

Is Household Wealth Sustainable?

An Examination of Asset Poverty Reentry after an Exit

Tammy Leonard

Corresponding Author
Senior Lecturer and Associate
Department Head, Economics
Department
University of Texas at Dallas
800 W. Campbell Rd, GR31,
Richardson, TX 75080
leonard@utdallas.edu
Phone: 972-883-2970
Fax: 972-883-6486

Wenhua Di

Senior Economist
Community Development Department
Federal Reserve Bank of Dallas
2200 North Pearl Street
Dallas, TX 75201
wenhua.di@dal.frb.org
Phone: 214-922-5534

Author Biographies

Tammy Leonard is Senior Lecturer and Associate Department Head in the Economics Department at the University of Texas at Dallas. She has published research on neighborhood influences on health and financial decisions of low-income households, peer effects, housing markets, and applied spatial econometric analysis. She received her Ph.D. from the University of Texas at Dallas.

Wenhua Di is a senior economist in the Community Development Department of the Federal Reserve Bank of Dallas. She conducts economic research on domestic housing policies, program evaluation and consumer finances. She holds a Ph.D. in public policy from Harvard University.

Disclaimer

The views expressed in the paper are those of the authors and do not necessarily represent the views of the Federal Reserve Bank of Dallas or the Federal Reserve System.

Abstract

This paper analyzed the influence of financial behaviors on the duration *out of* asset poverty while controlling for households' life cycle and demographic characteristics. We found evidence for the existence of structural barriers to asset acquisition. Asset accumulation at or above levels equal to nine-months worth of income at the income-poverty level was important for improving a household's odds of permanently escaping asset poverty, but a linear relationship between asset accumulation and the likelihood of returning to asset poverty did not emerge. Moreover, minimizing debt and diversifying the asset portfolio to include more productive assets were positively related to maintaining assets; but households should also consider the risks associated with portfolio allocations.

Keywords: Asset, Poverty, wealth

JEL Codes: I3, D1

Is Household Wealth Sustainable? An Examination of Asset Poverty Reentry after an Exit

Introduction

The median family net worth dropped 38.8% between 2007 and 2010 as a result of the Great Recession (Bricker et al. 2012). The stability of household finances has implications for both individuals and the broad economy. At the micro level, financial instability has been associated with increased poor nutrition and health (Blazer et al. 2005; Meyers et al. 2005), limited health care access (Long 2003), foreclosure, and unstable relationships within the family (Kearns et al. 2000). At the macro level, prudent household debt management has been associated with reduced credit risk, which increases the stability of the financial system (Barba and Pivetti, 2009; Cynamon and Fazzari 2008).

Stable household finances are related to household income, debt and wealth (Emmons and Noeth, 2012). While previous studies have focused on income (Cellini et al. 2008; Hoynes et al. 2006), we examined the latter two—or net household wealth. Net household wealth is the value of all assets held by the household minus any outstanding debts. We focused on net household wealth because it has the potential to improve household self-sufficiency even in the face of temporary income shortfalls. Wealth may be used to buffer against unpredictable income flows (Oliver and Shapiro 1990 and 1995). Households with a low level of wealth and low access to credit and insurance markets have been particularly vulnerable to the financial impact of unemployment, family structure change, unexpected medical expenses, and natural disasters (Fothergill and Peek 2004). Proponents of wealth building policy, such as Individual Development Accounts have contended that building wealth through assets is a way for low-income families to emerge from poverty and enter the financial mainstream (Miller 2010). However, the decline in

family net-worth since the Great Recession has posed challenges for asset-building policies to improve economic self-sufficiency and stability of low-and moderate-income (LMI) families (Peterson 2012).

The definition of asset poverty was first suggested by Haveman and Wolff (2005): a household that does not have net worth to sustain income for three months above the federal income poverty level, or net worth equal to 25% of the annual income poverty level, is considered *asset poor*.¹ The fall back into asset poverty following an exit event—or reentry—is the focus of this paper. We considered households who are first observed to be in asset poverty, but later accumulated sufficient assets to exit asset poverty. For these households, we analyzed their asset poverty dynamics by looking at life events, demographics and financial behaviors in order to determine which factors influenced the duration *out of* asset poverty. We focused on the fall back into asset poverty—rather than asset poverty entry—because many families begin in asset poverty. It is not unusual for a household to have been in asset poverty when it was formed (few newly married young adults have accumulated a large amount of assets), but asset accumulation is a goal on the path to financial stability. Many households have managed to accumulate assets and escaped asset poverty, but they later fall back into asset poverty. The purpose of this study is to inform policies aimed at helping families maintain assets.

Background and Motivation

¹ The income poverty threshold adopted by the US government is based on the income a household makes, adjusted for inflation and household size. It has been used as a benchmark for comparison across studies over time and also for determining qualifications for various government assistance programs.

Asset poverty has been prevalent and increasing among LMI families. According to the 2010 Survey of Consumer Finances (SCF) conducted by the Federal Reserve Board, 19.6% of US households were net worth asset poor (Ratcliffe and Zhang 2012). As one might expect, lower-income households have accumulated fewer assets than higher-income households. However, in a recession, even middle- and higher-income households may become asset poor because of job loss and value declines in home, business and investments. According to the SCF, from 2007 to 2010, the share of asset-poor increased from 1.3% to 5.1% for families in the top income-quintile, increased from 5.6% to 10.5% for families in the second income-quintile, and increased from 12.1% to 16% for families in the middle quintile. The increases were even higher when considering only working-age families.

Asset poverty has been associated with certain life cycle stages, but life cycle alone does not fully explain the occurrence of asset poverty. A life table analysis examining the duration and patterns of asset poverty using the PSID data from 1984 to 2004 revealed that asset poverty was more prevalent among young adults, but was seen in all age groups (Rank and Hirschl 2010). Half of all households with children were asset poor when housing was not included in the calculation of assets; the proportion of families with children who were in asset poverty dropped to 33% when home equity was included in the definition of assets (Aratani and Chau 2010). Further, the experience of asset poverty differed with differences in race, education, homeownership, and family structure (McKernan and Ratcliffe 2005; Tin 2000; Xiao 1997). Carroll (1997) augmented the life cycle/permanent income hypothesis model to account for individuals' income uncertainty and impatience. The results implied that while the life cycle theory held for individuals

over age 50, younger individuals tended to save to meet a target wealth-to-permanent-income ratio.

Our work controlled for important life cycle correlates of asset acquisition while examining the transition from low to higher levels of asset acquisition. As households' financial situations change, policies may influence the target wealth-to-income ratios held by households. Programs and products that encourage and incentivize long-term savings and asset accumulation such as matched retirement accounts, tax rate reduction for long-term capital gains and dividends, and estate tax exemptions have been more abundant for households with higher income or assets. The asset eligibility rules of some public benefit programs such as Medicaid and Supplementary Security Income may have actually de-incentivized asset accumulation (Chen and Lerman 2005). This disconnect suggests that it is critical to have a better understanding of households transitioning from asset poor to non-asset poor, or the dynamics of asset-poverty reentry. This may provide insights for improving financial advice and policy design that enable households to better sustain non-asset poor positions.

Using the asset module of the Panel Study of Income Dynamics (PSID) to estimate asset poverty rates, Caner and Wolff (2004) found that the risk of becoming asset poor is higher for households with a history of previous asset poverty spells. About 60% of asset-poor households (when all assets are included in the measure) remained poor five years later and the persistence was about 70% when home equity was not included in the measure of assets. While the literature has indicated that asset poverty rates are both high and persistent, no known studies examined the experience of households after escaping asset poverty, or the possibility of reentry.

Next, we present a conceptual frameworks to help explain the dynamics of asset poverty. We describe the data and the empirical strategies in section three and discuss the results in section four. We then conclude with comparisons to previous studies and policy implications.

Asset Poverty Reentry—a Conceptual Framework

To understand asset poverty dynamics, it is crucial to differentiate between structural and idiosyncratic challenges to wealth accumulation. Structural challenges are barriers inherent within the economic system such as lack of access to financial products; while idiosyncratic barriers are challenges that happen randomly such as a car accident, job loss, or serious illness. We focused on structural challenges because they are an important target for asset building policies. Structural barriers to asset accumulation have received little attention in the literature focused on asset poverty in developed nations, but they have been a well-studied topic when considering poverty in the developing world. One hypothesized structural barrier is the existence of threshold effects that result in a level of wealth above which individuals over time can achieve higher standards of living while below which individuals are likely to fall into a poverty trap (Stevens 1999). Carter and Barrett (2006) constructed a model to depict asset-accumulating paths of different individuals or households in order to study the dynamics of asset poverty. The model was based on the premise that shifts in a household's stock of assets can occur in one of two ways: asset accumulation (inheritance, saving, etc.) or increased asset returns (the assets grow themselves). If asset returns are locally increasing, then a positive relationship exists between the marginal return on assets and wealth. This relationship paired with some

structural barrier to acquisition of high-return assets—such as a minimum initial investment—results in the existence of a wealth threshold below which long-term asset maintenance is challenging.

A similar threshold can exist due to credit market imperfections and heterogeneous asset types (Zimmerman and Carter 2003). Credit market imperfections caused risk management to be more expensive for poor households. Poor households then invested more in “buffer assets” (low-risk, low-yield assets such as savings accounts) rather than productive assets (which are riskier), while wealthy households invested primarily in productive assets. The model suggested that there is some level of wealth below which households were not able to invest in the more risky productive assets because the consequence of not being able to provide for the most basic needs was nontrivial. When income shocks caused the erosion of a household’s assets, wealthy households could rely on the remaining productive assets to rebuild wealth, while poor households faced wealth depletion.

The concept of a wealth threshold below which asset building and maintenance is difficult is important because it helps distinguish “structural” poverty from “transitory” poverty that happens naturally or randomly. For those households who are able to cross the threshold and acquire high-return assets, stochastic spells of income poverty would not lead to persistent poverty, unless assets are depleted beyond the threshold. However, the high-return region is beyond the reach of many individuals or households that have limited access to risk management tools or little assets to start with.

Necessary for the existence of the wealth threshold and for a focus on asset poverty is imperfections in credit and insurance markets. If households were freely able to obtain

credit at affordable prices when needed and fully insure against risks, then there would be no need for buffer assets. On average 19% of US households have been credit rationed, with most of these being younger households who tended to own fewer assets as well (Jappelli 1990). The subpopulation most likely to be uninsured has been the same subpopulation for whom the transition from asset poor to asset non-poor is most relevant.

We adopted the wealth threshold concept in our study because it was useful for examining how the transitions between being and not being asset poor happened, and whether the exit from asset poverty could actually lift the individual or household to a healthier region for asset accumulation. Additionally it would be interesting to understand if the widely adopted definition of asset-poverty threshold—wealth equivalent to three months of income at the poverty level—corresponded to an asset level that enabled a household to stay out of asset poverty for a long time. Further, does an asset threshold exist such that households reaching the threshold were less likely to fall back into asset poverty?

These theoretical underpinnings resulted in two hypotheses:

Hypothesis 1: *There is an asset threshold above which the risk of future asset poverty decreases, while below which the risk of future asset poverty increases.*

Hypothesis 2: *Households with asset portfolios containing productive assets will exhibit a decreased likelihood of future asset poverty.*

Empirically identifying the asset threshold or a “best” asset portfolio was beyond the data limitations and the scope of this study. However, the empirical section will provide evidence for or against the two hypotheses—an important first step in understanding the factors that influence the sustainability of asset-based poverty-alleviation policy. We tested whether increasingly higher levels of asset accumulation were related to longer spells out

of asset poverty and whether portfolio composition in terms of debts and productive assets (e.g., stocks, businesses) were related to a decreased likelihood of asset poverty reentry. Our research question focused on the likelihood of falling back into asset poverty after an exit. If we found support for hypothesis 1, policy may focus on asset building to levels above the wealth threshold. Further, if hypothesis 2 was supported, asset building policies aimed at helping households sustain non-asset poor positions should focus on asset allocations.

Empirical Strategy

Because we were interested in the likelihood of asset poverty reentry after an exit, we created an empirical model to describe the dynamics of asset poverty reentry by applying event history analysis to longitudinal survey data of household asset positions.

The model

Our analysis sought to understand the duration of spells out of asset poverty, following an exit of asset poverty. The time from an exit from asset poverty to reentering asset poverty (a failure event) was defined by a random variable, T . T has a continuous probability distribution, $f(t)$, where t is a realization of T . The cumulative probability for reentering asset poverty at t is given by

$$F(t) = \int_0^t f(s)ds = Prob(T \leq t) \quad (1)$$

The survival function, $S(t)$, is the probability that a household remains outside of poverty for at least t and is given by

$$S(t) = 1 - F(t) = Prob(T \geq t) \quad (2)$$

The hazard rate, $h(t)$, combining $F(t)$ and $S(t)$, defines the rate at which households are likely to reenter asset poverty after a duration of t given that they have remained outside of asset poverty for a duration of t .

$$h(t) = \frac{f(t)}{S(t)} \quad (3)$$

In the context of our study, the hazard was defined as the risk of asset depletion such that the household's wealth fell below 25% of the poverty line (or the value of assets was less than three months' income at the poverty level). The PSID asset module was recorded biennially; therefore, t was a discrete variable and each period corresponded to two years. The hazard rate indicated the probability that a household would reenter asset poverty during the next period if they had remained out of asset poverty.

We used a Cox proportional hazard model to estimate the association between covariates and the hazard rate. The Cox model allowed us to estimate this relationship without specifying a functional form for the duration dependency—thus providing a highly flexible way of analyzing duration dependence without restrictive distributional assumptions. The hazard rate for the Cox model was written as the product of a baseline hazard, $h_o(t)$, that was not parameterized; and an expression, parameterized in terms of a set of covariates, that modeled the ordered duration:

$$h(t, M, X, V) = h_o(t) \exp(M\beta_1 + X\beta_2 + V\beta_3) \quad (4)$$

In the expression above, M represented a vector of explanatory variables characterizing the initial situation of a household when moving out of asset poverty, such as the level of asset

beyond the amount required to exit poverty at the recorded exit year, history of the asset-poverty, and year dummies to control for time-varying macroeconomic conditions at exit. X was a vector of variables that described the household's time invariant demographic characteristics, which included age at the time of exit and race of the head of the household. V was a vector of time-varying household status variables, which included presence of children in the household, education of the head, homeownership, automobile ownership, health status of the head, health insurance coverage, household income, household with a single head, and the composition of the household's asset portfolio. Together X and V contained important controls for the effect of life cycle on asset accumulation as suggested by the literature (Derrick and Lehfeld 1980; Xiao 1997). The variables we included in the empirical models are listed in Table 1.

In order to understand how household status both at the time of exit and after the exit influenced the likelihood of a return to asset poverty, we estimated two separate Cox proportional hazard models. One set of estimations was based on a Cox model in which the household status variables took on the values at the time of the exit, which provided insight into how these factors observed at the time a household acquired enough assets to exit asset poverty were related to the duration of the household staying out of asset poverty. The other set of estimations included time-varying covariates (TVC's) in a Cox model where the household status was allowed to change each period. The model with TVC's provided insight into how changes in the household status variables *after* a poverty exit might have been related to the duration before reentering asset poverty. When TVC's were included in the model, the survivor function, $S(t)$, became the product of successive survivor functions defined for each interval over which the TVC's may have changed.

The PSID data are a discrete representation of an essentially continuous process, so the Cox model was modified because many failure events happened at identical times. We used the Efron (Efron 1977) method to handle tied cases with a robust standard error estimator (Lin and Wei 1989).

Endogeneity was a concern for our models because we included home and automobile assets in the independent variables. For some definitions of assets, the value of home equity and automobiles were included. The ability to own these assets may have been related to other unobservable factors that could affect the duration of an exit from asset poverty (e.g., credit worthiness). For these reasons, we only included home and automobile ownership at the time of exit—and not as time-varying covariates—in the empirical models. We also performed a robustness check and estimated all of the models without home and automobile ownership and the key results remained substantively the same. Moreover we did a robustness check by replacing the initial period home and automobile ownership with time-varying home and automobile ownership in the TVC models. Again all of the key results that we will present remained unchanged. If these variables were endogenous, the degree of bias was not large enough to affect the main conclusions of this study.²

The Data

The data available for studying asset poverty dynamics are far less rich than those for income poverty because of the short history of collecting asset-holding information in longitudinal surveys. Only two nationally representative longitudinal surveys currently

² Results of the robustness checks are available from the authors upon request.

collect asset-holding information: the Survey of Income and Program Participation (SIPP) and the PSID. The SIPP data contain detailed monthly asset-holding information and very rich demographics on lower-income households and immigrants. However, SIPP is inappropriate for studying long-term asset poverty, because the length of its longest panel is only four years. Consequently, in this study we used the PSID—the most commonly used database for studying the dynamics of poverty (Cellini et al. 2008). The PSID is a nationally representative longitudinal survey with high response rate. The unit of observation in the PSID is a family unit, which is defined to be a group of people who are living together and share both income and expenses. The PSID family unit includes individuals who are cohabitating in the same housing unit, single person households and all persons related by blood residing in the same household. This definition of family unit is more inclusive than that used by the US Census bureau, thus in what follows we use the term “household” to mean a PSID family unit.

Of key interest to the study was the asset module. Prior to 1999, the PSID module assessing assets and liabilities was only asked every five years. However, after 1999 the asset module was included biennially. Because we needed frequent reports of assets in order to study the exits and subsequent reentries into asset poverty, we focused on the PSID asset modules collected between 1999 and 2007.

While the asset poverty threshold has been routinely defined as a level of assets equivalent to 25% of the federal income poverty level, there has been less standardization in which assets are included in the calculation of assets. We explored asset poverty dynamics using different asset definitions found in the existing literature. Table 2 describes the components of assets for each of the four definitions we explored. The first definition

(*Net Worth 1*) considered all measures of assets available in the PSID module for all sample years. The last three definitions were borrowed from the approach of Rank and Hirschl (2010) who also analyzed the PSID data. All definitions, in particular, *Net Worth 2* and *Liquid Wealth*, can also be traced back to the concepts for asset-poverty measurement presented in Haveman and Wolff (2005). The only difference between *Net Worth 1* and *Net Worth 2* was the inclusion of wealth associated with automobile ownership in *Net Worth 1*³. Automobile ownership was the only measure of durable goods available in the PSID asset module. While durable goods have not typically been considered as assets, low-income households have often cited them as an asset and they may be important in the transition between asset poor and asset non-poor for these households (Nam et al. 2008). *Financial Wealth* differed from *Net Worth 2* because housing wealth was excluded. *Liquid Wealth* considered only savings, stocks and bonds; it excluded all business, real-estate, housing and durable goods related wealth.

We note that the definition of asset poverty has, as its basis, the concept of income poverty as defined by the federal government. Income poverty thresholds are calculated by the U.S. Census Bureau and do not vary by geographic region. The rationale and methodology for calculating the federal income poverty threshold has been consistently critiqued, but there is no universally accepted alternative and further no alternative with consistent time series data that may be used in analysis (Iceland 2005). For these reasons and for the sake of producing comparable results, we used the standard federal measure that has historically been employed in the asset poverty literature.

³ Automobile ownership is measured as the net market value of the vehicle: the value of the vehicle minus any outstanding debt on the vehicle.

The analysis focused on households who exited asset poverty and it sought to determine which factors were most influential in a return to asset poverty. This required identification of the period when a household exited from asset poverty—or the “exit period. Thus, in order for households to be included in the analysis, a two-period pattern must have been observed: being asset poor, then not being asset poor. Identification of the exit period was essential to identify the duration between asset-poverty exit and reentry. For this reason, any observations with left-truncation were not included in the analysis.

The sample used in the analysis was limited to those households for which we were able to identify an exit from asset poverty. The sample of households observed to have exited asset poverty varied depending upon the definition of assets employed. Using PSID data from 1999 through 2007, we began with a sample of 9,295 households for which complete asset information was available. Table 3 reports the asset characteristics of the full sample of 9,295 households according to each definition of asset poverty. Depending upon the definition of asset poverty, 26 to 57% of the households were never in asset poverty while 24 to 53% of the households were always in asset poverty. Approximately 12 to 13% of the households exited asset poverty during our sample period, facilitating identification of the exit period. Data from these households, excluding any households that have missing values for the covariates included in the models⁴, were used in the analysis.

One concern was our inability to include left-truncated observations, or households who exited asset poverty prior to 1999 and were observed to either remain out of asset poverty or re-enter asset poverty during our observation period but never re-exited. These

⁴ The most frequent form of missing data that causes a household to be excluded from the final models is educational attainment. The PSID does not reassess this variable at every data administration; thus, it has a higher frequency of missing values.

households were accounted for in the first and third rows of Table 3 and represented 32 to 63% of the full PSID sample, depending upon which definition of asset poverty was used. On average, left truncated households were older (in 1999), less likely to be minority, less likely to have kids (in 1999) and had lower income than the analysis samples. Considering the life-cycle correlates of asset acquisition the characteristics of the left-truncated observations were unsurprising. The majority of the left-truncated households were never in asset poverty from 1999 to 2007 (row 1 in Table 3). Older, higher income households and households without kids are less likely to be asset poor (Aratani and Chau 2010; Rank and Hirschl 2010). Without data to identify the period in which these households exited poverty, it was impossible to include them in the analysis (Allison 2010; Andersen and Gill 1982; Box-Stefensmeier and Jones 2004).

There is potential that omission of these left-censored observations may have biased our results. Due to the lack of a long time series of asset poverty data, the degree of bias from omission of these spells from our analysis of asset poverty exits is unknown. For guidance on how left censoring may bias our results, we referred to the literature examining income poverty spells (Iceland, 1997; Stevens, 1995). Iceland (1997) assessed the degree of bias from omitting left censored spells for the case of income poverty. As would be expected, estimated average spell duration was much longer when left censored spells were taken into account. However, our analysis was focused not on measurement of spell duration, but on determinants of re-entry into asset poverty. In analysis similar to ours but focused on re-entry into income poverty, Stevens (1995) found that the bias associated with left censoring was extremely small when estimating the determinants of re-entry. Stevens used PSID data, but because of the longer time history of income poverty

data, was able to assess the affects of left censoring by examining left censoring within sub-samples of the time series (see Stevens (1995) for details). Nevertheless, we cannot assume that left truncation bias for our study of asset poverty would be the same as the studies of income poverty. Therefore, we carefully note that our results are strictly based upon the subset of households in PSID who were observed to have exited asset poverty between 1999 and 2007. We examined the likelihood of asset poverty re-entry during the years immediately following an exit; and because of left censoring, our results should not be assumed to apply to households who have been out of asset poverty for a long period of time.

Table 4 presents summary statistics on the analysis samples according to the different definitions of asset poverty. Some households in our study may be considered “established” households, in that they were formed prior to our first observation of asset measures, while others have formed more recently. For “established” households, we wish to differentiate between those that were asset poor in 1994 (the most recent asset measure available in the PSID prior to 1999) and those that were not. Between 16 and 23% of each analysis sample was composed of households that were asset poor in 1994. Another 13 to 19% of households in each analysis sample were not asset poor in 1994. The remaining 59 to 70% of households were formed since 1994. The year of exit from asset poverty was split fairly equally across the three possible exit years: 2001, 2003 and 2005. We use these variables to control for the macroeconomic conditions of the year the households exited asset poverty. In the PSID, the head of household is the adult male in the household unless he is severely disabled or not present. The average age of the head of household was close to 40 for the two net-worth definitions of asset poverty, but was about five years older for

the financial and liquid wealth definitions relating to the longer time necessary to accumulate assets when housing was not included in the definition of asset. African Americans had a higher representation in the analysis samples when housing was included in the definition of asset (greater than 30% of the sample) than when housing was not included in the definition of asset (22 to 24% of the sample). Automobile ownership was over 80% across all samples; while homeownership among the *Networth 1* sample was only 43% compared with homeownership rates of 67 to 68% in the other samples. Because the value of automobiles was included in the definition of asset for *Networth 1*, households that do not own a home, but own one or more vehicles, were more likely to exit asset poverty under the *Networth 1* definition than the other, less inclusive, asset definitions. About half the households (44 to 51%) contained children less than 18 years old and most households (89 to 95%) had health insurance. The prevalence of health insurance increased as the definition of asset became more restrictive. Single female-headed households accounted for about 16% of the samples with *Networth 2* and *Liquid Wealth* definitions, but they accounted for a higher proportion (23%) of the sample with the *Networth 1* definition and a lower proportion (14%) of the sample with the *Financial Wealth* definition. Single male households, however, accounted for about 16% of each sample except the sample with *Liquid Wealth* definition where they represented only 14%.

The variables upon which we will focus most when discussing the results and conclusions of this study are related to our hypotheses. First, we hypothesized that a threshold of asset wealth might exist beyond which the likelihood of asset poverty reentry is significantly reduced. To analyze this relationship we included a measure of asset accumulation (*Threshold 0.75*). *Threshold 0.75* indicated households who were observed to

have a level of assets equivalent to 75% of the income poverty level, or 9 months worth of income at the income poverty line at the time they exited asset poverty. These households—between 40 and 60% of the sample for each definition of asset—had assets that were at least three times greater than the threshold needed to exit asset poverty. After initially examining the relationship between reentry and *Threshold 0.75*, we explored alternative asset accumulation thresholds ranging from 50 to 131% of the income poverty threshold. Our second hypothesis dealt with the relationship between a household's financial portfolio and asset poverty reentry. Two key variables were used to assess this relationship. *Portfolio* measured the percentage of total assets (based on the *Networth 1* definition) invested in more productive assets such as businesses, non-house real-estate, stocks or bonds; and *Debt_ratio* measured non-mortgage debt as a percentage of total assets. The average value of *Portfolio* varied widely across the samples based on different definitions of asset, ranging from 8% (*Net Worth 1* definition) to almost 20% (*Financial Wealth* definition). It was possible for *Portfolio* to be greater than 100% because the net house value (which may be negative) was included in the *Networth 1* definition of assets. The productive assets measured by *Portfolio* also generally involved more risk than non-productive assets. We will interpret the implications for the *Portfolio* results with this trade-off in mind. *Debt_ratio* ranged from 0 to 100% in our samples. The average debt ratio in each of the samples was between 12 and 18% except in the sample based on the *Financial Wealth* definition of asset. For the *Financial Wealth* sample, the average debt ratio was only 6% of assets. Debt ratios indicated the degree to which a household had leveraged their asset positions. High debt ratios are generally associated both with greater risk

exposure and less financial flexibility because the borrowing capacity of a household may be exhausted.

Results

Results for the estimated Cox models are reported as hazard ratios for ease of interpretation. A hazard ratio being greater than one indicated that an increase in the value of a variable increases the likelihood of returning to asset poverty, *ceteris paribus*. A hazard ratio being less than one indicated a decreased likelihood of reentry. The results from the first set of Cox proportional hazard models in which the household status variables were held constant at their values observed at the asset-poverty exit (during the period the household's assets were first observed to be above the asset poverty threshold) suggested factors observed *at the time of exit* that were related to a more sustainable exit, or a lower chance of a subsequent reentry into asset poverty. In contrast, the TVC Cox model estimated the relationship between reentry and changes in the household status variables that occurred *after the household exited* asset poverty.

Cox Proportional Hazard Model with Time Invariant Covariates

Table 5 presents the estimated hazard ratios for reentering asset poverty when the household status variables were held constant at their values at the time of exit from asset poverty. The results from these models reflected how household characteristics at the time of exit from asset poverty were related to the likelihood of reentry.

The covariates included in the model as controls behaved as expected based on the life cycle theory and other results from the literature. We categorized households as being asset poor in 1994, not asset poor in 1994, or newly formed households that did not exist

in 1994 (the reference group in our empirical model).⁵ Households who were in asset poverty in 1994, and thus were more likely to have a longer history of asset poverty prior to exiting asset poverty, were associated with a higher likelihood of reentering asset poverty—regardless of the definition of asset that was applied. Likewise, having an African American head, having lower income, and being a single female-headed household were all associated with a higher likelihood of reentry. Owning a home or an automobile were generally associated with a lower likelihood of reentry. The indicator of the year the household exited asset poverty did not have significant influence on the likelihood of reentry, except for the financial wealth or liquid wealth definition of assets. For these definitions, exiting in 2003 increased the likelihood of reentry.

We focused next on the relationship between a household's financial portfolio and asset poverty reentry. Households who exited asset poverty with a higher debt ratio were associated with an increased likelihood of reentry for most definitions of asset. The exception to this was found in the Liquid Wealth models where *Debt_ratio* had no statistically significant relationship with asset poverty reentry. However, asset allocation towards more productive assets (*Portfolio*) was not statistically significant in any of the models.

The estimated hazard ratios for asset accumulation above the asset poverty threshold, *Threshold 0.75*, were statistically significant across all asset definitions except those based on the Liquid Wealth definition of asset. *Threshold 0.75* identified households that had assets equal to 9 months of income at the poverty line when they were observed to have exited from asset poverty. In some ways the statistically significant coefficient

⁵ 1994 was the most recent year that asset data were available in the PSID prior to 1999.

estimates for *Threshold 0.75* were unsurprising: higher levels of assets should have taken longer to deplete and therefore reduced the likelihood of reentry. We examined this relationship further to better understand the insulating effects of higher asset accumulation. In particular, we assessed if the relationship between asset poverty reentry and asset accumulation followed a linear pattern. To do so, we re-estimated the models in Table 5 and allowed *Threshold* to indicate different asset accumulation thresholds ranging from 50 to 131% of the income poverty line. The estimated hazard ratios with error bars at a 95% confidence level for *Threshold 0.50* through *Threshold 1.31* are displayed in Figure 1.

All estimates of hazard ratios in Figure 1 were smaller than one, and within some range around three times the asset poverty threshold (*Threshold 0.75*), they were statistically significant. This suggested that asset accumulation thresholds within that range helped prevent households from falling back to asset poverty. However, there was no clear linear relationship between the asset accumulation thresholds within that range and the likelihood of reentry. For all definitions of asset, the magnitude of the estimated hazard ratios for *Threshold* remained relatively constant as the asset accumulation thresholds increased. Thus we found evidence that higher asset accumulation thresholds reduce the likelihood of reentry, but the likelihood of reentering asset poverty was not sensitive to incremental increases in asset thresholds once the initial gain was realized.

TVC Cox Model

Next, we estimated Cox proportional hazard models while allowing the household status variables to vary each period.⁶ The results of these models are presented in Table 6. The name for each of the variables that changed over time was preceded by “TVC” to indicate that they were included in the model as a time-varying covariate. The coefficient estimates for these variables were interpreted as the change in the log-hazard ratio when the value of the variable “jumped” or changed from one data collection period to the next. Inclusion of time-varying covariates allowed us to control for changes in a household’s life cycle stage.

The covariates included in the model as controls had similar estimated relationships as in the previous Cox models. Home and auto ownership, income, having more education, and having insurance were associated with a lower chance of reentering asset poverty. Having more kids and becoming a single-female head were associated with a higher chance of reentering asset poverty. However, for those becoming single moms, the chance decreased when the definition of asset is based on total net worth. It is possible that these households had received child support or help from grandparents while others don’t. This result warrants further investigation with more detailed data.

Threshold 0.75 was statistically significant across all analysis samples and the estimated hazard ratios were of similar magnitude as before. The main difference between the results from the TVC model and the previous Cox model estimates was the role of portfolio allocations and debt. Households who invested one percentage point more of their asset portfolio in productive assets (business, non-house real estate, stocks or bonds) were associated with a 0.7 to 0.9 percentage points reduction in hazard of reentry using the

⁶ The exceptions are *Owner* and *Auto*, which are not allowed to vary because of concerns for endogeneity, as previously mentioned.

samples with Net Worth 1, Net Worth 2 and Liquid Wealth definitions of asset. This reduction of hazard became 1.5 percentage points when considering the sample with the Financial Wealth definition of asset. Changes in the debt ratio after the exit from asset poverty had a significant, inverse relationship with reentry. The largest hazard ratio between *TVC Debt_ratio* and reentry was seen in the sample with the *Net Worth 1* definition of asset—a 1 percentage point reduction in debt as a percent of assets was related to a 2.4 percentage-point decrease in reentry hazard. The smallest hazard ratio—observed in the Liquid Wealth model—indicated that households that increased their debt as a proportion of asset by 1 percentage point were 0.5 percentage points more likely to reenter asset poverty. It was important to note that these effects were observed after controlling for asset accumulation (*Threshold 0.75*) and income (*TVC Income*); thus, they are reflecting the relationship between reentry and changes in financial *allocations*.

These results should be considered in conjunction with the risks associated with changes in *TVC_Portfolio* and *TVC_Debt_ratio*. A reduction in debt is associated with decreased financial risk because the household reduces its liabilities and increases the scope for leverage in the future; it is plausible that this decreased risk is the critical link between the relationship between lower debt levels and increased likelihood of maintaining asset wealth. However, an increase in the proportion of productive assets in a household's portfolio is associated with a more risky portfolio allocation and an increase in the household's ability to maintain asset wealth. Investing in more risky productive assets is not advisable in all circumstances; the risks and rewards need to be properly balanced.

Conclusions

The goal of this study was to examine households who had exited asset poverty and better understand the factors that influenced the likelihood of asset poverty reentry. The findings provide insights on how asset building policies aimed at improving self-sufficiency for low-to-moderate-income households could be better focused. In particular, we examined the role of different levels of asset accumulation and the asset portfolio allocation. We found that for all definitions of assets, a threshold of asset accumulation higher than the commonly used asset poverty threshold was associated with a decreased likelihood of reentry. For all but the *Liquid Wealth* definition of assets, asset accumulation greater than or equal to 75% of the income poverty line had a statistically significant association with less reentry. Additionally, households who increased the proportion of productive assets (businesses, non-house real-estate, stocks or bonds) in their asset portfolios after an exit from asset poverty were associated with a lower chance of reentry while households who increased their debt ratio were associated with a higher chance of reentry.

The results for *Debt_ratio* and *Portfolio* were consistent with our hypothesis that asset portfolio allocations in productive assets might have an insulating effect on the maintenance of assets. However, we must also consider the risks associated with more “productive” portfolio allocations. We began this manuscript by noting that wealth of US families had severely eroded during the years surrounding the financial recession. The relationship between *TVC_Portfolio* and maintenance of asset wealth must be tempered with an understanding that proper financial advising and prudent investment decisions are critical to capitalizing on the benefits of productive assets.

The results for *TVC_Portfolio*, *TVC Debt_ratio* and *Debt_ratio* might also be attributed to other correlated variables for which we do not have data such as financial sophistication, time and risk preferences, as well as changes in ownership of other types of assets (Lai, 2006). For example, households investing in productive assets might be more financially sophisticated which has other important benefits for maintaining asset wealth beyond acquisition of the productive assets (Smith et al. 2012). Additionally, more patient households might be better at saving and rely less on debt. Also, when a household purchased or sold assets such as a home or an automobile, we did not necessarily observe the assets the household used for the purchase or the new assets obtained with proceeds from the sale. Changes in *TVC Portfolio* or *TVC Debt_ratio* might be related to changes in these other assets. Empirical evidence has suggested that households deal with the risk associated with housing investments by reducing the risk associated with their other investments—such as decreasing the portion invested in stocks (Cocco 2005; Flavin and Yamashita 2002). However, our main results were robust to the inclusion of time-varying home and automobile ownership indicating that at least for these types of assets, the correlation between the asset transaction and leveraging or portfolio allocation was not substantial enough to influence the results. Additionally, we note that the relationship between investment in productive assets and the likelihood of asset poverty reentry only occurred for the model using time-varying covariates. Households who were observed to have invested in more productive assets when they exited asset poverty were not more likely to maintain their assets. Our results only showed that households who changed their portfolio allocation towards more productive assets *after* they had exited asset poverty were more likely to remain out of asset poverty. This result might be associated with the

need to establish sufficient financial wealth to buffer the increased risks associated with productive assets. On the other hand, both *Debt_ratio* and *TVC Debt_ratio* were related to less asset poverty reentry. Future work should determine whether characteristics of households who are more likely to invest in productive assets or reduce debt are also associated with maintaining assets.

There were several additional caveats for interpreting the results. First, due to limitations in the availability of longitudinal asset data, we were only able to observe households for at most seven years after an exit from asset poverty, and assets were only assessed at two-year increments. This prevented us from observing any events or conditions that might have an impact longer than seven years, and anything that happened between the two-year survey increments. Second, the data were only available for a particular set of asset categories and were entirely self-reported, which might lead to errors in measuring assets. However, we did find that most of our key results were robust to the definition of asset used, indicating that perhaps this limitation is minimal.

Another limitation of the study might be the sample from which the data was drawn. Roughly 70% of the Net Worth 1 and 2 samples are households who formed since 1999 and this number only decreases to approximately 60% for the Financial and Liquid Wealth definitions. Thus, there is significantly less representation of older, more established households. Another concern is the households who were omitted from the analysis because of missing data for one or more of the covariates. The samples analyzed in the TVC Cox models were significantly smaller than those analyzed in the first set of Cox models because the data requirements of the TVC Cox model were greater. A missing value for one of the TVC covariates in any sample year between the time the household exited asset

poverty and the time the household reentered asset poverty (or censoring occurred) would have caused us to drop that observation from the analysis. To do some check for the influence of the reduced sample size in the TVC Cox model, we re-ran the first Cox models using the smaller sample available in the TVC model and obtained substantively similar results to those reported in Table 5. Results are available from the authors upon request.

Despite these concerns, the analysis pointed to promising areas for future research. We found limited support for Hypothesis 1 and the existence of a wealth threshold with regards to asset accumulation. Having a minimum level of assets of at least 75% of the income poverty line was statistically associated with less reentry for all types of assets except for liquid assets. Additionally, no linear relationship between higher levels of asset accumulation and decreased likelihood of remaining outside of asset poverty was observed. Data with more frequent observations of assets would be helpful in substantiating the observed relationship between different thresholds of asset accumulation and reentry. We found stronger support for Hypothesis 2, which suggests that portfolio allocations that were more weighted towards higher-earning assets lowered the chance of reentry. Nevertheless, the role of productive assets and debt as a proportion of the asset portfolio should be more closely examined to determine if causal relationships between these aspects of portfolio allocation and reentry can be established.

The results are highly relevant for policies aimed at improving the sustainability of assets for households that have recently exited asset poverty. These households are more likely to face real or perceived incentive structures that are inconsistent with the maintenance of asset levels in several ways. For example, some households may still have lower income and lower assets to build upon. Also these households may have no access to

or be unfamiliar with employer supported retirement savings, and asset building programs such as the Earned Income Tax Credit and Individual Development Accounts. Many of these households would not be eligible for itemizing deductions on their tax returns because of their income and therefore would not benefit from mortgage interest and other deductions. Having adequate assets may also make them ineligible for public assistance programs, reducing the incentive for poorer households to be more prudent about accumulating assets. As these households accumulate assets, they need to move beyond programs that help build wealth for lower-income households and engage in risk management and invest in more productive assets. New policy programs should be considered to help bridge this transition for households. Our results suggested that such policies should focus on asset building to levels approximately equal to 75% of the annual income poverty level. This level of assets is significantly higher than what is currently targeted by most programs. In addition, the results of the study supported the importance of advice provided by professional financial counselors that focuses on asset portfolio allocation and debt reduction. Our results indicated that investment in productive assets and debt reduction were beneficial for sustaining non-asset poor positions.

References

- Allison, P. (2010). *Survival Analysis Using SAS: A Practical Guide* (2nd ed.). Cary, NC: SAS Institute, Inc.
- Andersen, P. K., & Gill, R. D. (1982). Cox's Regression Model For Counting Processes: A Large Sample Study. *The Annals of Statistics*, 10(4), 20. doi: <http://dx.doi.org/10.1214/aos/1176345976>
- Aratani, Y., & Chau, M. (2010). Asset Poverty and Debt among Families with Children. In N. C. f. C. i. Poverty (Ed.): Columbia University Mailman School of Public Health.
- Barba, A., & Pivetti, M. (2009). Rising household debt: Its causes and macroeconomic implications, and long-period analysis. *Cambridge Journal of Economics*, 33(1), 113-137. doi: <http://dx.doi.org/10.1093/cje/ben030>
- Blazer, D. G., Sachs-Ericsson, N., & Hybels, C. F. (2005). Perception of Unmet Basic Needs as a Predictor of Mortality Among Community-Dwelling Older Adults. *American Journal of Public Health*, 95(2), 299-304. doi: <http://dx.doi.org/10.2105/AJPH.2003.035576>
- Box-Stefensmeier, J. M., & Jones, B. S. (2004). *Event History Modeling: A Guide for Social Scientists*. New York, NY: Cambridge University Press.
- Bricker, J., Kennickell, A. B., Moore, K. B., & Sabelhaus, J. (2012). Changes in US Family Finances from 2007 to 2010: Evidence from the Survey of Consumer Finances *Federal Reserve Bulletin* (Vol. 98, pp. 80).
- Caner, A., & Wolff, E. N. (2004). Asset Poverty in the United States. Its Persistence in an Expansionary Economy. *The Levey Economics Institute of Bard College Pubic Policy Brief*. No. 76.
- Carroll, C. D. (1997). Buffer-Stock Saving and the Life Cycle/Permanent Income Hypothesis. *The Quarterly Journal of Economics*, 112(1), 1-55. doi: <http://www.jstor.org/action/showPublication?journalCode=quarjecon>
- Carter, M. R., & Barrett, C. B. (2006). The economics of poverty traps and persistent poverty: An asset-based approach. *Journal of Development Studies*, 42(2), 178-199. doi: 10.1080/00220380500405261
- Cellini, S. R., McKernan, S.-M., & Ratcliffe, C. (2008). The dynamics of poverty in the United States: A review of data, methods, and findings. [10.1002/pam.20337]. *Journal of Policy Analysis and Management*, 27(3), 577-605. doi: <http://dx.doi.org/10.1002/pam.20337>
- Chen, H., & Lerman, R. I. (2005). Do Asset Limits in Social Programs Affect the Accumulation of Wealth. In T. U. Institute (Ed.), *Opportunity and Ownership Project*.
- Cocco, J. F. (2005). Portfolio Choice in the Presence of Housing. *Review of Financial Studies*, 18(2), 535-567. doi: <http://dx.doi.org/10.1093/rfs/hhi006>
- Cynamon, B. A., & Fazzari, S. M. (2008). Household Debt in the Consumer Age: Source of Growth--Risk of Collapse. *Capitalism and Society*, 3(2), 30. doi: <http://dx.doi.org/10.2202/1932-0213.1037>
- Derrick, F. W., & Lehfeld, A. K. (1980). The Family Life Cycle: An Alternative Approach. *Journal of Consumer Research*, 7(2), 214-217. doi: <http://dx.doi.org/10.1086/208809>
- Efron, B. (1977). The Efficiency of Cox's Likelihood Function for Censored Data. *Journal of the American Statistical Association*, 72(359), 9. <http://dx.doi.org/10.1080/01621459.1977.10480613>

- Emmons, W. R., & Noeth, B. J. (2012). Household Financial Stability: Who Suffered the Most from the Crisis? *The Regional Economist*, July 2012, 6.
- Flavin, M., & Yamashita, T. (2002). Owner-Occupied Housing and the Composition of the Household Portfolio. *The American Economic Review*, 92(1), 345-362. doi: <http://dx.doi.org/10.1257/000282802760015775>
- Fothergill, A., & Peek, L. (2004). Poverty and Disasters in the United States: A Review of Recent Sociological Findings. *Natural Hazards*, 32(1), 89-110. doi: 10.1023/B:NHAZ.0000026792.76181.d9
- Haveman, R., & Wolff, E. N. (2005). Who Are the Asset Poor?: Levels, Trends, and Composition for the US, 1983-1998. In M. Sherraden (Ed.), *Inclusion in the American Dream: Assets, Poverty and Public Policy*. New York: Oxford University Press.
- Hoynes, H. W., Page, M. E., & Stevens, A. H. (2006). Poverty in America: Trends and Explanations. *The Journal of Economic Perspectives*, 20(1), 47-68. doi: <http://dx.doi.org/10.1257/089533006776526102>
- Iceland, J. (1997). The dynamics of poverty spells and issues of left-censoring. *Ann Arbor, MI: Population Studies Center*, doi:PMid:9275251.
- Iceland, J. (2005). *Experimental Poverty Measures: Summary of a Workshop*: The National Academies Press.
- Jappelli, T. (1990). Who is Credit Constrained in the U. S. Economy? *The Quarterly Journal of Economics*, 105(1), 219-234. doi: <http://dx.doi.org/10.2307/2937826>
- Kearns, A., Hiscock, R., Ellaway, A., & MaCintyre, S. (2000). "Beyond Four Walls": The Psycho-social Benefits of Home: Evidence from West Central Scotland. *Housing Studies*, 15(3), 387-410. doi: <http://dx.doi.org/10.1080/02673030050009249>
- Lai, C. (2006). Determinants of Portfolio Efficiency Losses in US Self-directed Pension Accounts. *Journal of Family and Economic Issues*, 27(4), 601-625. doi: 10.1007/s10834-006-9033-8
- Lin, D. Y., & Wei, L. J. (1989). The robust inference for the Cox proportional hazards model. *Journal of the American Statistical Association*, 84(408), 5. <http://dx.doi.org/10.1080/01621459.1989.10478874>
- Long, S. K. (2003). Hardship among the uninsured: choosing among food, housing and health insurance. In U. Institute (Ed.). Washington, D.C.
- McKernan, S.-M., & Ratcliffe, C. (2005). Events that Trigger Poverty Entries and Exits*. [10.1111/j.0038-4941.2005.00340.x]. *Social Science Quarterly*, 86, 1146-1169. doi: <http://dx.doi.org/10.1111/j.0038-4941.2005.00340.x>
- Meyers, A., Cutts, D., Frank, D. A., Levenson, S., Skalicky, A., Heeren, T., . . . Zaldivar, N. (2005). Subsidized Housing and Children's Nutritional Status: Data From a Multisite Surveillance Study. *Archives of Pediatrics Adolescent Medicine*, 159(6), 551-556. doi: <http://dx.doi.org/10.1001/archpedi.159.6.551>
- Miller, R.-A. (2010). Individual Development Accounts and Banks: A Solid "Match". *FDIC Quarterly*.
- Nam, Y., Huang, J., & Sherraden, M. (2008). Assets, Poverty, and Public Policy: Challenges in Definition and Measurement *Poor Finances: Assets and Low-Income Households*. Washington, DC: Department of Health and Human Services.
- Oliver, M. L., & Shapiro, T. M. (1990). Wealth of a nation: A reassessment of asset inequality in America shows at least one-third of households are asset poor. *The American Journal of Economics and Sociology*, 49(2), 23.

- Oliver, M. L., & Shapiro, T. M. (1995). *Black wealth/white wealth: A new perspective on racial inequality*. New York: Routledge.
- Peterson, K. (2012, October 4, 2012). Family Net Worth Fell Almost 40% Between 2007-2010. Retrieved from <http://blogs.wsj.com/economics/2012/06/11/family-net-worth-fell-almost-40-between-2007-2010/>
- Rank, M. R., & Hirschl, T. A. (2010). *Estimating the Life Course Dynamics of asset Poverty*. Center for Social Development Working Papers. University of Michigan, Ann Arbor.
- Ratcliffe, C., & Zhang, S. (2012). US Asset Poverty and the Great Recession. Urban Institute *Opportunity and Ownership Facts*. No. 27, October 2012.
<http://www.urban.org/UploadedPDF/412692-US-Asset-Poverty-and-the-Great-Recession.pdf>
- Smith, H., Finke, M., & Huston, S. (2012). Financial Sophistication and Housing Leverage Among Older Households. *Journal of Family and Economic Issues*, 33(3), 315-327.
doi: 10.1007/s10834-012-9293-4
- Stevens, A. H. (1999). Climbing out of poverty, falling back in: measuring the persistence of poverty over multiple spells. *The Journal of Human Resources*, 34(3), 32.
<http://dx.doi.org/10.2307/146380>
- Tin, J. (2000). Life-cycle hypothesis, propensities to save, and demand for financial assets. *Journal of Economics and Finance*, 24(2), 110-121. doi: 10.1007/bf02752707
- Xiao, J. J. (1997). Effects of Family Income and Life Cycle Stages On Financial Asset Ownership. *Journal of Financial Counseling and Planning*, 7(1).
- Zimmerman, F. J., & Carter, M. R. (2003). Asset smoothing, consumption smoothing and the reproduction of inequality under risk and subsistence constraints. *Journal of Development Economics*, 71(2), 233-260. doi: [http://dx.doi.org/10.1016/S0304-3878\(03\)00028-2](http://dx.doi.org/10.1016/S0304-3878(03)00028-2)

Table 1. Description of Variables Used in the Cox Model

Variable	Description
Variables Characterizing the Exit from Asset Poverty	
<i>Threshold 0.75</i>	Indicator for asset accumulation that is greater than or equal to 75% of the poverty line
<i>Poor94</i>	Household observed to be in asset poverty in 1994
<i>Not_poor94</i>	Household not asset poor in 1994
<i>Exit01</i>	Exited Poverty in 2001
<i>Exit03</i>	Exited Poverty in 2003
<i>Exit05</i>	Exited Poverty in 2005
Household Demographics	
<i>Head_age</i>	Age of head
<i>Black</i>	Race of head is black
<i>Hispanic</i>	Ethnicity of head is Hispanic
Household Status Variables	
<i>Auto</i>	Household owns at least one automobile
<i>Home_Owner</i>	Homeowner
<i>Kids</i>	Household with members younger than 18 years
<i>Education</i>	Head's years of education
<i>Bad Health</i>	Self-reported overall health of head of household (1=good; 5=bad)
<i>Health Insurance</i>	At least one member of household has health insurance
<i>Income</i>	Total household income divided by the number of household members—a measure of “per capita” household income; for analysis, the variable is calculated as the natural log of “per capita” household income
<i>Single_female_head</i>	Only one female adult in household
<i>Single_male_head</i>	Only one male adult in household
<i>Kids:Single_female_head</i>	Interaction of <i>Kids</i> and <i>Single_female_head</i>
<i>Kids:Single_male_head</i>	Interaction of <i>Kids</i> and <i>Single_male_head</i>
<i>Portfolio</i>	Percentage of all assets (<i>Net Worth 1</i> definition, not including debts) invested in business, non-house real estate, stocks or bonds
<i>Debt_ratio</i>	Non-mortgage debt as a percentage of all assets (<i>Net Worth 1</i> definition, not including debts)

Table 2. Asset Definitions

Wealth Type	Items Included
<i>Net Worth 1</i>	Automobiles, net value of one's home, non-home real estate holdings, farm and business assets, checking and savings accounts, other savings such as bond funds, stocks, debts (subtracted from total assets)
<i>Net Worth 2*</i>	Net value of one's home, non-home real estate holdings, farm and business assets, checking and savings accounts, other savings such as bond funds, stocks, debts (subtracted from total assets)
<i>Financial Wealth*</i>	Non-home real estate holdings, farm and business assets, checking and savings accounts, other savings such as bond funds, stocks, debts (subtracted from total assets)
<i>Liquid Wealth*</i>	Checking and savings accounts, other savings such as bond funds, stocks

*Source: Rank and Hirschl (Rank & Hirschl, 2010)

Table 3. Asset Characteristics of PSID Households (N=9,295)

	Asset Poverty Definition			
	Networth 1	Networth 2	Financial Wealth	Liquid Wealth
Never observed to be in asset poverty	5311 (57.1%)	4278 (46%)	2395 (25.8%)	2819 (30.3%)
Always observed to be in asset poverty	2201 (23.7%)	3302 (35.5%)	4937 (53.1%)	4618 (49.7%)
Observed to have entered asset poverty but have not exited	551 (5.9%)	454 (4.9%)	588 (6.3%)	569 (6.1%)
Exit period cannot be established due to non-response	134 (1.4%)	170 (1.8%)	141 (1.5%)	122 (1.3%)
Observed to have exited asset poverty (exit period can be established)	1074 (11.6%)	1069 (11.5%)	1217 (13.1%)	1155 (12.4%)

Table 4. Summary Statistics of the Analysis Samples from PSID

Variable	Net Worth 1 Sample (N=1022)			Net Worth 2 Sample (N=1004)			Financial Wealth Sample (N=1175)			Liquid Wealth Sample (N=1137)		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Variables Characterizing the Exit from Asset Poverty												
Threshold 0.75	0.552	0	1	0.626	0	1	0.561	0	1	0.412	0	1
Poor94	0.156	0	1	0.209	0	1	0.22	0	1	0.226	0	1
Not_poor94	0.141	0	1	0.134	0	1	0.18	0	1	0.187	0	1
Exit01	0.304	0	1	0.305	0	1	0.298	0	1	0.343	0	1
Exit03	0.354	0	1	0.375	0	1	0.357	0	1	0.325	0	1
Exit05	0.341	0	1	0.32	0	1	0.345	0	1	0.332	0	1
Household Demographics												
Head_age	39.2	19	96	39.8	19	96	44.6	19	96	44.4	19	96
Black	0.375	0	1	0.306	0	1	0.223	0	1	0.237	0	1
Hispanic	0.085	0	1	0.088	0	1	0.069	0	1	0.055	0	1
Household Status Variables												
Auto	0.876	0	1	0.841	0	1	0.898	0	1	0.9	0	1
Home_Owner	0.432	0	1	0.668	0	1	0.681	0	1	0.676	0	1
Kids	0.514	0	1	0.512	0	1	0.444	0	1	0.449	0	1
Education	12.5	0	17	12.8	0	17	13.3	0	17	13.4	1	17
Bad Health	2.422	1	5	2.344	1	5	2.305	1	5	2.309	1	5
Health Insurance	0.891	0	1	0.925	0	1	0.938	0	1	0.948	0	1
Income	9.60	4.84	13.10	9.78	5.86	13.10	10.02	5.99	13.10	10.0	3.93	13.10
Single_female_head	0.23	0	1	0.167	0	1	0.139	0	1	0.162	0	1
Single_male_head	0.167	0	1	0.158	0	1	0.166	0	1	0.141	0	1
Kids:Single_female_head	0.123	0	1	0.082	0	1	0.046	0	1	0.057	0	1
Kids:Single_male_head	0.016	0	1	0.016	0	1	0.017	0	1	0.012	0	1
Portfolio	0.084	0	2.39	0.127	0	2.39	0.196	0	1.31	0.103	0	1.31
Debt_ratio	0.156	0	0.94	0.121	0	0.87	0.061	0	0.83	0.186	0	1

Table 5. Estimated Hazard Ratios for Reentering Asset Poverty using Time-Invariant Covariates

	Net Worth 1	Net Worth 2	Financial Wealth	Liquid Wealth
<i>Threshold 0.75</i>	0.724* (0.0931)	0.727* (0.0939)	0.758** (0.0742)	0.867 (0.0866)
<i>Portfolio</i>	0.996 (0.00287)	1.001 (0.00238)	1.000 (0.00173)	0.996 (0.00245)
<i>Debt_ratio</i>	1.005+ (0.00287)	1.007* (0.00347)	1.009* (0.00346)	1.001 (0.00173)
<i>Poor94</i>	1.352* (0.207)	1.442* (0.226)	1.345* (0.155)	1.445** (0.175)
<i>Not_poor94</i>	1.089 (0.196)	1.079 (0.216)	1.073 (0.143)	1.002 (0.148)
<i>Exit01</i>	0.950 (0.149)	1.101 (0.184)	1.192 (0.152)	1.002 (0.130)
<i>Exit03</i>	0.966 (0.139)	1.129 (0.169)	1.265* (0.145)	1.226+ (0.145)
<i>Head_age</i>	0.999 (0.00690)	0.986+ (0.00739)	0.993 (0.00605)	0.998 (0.00625)
<i>Head_age squared</i>	1.000 (0.000294)	1.000 (0.000269)	1.000 (0.000182)	1.000 (0.000187)
<i>Black</i>	1.342* (0.171)	1.448** (0.186)	1.234* (0.130)	1.352** (0.145)
<i>Hispanic</i>	1.068 (0.246)	0.714 (0.194)	0.837 (0.169)	1.084 (0.244)
<i>Education</i>	0.980 (0.0250)	0.954+ (0.0258)	0.993 (0.0203)	0.962 (0.0226)
<i>Kids</i>	0.811 (0.140)	1.063 (0.185)	0.950 (0.119)	1.084 (0.139)
<i>Bad Health</i>	0.989 (0.0546)	1.043 (0.0658)	0.891* (0.0454)	0.932 (0.0510)
<i>Insurance</i>	0.878 (0.157)	0.980 (0.230)	1.214 (0.263)	0.832 (0.174)
<i>Auto</i>	0.603** (0.0939)	0.721* (0.104)	0.790+ (0.107)	0.945 (0.157)
<i>Income</i>	0.796** (0.0600)	0.927 (0.0769)	0.901 (0.0610)	0.874+ (0.0623)
<i>Home_Owner</i>	0.541** (0.0769)	0.484** (0.0697)	0.813+ (0.0893)	0.857 (0.0977)
<i>Single_female_head</i>	1.442+ (0.296)	1.288 (0.294)	1.090 (0.180)	1.012 (0.181)
<i>Single_male_head</i>	1.216 (0.240)	1.199 (0.240)	1.012 (0.154)	1.207 (0.202)
<i>Kids:single_female_head</i>	1.098 (0.290)	0.934 (0.280)	1.253 (0.300)	1.483 (0.369)
<i>Kids:single_male_head</i>	0.977 (0.507)	1.016 (0.481)	0.869 (0.343)	0.765 (0.386)
Observations	1,022	1,004	1,175	1,137

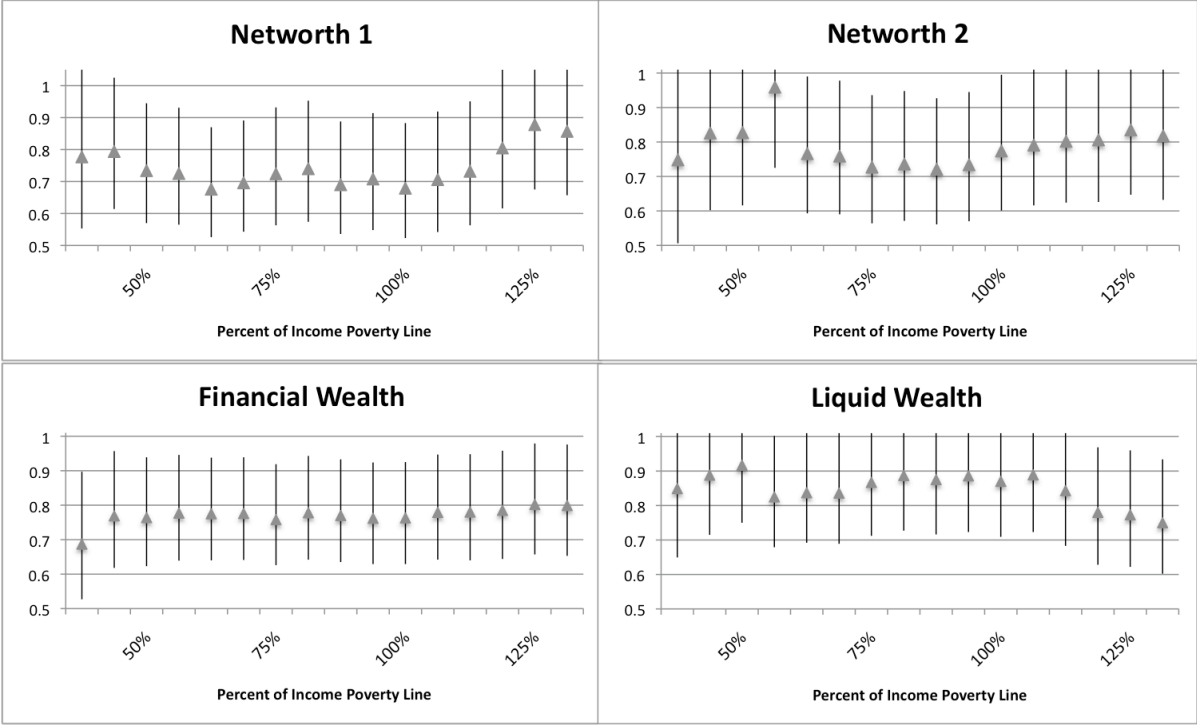
Robust standard errors in parentheses + p<0.10 * p<0.05 ** p<0.01

Table 6. Estimated Hazard Ratios for Reentering Asset Poverty using Time-Varying Covariates

	Net Worth 1	Net Worth 2	Financial Wealth	Liquid Wealth
<i>Threshold0.75</i>	0.656** (0.0687)	0.721** (0.0822)	0.762** (0.0628)	0.842 ⁺ (0.0792)
<i>TVC Portfolio</i>	0.992** (0.00244)	0.993** (0.00280)	0.985** (0.00297)	0.991** (0.00272)
<i>TVC Debt_ratio</i>	1.024** (0.00128)	1.022** (0.00135)	1.014** (0.00110)	1.005** (0.00141)
<i>Poor94</i>	1.158 (0.160)	1.258 (0.186)	1.196 ⁺ (0.126)	1.188 (0.135)
<i>Not_poor94</i>	0.858 (0.138)	0.859 (0.157)	0.921 (0.117)	0.823 (0.119)
<i>Exit01</i>	1.263 ⁺ (0.177)	1.325 ⁺ (0.204)	1.372** (0.168)	1.106 (0.138)
<i>Exit03</i>	1.142 (0.147)	1.317* (0.183)	1.436** (0.162)	1.332* (0.153)
<i>Head_age</i>	1.009 (0.00600)	1.000 (0.00730)	0.997 (0.00542)	1.001 (0.00608)
<i>Head_age squared</i>	1.000 (0.000281)	1.000 (0.000305)	1.000 (0.000190)	1.000 (0.000179)
<i>Black</i>	1.494** (0.152)	1.518** (0.177)	1.349** (0.126)	1.356** (0.138)
<i>Hispanic</i>	1.308 (0.318)	0.729 (0.216)	0.730 (0.156)	1.051 (0.244)
<i>Auto</i>	0.611** (0.0872)	0.894 (0.127)	1.268 ⁺ (0.180)	0.873 (0.141)
<i>Home_Owner</i>	0.657** (0.0786)	0.506** (0.0617)	0.949 (0.0960)	0.887 (0.0974)
<i>TVC Education</i>	0.957* (0.0208)	0.931** (0.0229)	0.970 ⁺ (0.0174)	0.947** (0.0190)
<i>TVC Bad_health</i>	0.782 (0.136)	0.947 (0.187)	0.844 (0.135)	0.666** (0.119)
<i>TVC Insurance</i>	0.773** (0.0266)	0.792** (0.0291)	0.841** (0.0474)	0.780** (0.0411)
<i>TVC Income</i>	1.170 (0.171)	1.064 (0.158)	0.980 (0.112)	1.104 (0.135)
<i>TVC Kids</i>	1.085 ⁺ (0.0531)	1.084 (0.0555)	1.049 (0.0444)	1.021 (0.0525)
<i>TVC Kids:single_female_head</i>	0.627* (0.131)	0.756 (0.213)	1.267 (0.258)	1.463 ⁺ (0.315)
<i>TVC Kids:single_male_head</i>	0.851 (0.372)	1.979 ⁺ (0.711)	1.152 (0.389)	1.087 (0.410)
<i>TVC Single_female_head</i>	2.043** (0.313)	1.606* (0.309)	1.328* (0.179)	1.009 (0.161)
<i>TVC Single_male_head</i>	1.398 ⁺ (0.255)	1.276 (0.242)	1.107 (0.158)	1.224 (0.195)
<i>Number of Subjects</i>	794	815	970	962

Robust standard errors in parentheses ⁺ p<0.10 * p<0.05 ** p<0.01

Figure 1. Relationship between Asset Accumulation Thresholds and Asset Poverty Reentry



Note: Hazard ratio point estimates are plotted with error bars indicating a 95% confidence interval.