require 10 consecutive observations for an individual to be included in the overall sample, but we do not require 10 consecutive prime-age observations for an individual's prime-age years to be counted in the prime-age sample. If an individual has 10 consecutive observations between ages 55 and 64, for example, then their data from age 55 to 62 are included in the prime-age tabulations.

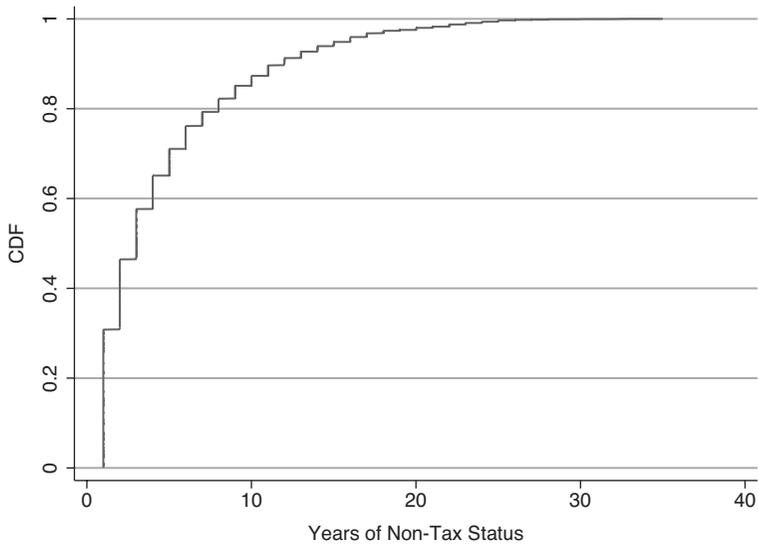
**Figure 8A**

CDF of Years of Non-Tax Status, Conditional on Not Paying at Least One Year  
(Full Sample)



**Figure 8B**

CDF of Years of Non-Tax Status, Conditional on Not Paying at Least One Year  
(Prime-Age Sample)



Note: These figures present CDFs of years with zero tax liability for the all-age (8A) and prime-age (8B) samples. These plots exclude the 32.3 percent of the any-age sample and 50.6 percent of the prime-age sample that always owe federal taxes.

**Table 4**  
Tax and Transfer Status Survival Rates

	1	2	3	4	5	6	7	8	9	10	# of Obs.
<b>Panel A. All individuals</b>											
No federal income tax	0.792	0.694	0.633	0.587	0.552	0.524	0.502	0.481	0.463	0.448	16,986
Pays federal income tax	0.959	0.927	0.897	0.869	0.842	0.814	0.787	0.759	0.729	0.698	68,874
Receives any transfer	0.770	0.669	0.616	0.580	0.553	0.532	0.513	0.498	0.486	0.476	20,731
No transfers	0.925	0.866	0.814	0.768	0.724	0.683	0.644	0.606	0.568	0.530	65,129
Receives transfer other than Social Security	0.532	0.334	0.240	0.183	0.146	0.119	0.097	0.080	0.067	0.058	12,316
Receives no transfer other than Social Security	0.946	0.903	0.868	0.837	0.810	0.785	0.762	0.741	0.721	0.702	73,544
<b>Panel B. Prime-age individuals (age 20–62)</b>											
No federal income tax	0.670	0.523	0.439	0.381	0.338	0.304	0.277	0.254	0.233	0.216	9,653
Pays federal income tax	0.971	0.949	0.929	0.910	0.892	0.875	0.857	0.839	0.819	0.797	56,246
Receives any transfer	0.601	0.425	0.335	0.276	0.233	0.201	0.173	0.152	0.135	0.122	11,735
No transfers	0.936	0.886	0.843	0.806	0.773	0.742	0.713	0.684	0.655	0.622	54,164
Receives transfer other than Social Security	0.525	0.323	0.227	0.169	0.132	0.106	0.085	0.068	0.056	0.046	9,970
Receives no transfer other than Social Security	0.941	0.894	0.855	0.822	0.792	0.765	0.741	0.717	0.696	0.674	55,929

Notes: This table reports the share of individuals in each status remaining in that status 1–10 years later, without a transition out of that status. The sample includes all individuals over the 1970–2010 period who are ever in each status and for which we have 10 years of continuous data. After 1996, the survey is biennial, but consecutive surveys are treated like consecutive years. # of Obs. denotes the number of observations per year. Attrition is not necessarily similar among individuals in different states. The tabulations are weighted using PSID weights.

individual of any age with zero tax liability in any year, for example, we tabulate each of 10 subsequent years. In this manner, we obtain 16,986 observations of individuals who do not owe tax in year zero. After the PSID switches to biennial surveys, we treat consecutive surveys like consecutive years. Using only annual data has only a minor effect on survival rates (effectively dropping data after 1996). Importantly, we do not condition on a “fresh” state. For example, the third year in a three-year consecutive state for a given individual could appear twice in our tabulations.

In the first row of Panel A of Table 4, for all individuals not paying tax, 79.2 percent still do not owe tax a year later. Three years later, 63.3 percent have yet to pay tax. Ten years later, 44.8 percent have still not paid tax (meaning that within 10 years, 55.2 percent have re-entered taxpaying status). For those with 10 consecutive years of data, about 14.4 percent of all individuals and only 8.7 percent of prime-age individuals find themselves in an initial state of not paying tax. Further, those of prime age uniformly exit that state faster than the all-age group, with only 21.6 percent still facing no tax liability 10 years later. Many people quickly exit the status of not paying tax, but that status is stickier for those who do not owe tax for at least five years.

Paying tax is a more persistent state. Of those who *pay* federal income tax in any given year, 95.9 percent of all individuals and 97.1 percent of prime-age individuals still pay the following year, and roughly 79 percent and 86 percent of each group, respectively, continue to pay tax through the seventh subsequent year. Even those who initially pay tax see normal variation in their income from year to year and face a positive threshold for annual income before any tax is due. Thus, over a long window, some fraction of individuals will not owe tax in at least one year. Ten years after initially paying tax, nearly 30.2 percent of individuals of any age and 20.3 percent of prime-age individuals do not pay tax in at least one year.

Of those receiving transfers of any kind, including Social Security, row 3 of Panel A shows that 77.0 percent of any-age individuals continue to receive such transfers the following year. Only 60.1 percent of prime-age individuals receive any kind of transfer again the next year. Five years later, roughly 55.3 percent of all individuals and 23.3 percent of prime-age individuals are still receiving benefits. These shares fall to 47.6 percent and 12.2 percent 10 years down the line. That is, more than half of any-age and seven-eighths of prime-age individuals receiving transfers that include Social Security stop for at least one year within 10 years. Because these transfers include Social Security, 21.2 percent of any-age but only 13.6 percent of prime-age individuals find themselves in an initial state of receiving transfers (of those we can track for 10 consecutive years). Interestingly, the status of not receiving transfers of any kind is not as persistent as owing federal tax.

While only 7.5 percent of those of any age *not* receiving public benefits start receiving benefits the next year, within seven years, 35.6 percent have received benefits of some kind. By year 10, 47.0 percent of those not receiving transfers do receive transfers at least once. For prime-age individuals, these transitions are less frequent. Of those not receiving transfers, 6.4 percent receive them the following year, 28.7 percent within seven years, and 37.8 percent within 10 years.

The last two rows of each panel of Table 4 show tabulations that focus on transfers other than Social Security (i.e., those not permanent by design). Among individuals we can track for 10 consecutive periods, these transfers are received at similar rates by individuals of any age (10.5 percent) and of prime age (11.3 percent). Most quickly exit transfer receipt, even within one year (46.8 percent of those of any age and 47.5 percent of prime age). Seven years later, 9.7 percent of the any-age group and 8.5 percent of the prime-age group are still receiving transfers; 10 years out, only 5.8 percent and 4.6 percent of each group are still receiving them. The status of *not* receiving such transfers is initially persistent, but over longer horizons, a sizable fraction do eventually receive them. Of those not receiving transfers other than Social Security, more than 94 percent of both age groups still do not receive them the following year. Ten years later, 70.2 percent of any-age and 67.4 percent of prime-age individuals are in the same status (over 30 percent do receive such transfers).

The tabulations of Table 4 show a meaningful churn in and out of the status of zero tax liability and of transfer receipt, particularly among those of prime age. For older individuals, zero tax status or receipt of Social Security is more persistent. For all individuals, a substantial share starts to pay tax again within a year, or exit transfer receipt within a year, and many more do so over a 10-year window. In general, however, the numbers can be viewed two ways. For those with zero tax liability in any particular year, more than a quarter of the any-age group and nearly half of the prime-age group owe taxes within two years. Those fractions indicate that periods of non-taxation can be short, but over half are still not paying tax two years later.

Table 5 examines survival probabilities over longer time periods, but for only prime-age individuals because the impact of the aging of the sample on tax liabilities and transfer receipt plays a larger confounding role over a longer time. One challenge is that extending the analysis requires further restricting the sample to individuals with sufficient consecutive observations. As we restricted the 10-year analysis of Table 4 to sample members with at least 10 consecutive years, we now require as many years of consecutive data as are years in the analyzed horizon.<sup>36</sup> To balance the trade-off between the size of the time window and the number of observations, and for comparability to the less-restricted 10-year sample, we report tabulations for each initial status over three extended windows of 15, 20, and 25 years. The first column of Table 5 reports 11-year survival rates in the 15-, 20-, and 25-year samples. It shows that requiring more years of consecutive data does impact the reported survival rates. For example, the 11-year survival rate for not owing federal income tax is 17 percent in the sample with only 15 years of consecutive years, but falls to 14 percent and 10 percent in the samples with at least 20 and 25 years, respectively. In general, individuals with more years of consecutive data are less likely to owe no tax or to receive transfers. Keep these sample differences in mind as we examine survival rates over different timeframes.

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<sup>36</sup> As in Table 4, after the PSID became biennial in 1996, we treat consecutive survey years as consecutive years.

**Table 5**  
**Longer-Term Tax and Transfer Status Survival Rates (Prime-Age Individuals, Ages 20–62)**

<i>t</i> = 11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	# of Obs.
No Federal Income Tax															
0.17	0.16	0.15	0.14	0.13											5,397
0.14	0.13	0.12	0.12	0.11	0.11	0.1	0.09	0.08	0.08						2,621
0.10	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.06	0.05	0.04	0.04	853
Pays Federal Income Tax															
0.82	0.81	0.79	0.77	0.75											34,934
0.84	0.83	0.82	0.81	0.79	0.78	0.76	0.75	0.73	0.7						18,567
0.84	0.84	0.83	0.82	0.81	0.8	0.79	0.78	0.77	0.76	0.74	0.73	0.71	0.69	0.66	7,483
Receives Any Transfer															
0.09	0.08	0.07	0.07	0.06											6,793
0.08	0.07	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04						3,282
0.08	0.07	0.06	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.02	1,060

**Table 5 (Continued) Longer-Term Tax and Transfer Status Survival Rates (Prime-Age Individuals, Ages 20–62)**

<i>t</i> = 11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	# of Obs.
No Transfers															
0.63	0.61	0.58	0.56	0.53											33,538
0.64	0.62	0.6	0.58	0.56	0.54	0.52	0.51	0.48	0.46						17,906
0.65	0.64	0.62	0.6	0.58	0.56	0.54	0.53	0.51	0.5	0.48	0.47	0.45	0.43	0.4	7,276
Receives Transfer Other than Social Security															
0.04	0.04	0.03	0.03	0.02											5,941
0.04	0.04	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.01						2,958
0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	967
Receives No Transfer Other than Social Security															
0.66	0.64	0.62	0.61	0.59											34,390
0.66	0.64	0.62	0.61	0.59	0.58	0.56	0.55	0.54	0.53						18,230
0.67	0.65	0.64	0.62	0.6	0.59	0.57	0.56	0.55	0.54	0.52	0.51	0.5	0.49	0.48	7,369

Notes: This table reports the share of prime-age individuals, ages 20–62, in each status remaining in that status 11–25 years later, without a transition out of that status. The sample includes all prime-age individuals over the 1970–2010 period who are ever in each status and for whom we have sufficient data. The top row of each panel reports survival rates for individuals with 15 consecutive years of data. The middle and bottom rows report survival rates for individuals with 20 and 25 consecutive years of data, respectively. After 1996, consecutive surveys are treated like consecutive years. # of Obs. denotes number of observations per year. Attrition is not necessarily similar among individuals in different states. The tabulations are weighted using PSID weights.

Among those still not owing federal income taxes after 11 years, the status is quite sticky. In the 15-year sample, the survival rate falls only 4 percentage points from year 11 to year 15. Survival rates fall further over longer horizons, but some individuals still do not owe tax many years down the line. Survival rates fall from 14 percent in year 11 to 8 percent at the end of the 20-year sample, and from 10 percent in year 11 to 4 percent at the end of the 25-year sample.

Survival rates for transfer receipt are lower than for zero tax liability in year 11, with or without including Social Security. They also vary less over the 15-, 20-, and 25-year samples. In the case of any transfers, survival rates fall from 9 percent in year 11 to 6 percent at the end of the 15-year sample, and from 8 percent to 4 percent over the last 10 years of the 20-year sample. They fall to just 2 percent by the end of the 25-year sample. Transfers other than Social Security are still received by just 3–4 percent in year 11, by just 2 percent at the end of the 15-year sample, and by just 1 percent in the final years of the 20- and 25-year samples.

Over longer timeframes, more prime-age individuals slip off the income tax rolls or start to receive some transfer. In the 15-year sample, survival rates for paying positive tax decline by about 7 percentage points between years 11 and 15, while in the longer samples, the 84 percent survival rate in year 11 falls to 70 percent by the end of the 20-year sample and to 66 percent in the last year of the 25-year sample. Of those still *not* receiving any transfers after 11 years, survival rates fall from 63 percent to 53 percent from year 11 to year 15 in the 15-year sample, from 64 percent to 46 percent from year 11 to year 20 in the 20-year sample, and from 65 percent to 40 percent from year 11 to year 25 in the 25-year sample. For those who receive no transfer other than Social Security, survival rates fall from 66 percent to 59 percent between years 11 and 15 in the 15-year sample, from 66 percent to 53 percent between years 11 and 20 in the 20-year sample, and from 67 percent to 48 percent between years 11 to 25 in the 25-year sample.

## V. ROLLING PANELS

Our 40 years of data also allow us to show how survival rates have evolved over time. In this rolling panel analysis, individuals interviewed in a given year who are in a particular state — not owing tax for example — are followed for the subsequent 10 years. Our final set of figures plot the evolution of these survival rates, indexed by the initial year of interview. We again include only prime-age individuals, to isolate the time pattern apart from any effects of aging. In each of these figures, the *x*-axis denotes the first year of the rolling sample (the first 10-year panel starts in 1969 and the last one runs from 2000 to 2010).<sup>37</sup> Then, the *Year 1* line shows how the share

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<sup>37</sup> The samples in each rolling panel are limited to those observed for all 11 years. Survival rates for odd-numbered years stop in 1997, when the PSID switched to biannual surveys. Survival rates for even-numbered years are available for all rolling sample years and are plotted for the entire period.

of individuals in that state who remain in that state *one* year later has changed over time from the rolling panel starting in 1969 to the one starting in 2000. The *Year 10* line shows how the share who remain in that state 10 years later has evolved over time.

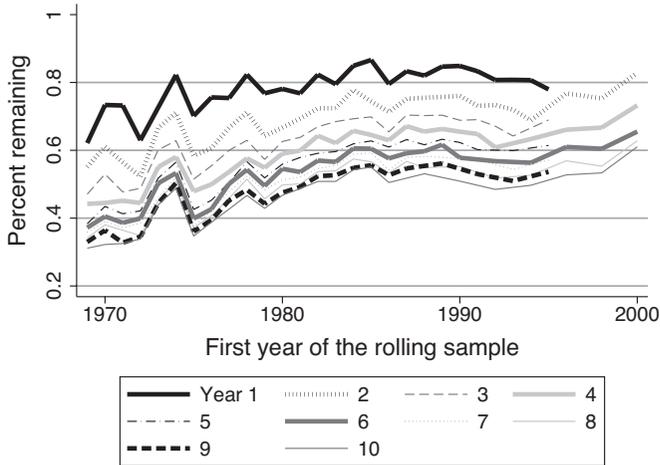
Figures 9A and 9B plot survival rates for individuals who owe no federal income tax. The number of observations varies from 288 to 1,039 per year for the all-age sample and from 233 to 535 per year for the prime-age sample (averaging 760 and 418, respectively). The lines follow largely parallel trends: for a particular initial year, a spike in the one-year survival rate (top line) leads to spikes two, four, and even ten years later (lower lines) in the survival rate for the same initial year. For both samples, zero tax liability has become more persistent, as shown by the overall upward trend in survival rates. The lines spike at the 1972–1973 recession and increase for the prime-age sample during the 1990–1991 recession; in neither plot does the 1980–1981 recession have a large effect. In 1977, the standard deduction was raised from \$1,700 to \$2,200 and survival rates increased contemporaneously.<sup>38</sup> Much of the increase in survival rates occurred in the early to mid-1980s. Survival rates then leveled off, but they rose again in the mid-1990s as the maximum EITC was increased from \$1,511 in 1993 to \$3,556 in 1996. With these policy changes and the underlying changes in the economy, the cumulative effects were substantial. In 1980, the two-, four-, and ten-year survival rates were 66.7 percent, 59.0 percent, and 46.8 percent, respectively. By 1990, they were 76.1 percent, 65.5 percent, and 50.9 percent. In 2000, they reached 82.9 percent, 73.2 percent, and 61.0 percent.

Survival rates for those receiving any kind of transfer including Social Security are plotted for all-age and prime-age individuals in Figures 10A and 10B. Here, the number of observations is generally larger, varying from 307 to 1,351 per year for all ages (averaging 899) and from 253 to 767 per year for prime-age individuals (averaging 473). Figure 10A shows a strong upward trend in survival rates over time for receipt of any transfer, but Figure 10B focuses on prime-age individuals where only more recently do we see an increase.

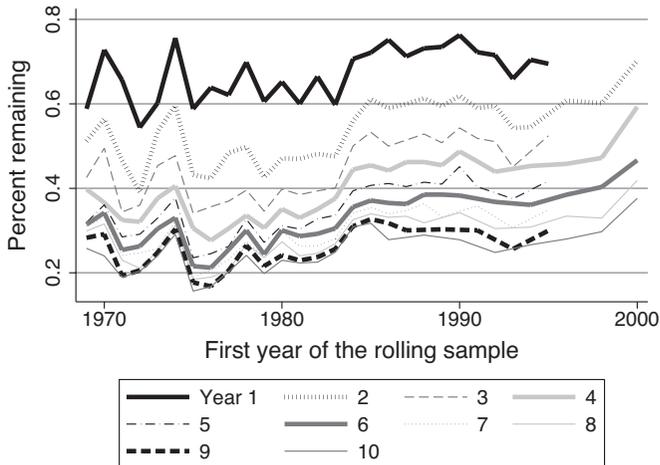
In contrast, survival rates for transfers other than Social Security plotted in Figures 11A and 11B are nearly identical for all-age and prime-age individuals. Both groups have marked upswings and drops in survival rates for short periods but no meaningful secular trend over longer timeframes. The patterns of Figures 10A through 11B suggest that increasing numbers of individuals older than prime age receive Social Security over time, rather than other transfers. In Figures 11A and 11B, receipt of non-Social Security transfers clearly spikes just before and at the start of the 1973–1975 recession, does not seem to increase during the 1981–1982 recession, and increases again prior to the 1990–1991 recession. Survival rates turn upward in the late 1990s, but the increase in one-year survival rates begins in the early 1990s — well before the 1996

<sup>38</sup> Neither the 1987 increase in the personal exemption nor the 1988 increase in the standard deduction has a discernible effect on these survival rates.

**Figure 9A**  
 Survival Rates by Initial Year of Non-Tax Status  
 (Full Sample)

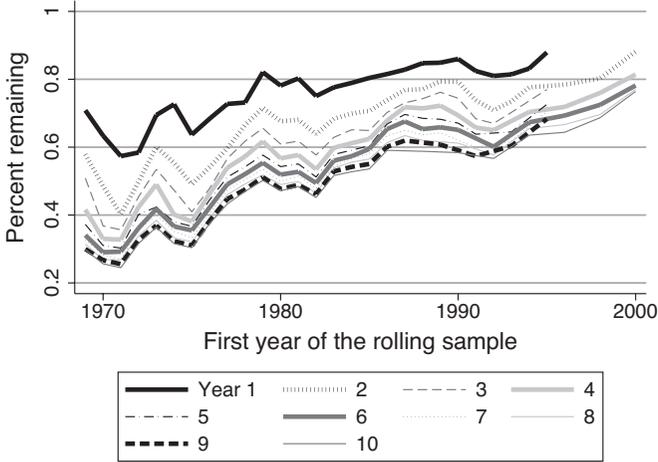


**Figure 9B**  
 Survival Rates by Initial Year of Non-Tax Status  
 (Prime-Age Sample)

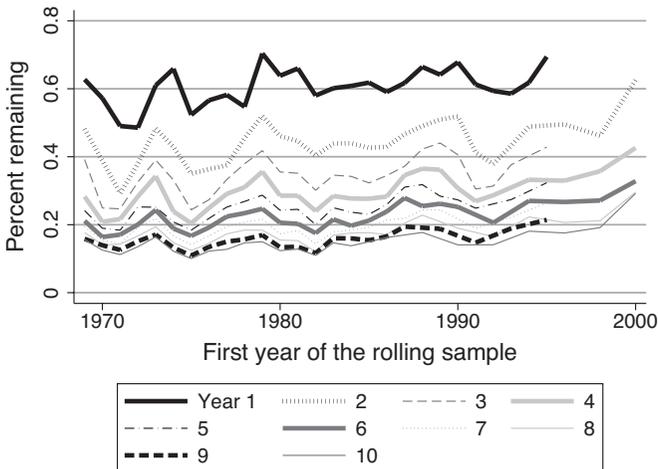


Note: These figures plot survival rates for individuals who owe no federal income tax for the all-age (9A) and prime-age (9B) samples. The number of observations per year varies from 288 to 1,039 in the all-age sample and from 233 to 535 in the prime-age sample (averaging 760 and 418 observations per year, respectively).

**Figure 10A**  
Survival Rates by Initial Year of Any Transfer Receipt  
(Full Sample)

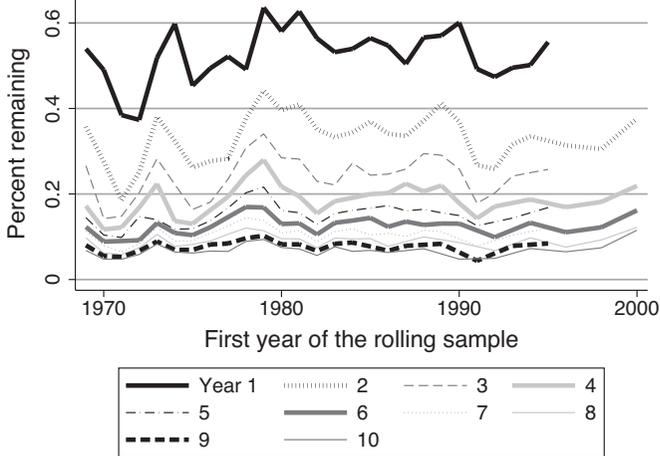


**Figure 10B**  
Survival Rates by Initial Year of Any Transfer Receipt  
(Prime-Age Sample)

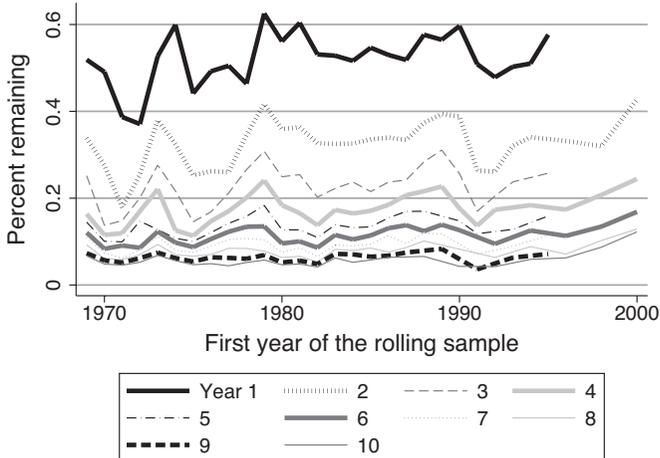


Note: These figures plot survival rates for individuals receiving any kind of transfer including Social Security for the all-age (10A) and prime-age (10B) samples. The number of observations per year varies from 307 to 1,351 in the all-age sample and from 253 to 767 in the prime-age sample (averaging 899 and 473 observations per year, respectively).

**Figure 11A**  
Survival Rates by Initial Year of Non-Social Security Transfer Receipt  
(Full Sample)



**Figure 11B**  
Survival Rates by Initial Year of Non-Social Security Transfer Receipt  
(Prime-Age Sample)



Note: These figures plot survival rates for individuals receiving transfers other than Social Security for the all-age (11A) and prime-age (11B) samples. The number of observations per year varies from 225 to 845 in the all-age sample and from 184 to 675 in the prime-age sample (averaging 481 and 391 observations per year, respectively).

welfare reform act — so it is unclear if the transformation of welfare is a driver. Because these plots exclude Social Security receipt, they draw on fewer observations for each plotted point, ranging from 225 to 845 in Figure 11A and from 184 to 675 in Figure 11B.

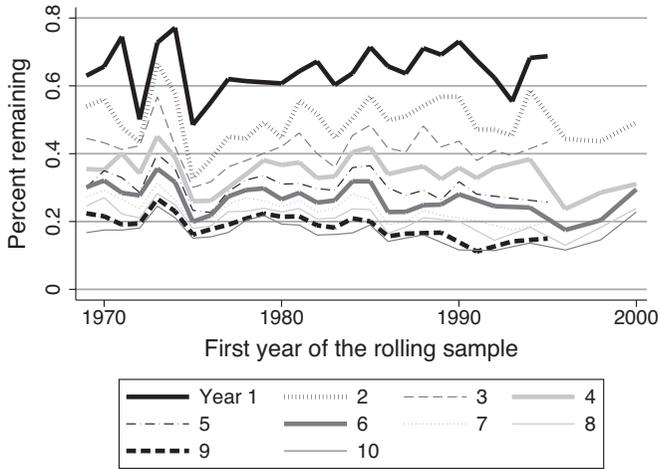
Figures 12A and 12B examine survival rates for a combination of initial states: both not owing federal income tax *and* receiving transfers other than Social Security. The low prevalence of such transfer receipt means that the number of observations is much lower than in prior figures, ranging from 122 to 386 for all ages (averaging 245) and from 91 to 281 for prime ages (averaging 187). Survival rates have evolved similarly for both the all-age and prime-age samples, spiking during the 1973–1975 recession and rising again after the 1981–1982 recession. Interestingly, survival rates increased before the 1990–1991 recession. Strong economic periods, such as the mid-to-late 1990s, saw declines in survival rates, though 1996 also marked a major reform to cash welfare that limited eligibility and duration. Again, we see increases in the very late 1990s — following cash welfare reforms and expansions of the EITC.

Using the combination of tax and transfer data for each individual, we can also calculate how much each contributes in taxes relative to what they draw in cash transfers reported in the PSID over the sample period (in constant 2011 dollars using the GDP deflator). Here, we exclude payroll taxes, Social Security benefits, and UI. Transfers reported in the PSID do not include many large ones, such as Medicaid, nutrition assistance, and housing support. Further, tax dollars are used to pay for other public goods, such as defense, education, and infrastructure, from which individuals may benefit directly or indirectly but which are not reflected in these calculations. Here, we simply assess individuals' net cash-flow tax payment or receipt, including cash transfers and any tax-based redistribution such as the EITC.

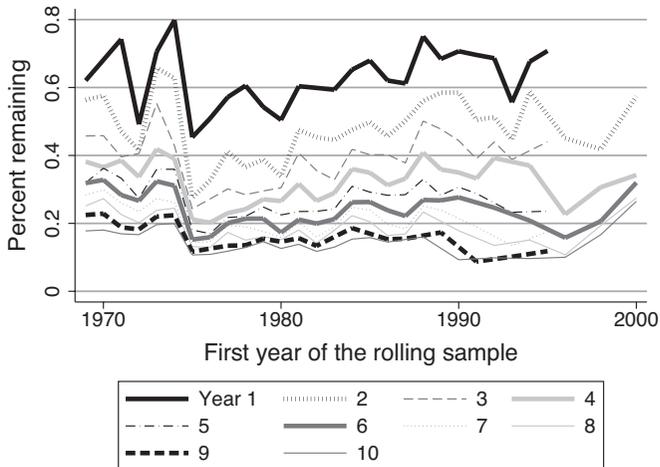
The average individual pays \$142,534 of federal income tax over the sample period and draws \$7,290 in these cash benefits, in real dollars, for a net contribution of \$135,244. Only those in the bottom 10 percent of income are net “takers,” where their net tax over all observed years falls below zero. For example, the 5<sup>th</sup> percentile has a net tax of  $-\$16,268$ , meaning that the 5<sup>th</sup> percentile receives more than \$16,000 in transfers over the tax paid over all years. The 25<sup>th</sup> percentile contributes \$28,316 more in tax revenue than it receives in these transfers (i.e., other than Social Security), while the median individual contributes on net nearly \$82,000 over the sample period. Among those contributing the most to the federal treasury, the 75<sup>th</sup> percentile pays over \$180,000 in taxes less transfers received, while the 90<sup>th</sup> and 95<sup>th</sup> percentiles pay \$320,718 and \$447,840, respectively. However, we may see some of these 6,675 individuals for a portion of their lives that may not be representative of their true lifetime taxes and transfers.<sup>39</sup>

<sup>39</sup> Further calculations beyond the scope of this paper could reveal how and why individuals might pay taxes or not, and simultaneously receive transfers. Indeed, one spouse could pay tax while the other receives UI benefits, even while we split incomes and transfers between spouses. Moreover, programs, such as Social Security, are designed for individuals both to pay tax and to receive benefits.

**Figure 12A**  
 Survival Rates by Initial Year for Non-Tax and  
 Non-Social Security Transfer Receipt  
 (Full Sample)



**Figure 12B**  
 Survival Rates by Initial Year for Non-Tax and  
 Non-Social Security Transfer Receipt  
 (Prime-Age Sample)



Note: These figures plot survival rates for individuals both not owing federal income tax and receiving transfers other than Social Security for the all-age (12A) and prime-age (12B) samples. The number of observations per year varies from 122 to 385 in the all-age sample and from 91 to 281 in the prime-age sample (averaging 245 and 187 observations per year, respectively).

## VI. CONCLUSIONS AND DISCUSSION

Following Governor Romney's description of the 47 percent of Americans who pay no federal tax, major questions were raised about the creation of a class of non-contributors. Of particular concern was the notion that a substantial share of the population does not contribute to general tax revenue. By extension, this share may draw transfer benefits each year. Analysis using annual data helped explain that these 47 percent include the elderly, students, and those with very low income. Yet the question remains: how long does someone paying no federal tax remain in that status?

Using data from the PSID, we study the persistence of paying no federal income tax and of receiving public transfers. In the case of transfers, we can exclude Social Security benefits because individuals are not expected to stop receiving those benefits once they start. Though a substantial fraction of the population pays no tax in a given year, a much smaller share does not owe tax or continue to receive benefits for years down the line. In fact, more than two-thirds of the PSID sample does not owe tax in at least one year. Similarly, though, only 10 percent of the sample receive transfers other than Social Security in any given year and 60 percent receive such transfers in at least one year. Individuals enter such status often, and exit often.

Understanding the frequency and duration of non-taxation and of benefit receipt helps us understand the functioning of our social safety net and the income insurance offered by our tax system. If such policies truly provide insurance against short-term shocks, we might expect to see such status for many individuals — but only some of the time. Results here confirm this view. On the other hand, some individuals do consistently pay no income tax or consistently draw benefits. Data from the PSID analyzed here show that transfer receipt is most often not a permanent state: more than 94 percent of recipients of transfers other than Social Security leave the welfare rolls within 10 years. Not paying federal tax is temporary for many but not all individuals. Roughly 55 percent of those not paying federal tax continue in that status over the subsequent 10 years. For most transfer recipients and for many of those not paying tax, these exit rates suggest that these government policies do provide some short-term insurance.

Still, a small share of the population does not owe federal income tax or receives public transfers long-term. Public policy researchers and public service providers will need to investigate further why some individuals manage to exit and others remain. Future research may also aim to understand how income changes due to transitory shocks versus predictable lifecycle patterns manifest in the use of tax and transfer provisions and impact survival rates.

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## DISCLOSURES

The authors have no financial arrangements that might give rise to conflicts of interest with respect to the research reported in this paper.

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