Wealth as Security:

Growth Curve Analyses of Household Income and Net Worth During a Recession

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Abstract

Building on evidence of increasing inequality with the 2008-9 recession, we ask whether households experienced different financial trajectories through the recession depending on initial income and net worth. Using growth curve models of households headed by young adults in the Panel Study of Income Dynamics, we compare the relationship between initial income and net worth and the rate of change of income and net worth from 1989 to 2011 among households with income above and below $50,000. We find different patterns of income change and different relationships among income, net worth, and their rates of change between high- and low-income categories. Results suggest initial wealth helped to stabilize income and wealth changes among higher income households, reducing financial insecurity.

Keywords: income; inequality; recession; wealth

Thomas Piketty's (2014) recent bestselling book documents the trajectory of wealth inequality over the last century, including its rapid growth in the last four decades. Other research finds a similar pattern of rising inequality of both wealth and income (Frank 2013; Harrison and Bluestone 1988; Keister 2000; Morris and Western 1999; Piketty and Saez 2003; Sherman and Stone 2010; Wolff 1995, 2006). Faced with rising economic inequality over the last several decades, there is growing concern over economic mobility in the U.S. (Fletcher 2008). While in many cases the concern over wealth inequality focuses on children or future generations (Conley 2001; Duncan and Murnane 2011; Ermisch et al. 2012; Yeung and Conley 2008), wealth and income inequality have important consequences for an individual's opportunity and experiences as well as those of his or her children. For example, as Spilerman (2000) points out, social policy prevents low income households from reaping the benefits of asset-building programs available to the middle class (e.g., the mortgage deduction). At the same time, social welfare policies provide a disincentive to save by disqualifying families who hold "too many" assets from social support such as food stamps (Spilerman 2000).

Given that public policy benefits available to families vary widely depending on assets, it is likely that wealth in young adulthood has implications for financial standing in later life. In other words, it is likely that wealth begets wealth within the same generation. While this idea that "the rich get richer" is relatively trite, it may not hold in contemporary U.S. society, particularly during an economic recession if the wealthy have more to lose than the poor.

How did income and wealth inequality patterns change with the recent Great Recession of 2008-9? Although most 20th century recessions were associated with rising economic inequality, inequality declined with the Great Depression of the 1930s, largely due to later equalizing effects of New Deal policies and World War II (Grusky et al. 2011). Similarly,

Piketty (2014) notes that the decline in wealth inequality after the Great Depression was an anomaly, related to wars and progressive tax rates. Consistent with these arguments, research on the Great Recession suggests it further increased inequality along a variety of dimensions, including income and wealth (Emmons and Noeth 2012; Pfeffer et al. 2013; Shapiro et al. 2013).

Examining the impact of the recession on wealth, Wolff, Owens, and Burak (2011) find particularly strong declines at both the top and bottom of the wealth distribution. Specifically, they find that net worth of the top 50 wealthiest Americans fell by 17% from 2008-2009, while it fell 37% among the top 1% wealthiest households (Wolff et al. 2011: 150). Consistent with this finding, Frank (2013) notes that the wealthy lost the most during the Great Recession, narrowing inequality, but they also gained more as the economy improved. These findings suggest the wealthy may have experienced more intra-generational wealth mobility than the poor during the recession (Pew Research Center 2010). Intra-generational mobility involves change in financial standing (e.g., income, wealth, occupation) during one's lifetime.

We ask whether financial standing in young adulthood put households on different financial trajectories through the recent economic recession. Did rich young adults get richer even during the economic recession? Specifically, following households headed by young adults in 1989 in the Panel Study of Income Dynamics (PSID), we use growth curve models to estimate whether 2011 household wealth and income outcomes (amount and rate of growth) depend on initial financial standing. In the following sections, we review literature on intra-generational wealth and income mobility and on inequality, particularly in relation to the economy. We then discuss our methods and analyses, results, and conclude with implications for income and wealth inequality and for social policy.

Intra-Generational Mobility

Research on intra-generational mobility has taken many forms. One line of research sought to distinguish aggregate changes in earnings or occupational standing, due to economic growth for example, from individual changes (Featherman and Hauser 1978; Fields and Ok 1999). Another area of inquiry estimated the extent to which intra-generational earnings mobility represented permanent or temporary change (Gottschalk and Moffitt 2009). This study relates to another question about intra-generational mobility: what factors are associated with change in the financial standing of an individual or household? Macro-level factors – such as economic growth, industrial change, or union membership – have been critical to understanding large-scale changes in financial standing (e.g., Breen 1997; Western and Rosenfeld 2011), but may have difficulty explaining why some individuals gain and others lose in the same context. At the individual level, education and work experience have been the most commonly investigated factors in literature on intra-generational mobility. Beginning with Becker (1964) and Mincer (1974), economists have worked diligently to approach a causal estimate of the returns to education (see Heckman et al. 2006 for a review).

Beyond education and work experience, which most strongly relate to earnings from work, other factors may play an important role in intra-generational mobility of financial standing. Income from capital, for example, is not necessarily dependent on labor force participation or earnings and constitutes a substantial share of the overall income of some households. For example, capital income accounted for 25% of aggregate personal income in 2012 (Woodward 2013, Table 10).

Furthermore, net worth represents an important measure of financial standing and changes in net worth likely depend on different factors from those related to changes in income.

Research has shown that many factors are related to intra-generational change in net worth, including health (Zagorsky 2005a), divorce (Zagorsky 2005b), parental assets, investment strategies, beliefs about money (Klontz and Britt 2012), and stock market fluctuations. According to the adage "the rich get richer," initial net worth may also be related to intra-generational mobility. In fact, current U.S. policies may encourage this pattern by facilitating asset growth among the middle and upper classes while dis-incentivizing asset accumulation among the poor (Spilerman 2000). In the U.S., the American dream suggests individuals can raise their financial standing through hard work. If that is the case, then initial income should play a limited role in later financial standing and young adults should experience a high degree of intra-generational mobility.

Unfortunately, relatively little research has explicitly investigated the relationship between initial income or net worth and later financial standing, particularly during an economic recession, when this relationship may change. Studies that have investigated the importance of initial financial standing find substantial differences by race (Shapiro 2004). For example, Shapiro, Meschede, and Osoro (2013) found that a $1.00 income increase was associated with a $5.00 wealth increase among whites, but only a $0.70 increase among African Americans. That is, whites enjoyed a much higher wealth return to income. Even adjusting for initial wealth differences, they found that African Americans experienced an average wealth increase of only $4.03 for each dollar increase in income, compared to the $5.00 wealth return among whites. In other words, Shapiro and colleagues found that while initial assets account for much of the black-white difference in wealth returns to income, a 20% gap in returns still remained. These findings suggest that both income and wealth may be important for later wealth holdings. However, further research is required to understand this relationship.

Inequality and Economic Recessions

Research documenting trends in intra-generational mobility has suggested that, while it increased from the 1970s to the mid-1980s, it remained fairly stable from the mid-1980s to 2004 (Acs and Zimmerman 2008; Moffitt and Gottschalk 2012). Economic security, however, has been declining since the 1990s and many Americans – particularly younger Americans belonging to a racial minority group or with less education – have experienced increased economic insecurity with the Great Recession (Hacker et al. 2011).

As Grusky, Western, and Wimer (2011) pointed out, most 20th century recessions were associated with rising inequality, because their effects were largely concentrated among the low-income and poor. In contrast, they noted that inequality declined with the Great Depression, particularly as a result of the narrowing income gap in 1929, but largely through later equalizing effects of New Deal policies and World War II. Without equalizing policy changes, such as those following the Depression, Grusky, Western, and Wimer suggested that the Great Recession is unlikely to promote equalization (though in 2011 they noted it was too early to make a conclusion about the overall effects of the recession).

More recent research has suggested the Great Recession further increased inequality along a variety of dimensions, including wealth, income, age, race, and education (Emmons and Noeth 2012; Pfeffer et al. 2013; Shapiro et al. 2013; Friedline et al. 2014). For example, using PSID data, Pfeffer and colleagues (2013) found that low income and minority households with relatively low levels of education lost a higher proportion of their wealth than others.

In contrast, Wolff, Owens, and Burak (2011) found particularly strong wealth declines at both the top and bottom of the wealth distribution. Specifically, they found that net worth of the

top 50 wealthiest Americans fell by 17% from 2008-2009, while it fell 37% among the top 1% wealthiest households (Wolff et al. 2011: 150). Consistent with this finding, Frank (2013) noted that the wealthy lost the most during the Great Recession, narrowing inequality, but they also gained more as the economy improved. These findings suggest the wealthy may have experienced more intra-generational wealth mobility than the poor during the recession (Pew Research Center 2010).

Among the poor, who hold little wealth, the recession may have generated less wealth loss but carried other life-changing effects. For example, in 2008 29% of respondents said they either did not have enough or had just enough money to meet basic expenses, compared to 38% in 2010 (Pew Research Center 2010). Similarly, according to the Pew Research Center (2010), 31% of respondents from low-income families (below $30,000) reported major changes to the way they live because of the recession, compared to 17% among higher income respondents ($75,000 and above). Among lower-class Americans, 64% said they are in worse shape now than before the recession, compared to 45% of middle-class and 36% of upper-class Americans (Pew Research Center 2010). Low income families were also more likely to have experienced job-related hardships and to owe more on their home than it is worth (Pew Research Center 2010). Because labor income constitutes a higher proportion of their household income, the impact of recessions on labor earnings can be particularly traumatic for the lifestyles of low-income households.

High quality research has already documented trends in inequality with the recession (e.g., Emmons and Noeth 2012; Pfeffer et al. 2013; Shapiro et al. 2013; Friedline et al. 2014). However, little research has investigated whether financial trajectories through the recession depended on initial financial standing. Furthermore, there is little understanding about the

reciprocal relationship between initial income and wealth and how that changed with the recession. For example, did initial levels of income and net worth predict the speed of income or net worth change during the recession? Did income or net worth shield households from financial instability?

Economic insecurity peaked in 2009 (Hacker et al. 2011) and economic growth reached its trough in the fourth quarter of 2008 (Center on Budget and Policy Priorities 2014), suggesting the Great Recession reached its height around the end of 2008. We examine financial outcomes in 2011, after the worst of the recession but before the economy or the budgets of many households had fully recovered (Pew Research Center 2010). Much like an individual recovering from the flu, financial outcomes in 2011 should show lingering effects of the recession.

Hypotheses

In general, evidence suggests the Great Recession carried more drastic consequences for the wealth of the rich, but affected the earned income and lifestyles of the poor. Given this pattern, we might expect to find different relationships between initial and later financial standing among higher and lower income households. For example, initial wealth may be associated with more rapid wealth change among high income families, because well-off families lost more but also gained more as the economy improved (Frank 2013).

In contrast, initial wealth may be associated with slower income changes for all households because it can protect against income losses during the recession (e.g., if a comparatively larger proportion of income is from wealth). As suggested by Shapiro et al. (2013), initial income is associated with wealth increases, although this relationship is moderated

by race. We therefore expect initial income to be associated with faster change in wealth, but only among higher income households who are better able to save and capitalize on that income. Given the greater impact of the recession on incomes among poor families (Pew Research Center 2010), coupled with stagnant wages (Mishel and Shierholz 2013), we expect to see different income patterns and different relationships between income, net worth, and their rates of change for high- and low-income households.

Based on the above review, we make the following hypotheses.

1) Both initial wealth and income are associated with more rapid wealth change, but only among high income households.
2) Initial wealth is an income buffer and is associated with slower income changes for all households.
3) Income change and the relationships between income, net worth, and their rates of change are different for high- and low-income households.

Data and Methods

We built on evidence of increasing inequality during the recession, complicating the conceptualization of change in inequality by asking whether households experienced different financial trajectories through the recession depending on initial financial standing. We used data from the Panel Study of Income Dynamics (PSID), which began in 1968 with a nationally representative sample of more than 18,000 individuals living in 5,000 families. The survey has followed these families since 1968, providing longitudinal data on a variety of measures, including income and wealth. Since 1968, the sample has grown to include approximately 24,000 individuals and nearly 8,700 families as the original families had children and created

new families. For this study, we included only black and white heads of household, because of the small numbers of those belonging to other racial groups in the PSID. To capture the period of life during which individuals earn income, accumulate net worth, and save for retirement – and to enable longitudinal analysis – we limited the sample to young household heads, who were ages 18 to 44 in 1989. In 2011, these heads of household were ages 40 to 66, younger than traditional retirement age. With these exclusions, our sample included 3,230 households.

We measured household income and net worth in 1989, 2003, 2007, and 2011. We used M*plus*7 to conduct multi-group (high- and low-income households), multivariate non-linear growth model analyses of household income and net worth. Growth curve models allowed us to estimate differences in intra-generational mobility, while controlling for other initial differences. Growth curve models were ideal for our purposes because they allowed estimation of between-household differences in intra-generational (i.e. within-household) financial change. The model was estimated using the robust maximum likelihood estimation procedure, with standard errors robust to non-normal data (Yuan and Bentler, 2000), and sampling weights. The pattern of change on income and net worth was non-linear and we therefore estimated an unspecified growth model (with 2007 and 2011 time points freely estimated). Time was measured in 10-year increments.

The PSID provided a continuous time-varying measure of net worth by summing the values of various types of assets held in a given year, including a business, checking or savings accounts, real estate, stocks, and other assets and subtracting credit card and other debt. Throughout the paper, we have used the terms net worth and wealth interchangeably. Total household income was also a continuous measure, which we calculated as the sum of total household income from the previous tax year including all taxable income, transfer income, and

Social Security income for everyone in the family. Net worth and income in each year were inflated to 2011 values using the Consumer Price Index (CPI).

Growth curve analysis relied on the mean and was therefore sensitive to non-normal data. We converted income and net worth using the Inverse Hyperbolic Sine (IHS) to adjust for skewness. We used the IHS conversion instead of the natural log because it allows us to maintain negative net worth values without restricting the sample or distorting standard errors (Pence 2006). IHS income and net worth were divided by 10,000 for ease of interpretation.

We adjusted for demographic differences measured in 1989, including family size, region, and the following measures for head of household: age, race, gender, education, and marital status (all time-invariant measures). Family size included the number of people in the household. Region was measured using indicators for residence in the Northeast, North Central, South, or West regions, with Northeast serving as the reference category in models. Household head's age was measured in years and, because we limit the sample to black and white household heads only, race was an indicator for white. Gender was an indicator for whether the household head was male. Household head's education level was measured categorically based on years of school completed, identifying those with a high school degree or less (12 years or less), those with some college (more than 12 and less than 16 years), and those with a four-year degree or more (16 years or higher). Marital status was an indicator for whether the household head was married. We excluded households missing these demographic measures from the regression analysis (approximately 1% of the sample), leaving a total sample size of 3,189 households.

Our hypotheses predicted different results for low- and high-income households. We therefore ran a multi-group model, which separately estimated relationships among households with 1989 income above or below $50,000, measured in 2011 dollars. This $50,000 threshold

for dividing high and low income households was 217% of the 2011 federal poverty level for a household with four people ($23,021). The 200% of federal poverty level threshold has been used as an eligibility cutoff for some federal programs such as the Partners for Healthy Children program. With some exceptions, this federal eligibility cutoff suggests households with a total income above $50,000 were unlikely to face severe financial hardship. In our sample, 1,449 households fell in the low income category (below $50,000) and 1,740 fell in the high income category (above $50,000).

Results

We provide descriptive information about the sample in Table 1, which shows that compared to high-income households, low-income households were slightly smaller, were less likely to be in the Northeast or the West, and were more likely to be in the North Central region or the South. The household heads of low-income households were younger, less educated, and less likely to be white, male, or married than the heads of high-income households.

Table 2 provides mean household income and net worth over time for households with income above and below $50,000 in 1989. Figure 1 illustrates the pattern over time and reveals different patterns for high and low income households. From 1989 to 2003, mean income and net worth increased at similar rates by income category. After 2003, however, while income stagnated for low income households, it continued to rise among high income households until 2007 and then decreased in 2011. Net worth of both low and high income households remained flat from 2003 to 2007, and seems to decrease faster among high income than low income households from 2007 to 2011.

[Tables 1 and 2 and Figure 1 about here]

These descriptive patterns, however, did not adjust for demographic differences. We used growth curve models to adjust for differences by family size, region, and household head's age, race, education, gender, and marital status. Accounting for these measures provided a significant improvement in data fit compared to a baseline model without controls ($p<0.001$). Table 3 shows results of the multi-group multivariate growth model, allowing comparison between high and low income households. The model presented had a root mean squared error of approximation (RMSEA) of 0.037 and a comparative fit index (CFI) score of 0.962, suggesting it fit the data well (Browne and Cudeck 1993; Hu and Bentler 1999).

[Table 3 about here]

We first discuss results separately for low- and high-income households and then highlight differences between the two groups.

Low-Income Households (below $50,000)

After accounting for demographic differences, there was significant individual variability among low income households in the rates of change of income ($s^2 = 0.37$, $z = 9.02$, $p < .001$) and net worth ($s^2 = 2.02$, $z = 2.88$, $p < .005$). Thus, while Figure 1 suggests mean income and net worth among low-income households remained flat during the recession, there was a great deal of variation in the rate of change. While some low-income households saw substantial increases in the pace of income and net worth change, others likely saw decreases. These results fit with media coverage of the Great Recession, which emphasized gaps between those employed in winning and losing industries (U.S. Bureau of Labor Statistics 2012), as well as with research documenting changes in net worth with the recession (Friedline et al. 2014). The results reveal that there was a great deal of within-class variation among low income households in rate of

income and wealth changes. While many characteristics were controlled, industry of employment or occupational status could have accounted for some of this variation, but a variety of other factors could have been important as well.

Among low-income households, Table 3 shows that initial income negatively predicted the rate of change of income ($B = -0.53$, $p<.001$) but initial net worth did not. (Note that growth curve models estimated the *rate* of change rather than simply the direction of change, so we refer to estimates of change throughout the results section. A positive rate of change would indicate faster change while a negative rate of change would indicate slower change or greater stability.) This suggests those with higher initial income experienced slower rates of income change. If low income households faced an income ceiling, those who had approached that ceiling may have had less to gain with additional years of experience or seniority over time. Households earning less in 1989, however, may have had more to gain and experienced faster rates of income change over time.

Consistent with Hughes and Seneca (2010), rate of income change differed by region of the country; as shown in Table 3, low-income households in the North Central and Southern regions had a significantly lower rate of income change than those in the Northeast. Older age was associated with a significantly lower rate of income change than younger participants, consistent with the idea that low income households bumped up against an income ceiling. Holding other factors constant, low-income households headed by a white, male, educated or married individual had a higher rate of income change than those that were not. Overall, the model in Table 3 explained 46% of the variation in rate of income change.

Unlike rate of income change, results in Table 3 suggest low-income households accumulated net worth at a similar rate regardless of initial income or net worth. This suggests

some factor other than initial income or net worth accounted for rate of wealth change. For example, perhaps wealth change reflected unexpected medical or housing expenses, amount of wealth in one's extended family, timing of parental death, institutional factors, or other unobserved characteristic. Larger families had a significantly lower rate of change in net worth than smaller families. Households headed by males and more educated individuals had a significantly higher rate of net worth change than those headed by less educated females. Overall, the model in Table 3 explained only 25% of the variability in rate of change of net worth. Compared to an R-squared of 0.46 for rate of income change, this low R-squared suggests net worth changes may have been more arbitrary or, at the very least, represented a more complex process with explanatory factors for which we do not control. The growth curve analysis also modeled initial income and net worth, showing that they were predicted by many demographic variables, including household size, region, and household head's age, race, sex, education, and marital status. Overall, the model in Table 3 accounted for 20% and 15% of variation in initial income and net worth, respectively.

High-Income Households ($50,000 or above)

Similar to low-income households, high-income households also experienced significant variability in the rates of change of income ($s^2 = 0.17$, $z = 4.42$, $p < .001$) and net worth ($s^2 = 1.88$, $z = 11.77$, $p < .001$). Therefore, even among high-income households, there appear to have been both winners and losers during the recession.

Among higher income households, Table 3 shows that neither initial income nor net worth significantly predicted the rate of income change. This suggests that – controlling for demographic differences – income changes such as raises or job losses were unrelated to initial

income. Contrary to low-income households, therefore, among high-income households, those making relatively less did not experience faster rates of change. Whereas family size did not predict rate of income change among low-income households, in higher income households Table 3 shows that larger families had a significantly faster rate of income change than smaller families. Those in the South had a significantly lower rate of change in income than those in the Northeast. Age of household head was associated with a significantly lower rate of income change and households headed by whites and males had a significantly higher rate of income change than those headed by African Americans or females. Thus, there were significant differences in pace of income change along multiple demographic dimensions. Overall, 35% of the variability in rate of income change was explained.

Contrary to low-income households, rate of net worth change depended significantly on both initial income and net worth. However, as shown in Table 3, initial income was associated with faster net worth change while initial net worth was associated with slower change in net worth. Among high earners, therefore, those making more in 1989 saw more rapid changes in wealth than those with relatively lower initial incomes. Higher income households could have saved at a more rapid pace, for example, or may have had more income and therefore net worth tied up in stock options of their employer (a single company), allowing their net worth to change more rapidly than those with lower initial incomes. In contrast to the higher rate of change associated with income, households with higher initial net worth saw significantly lower rates of net worth change. During this period, therefore, it seems that initial wealth provided greater stability in net worth. These findings were somewhat consistent with Hypothesis 1. While we found that higher income was associated with faster change in net worth among high-income households, the direction was reversed for initial net worth. Thus, contrary to showing faster

change in net worth because they had the most wealth to lose, those with higher initial net worth showed slower net worth change.

Beyond initial income and net worth, the results in Table 3 suggest older participants had a significantly lower rate of change of net worth than younger participants. Households in the West had a significantly higher rate of change of net worth than those in the Northeast. Households headed by white, male, and educated individuals had a significantly higher rate of change of net worth than those headed by African Americans, females, and the less educated. Overall, the model in Table 3 explained 44% of the variability in rate of net worth change. Similar to lower income households, the initial income and net worth of higher income households were also significantly related to many demographic variables, including household size, region, and household head's age, race, education, and marital status. Overall, the model explained more of the variation in initial income (30%) and net worth (27%) among high income households than among low income households.

Differences between Low- and High-Income Households

We found important differences in the growth of income and net worth between high- and low-income households. Overall, the parameter estimates differed significantly between low- and high-income households ($\chi^2(44) = 284.28$, $p < .001$). Specifically, comparing the coefficients predicting change in income, Table 3 shows that those for initial income and net worth differed significantly between the two income groups. Thus, while the relationship between income growth rate and initial income was negative among low-income households, it was positive (though not significant) and significantly different among high-income households. While we cannot be sure, this could reflect less room to increase income among low-income

households, possibly due to long-term labor market trends such as deindustrialization and union decline (Western and Rosenfeld 2011). Alternatively, it could reflect that many wage earners are paid by the hour and have a limited number of hours available each week. Among low-income households, if those with relatively higher incomes were working all of their waking hours to begin with, they may have been unable to raise their income by working more hours. This earnings constraint may have been especially salient during and after the recession, as many employers restricted hours offered to reduce costs or to avoid triggering expectations within the regulations of the Affordable Care Act (e.g., Trumbull 2013). In each of these scenarios, the difference would reflect a structural income limit faced by households who earned their income through labor, but not by households whose income relied more on investments or capital income. Regardless of the explanation, however, the difference was consistent with Hypothesis 3, predicting that patterns of income change differed for low- and high-income households.

Although the relationship between income change and initial net worth was not significant for either high-income or low-income households, there was a significant difference between the two estimates: positive for low-income and negative for high-income households. This suggests net worth may have helped to stabilize household income more at the upper end of the income distribution. Contrary to Hypothesis 2, therefore, initial net worth did not significantly reduce income change in either income category, but did buffer higher income households from income change more than lower income households.

While there were significant differences for changes in income, the dependence of net worth change on initial income or net worth did not differ significantly by income category. Thus, the regression results in Table 3 were consistent with Hypothesis 3. The relationships between income, net worth, and their rates of change were different for high- and low-income

households. In addition, there were significant class differences in the relationship between financial change and a number of demographic variables. For example, compared to low-income households, age was more strongly associated with slower income change and males had even faster income change among high-income households. When predicting change in net worth, age was associated with a lower rate of net worth change in high- but not low-income households and this difference was significant ($p<.001$). Being married had a significantly stronger relationship with net worth change in high-income than in low-income households.

To revisit the hypotheses, we found evidence somewhat consistent with Hypothesis 1, contradictory to Hypothesis 2, and consistent with Hypothesis 3. Initial income was associated with more rapid wealth change among high-, but not low-income households. Initial wealth, however, was associated with slower changes in wealth in high-income households. Initial wealth was not associated with slower income changes for all households, but did buffer higher income households more from income change than lower income households. Finally, patterns of income change and the relationships between income, net worth, and their rates of change were different for high- and low-income households.

[Figure 2 about here]

Further supporting these different patterns and consistent with Hypothesis 3, Figure 2 shows separate path diagrams of the relationships among initial income, initial net worth, and their rates of change by income category. The diagrams highlight differences between those in the high and low income categories, which may not stand out in the table format. For example, in higher income households, rate of net worth change significantly depended on both initial net worth and income, but that was not the case in lower income households. For low-income households, initial income and net worth were relatively unimportant for rate of change in net

worth. Rate of income change significantly depended on initial income among lower income but not higher income households. Finally, the association between initial net worth and initial income was stronger among high-income households.

Conclusion

Building on evidence of increasing inequality during the recent recession (Emmons and Noeth 2012; Pfeffer et al. 2013), we ask whether households experienced different financial trajectories through the recession depending on initial financial standing. Using growth curve analyses of PSID data, we compare income and net worth trajectories from 1989 to 2011 of households with income above and below $50,000. We do not find that the rich got richer during the recession. However, results suggest significant variation, different patterns of change in financial standing, and different relationships among income, net worth, and their rates of change between high- and low-income categories.

Several limitations suggest the need for further research. For example, although we limit the sample to households headed by young adults (ages 18-44 in 1989), this still includes a relatively wide age range. We control for age, but that may not fully account for age differences. Future research could secure a large enough sample of household heads within a narrow age range to allow replication of these analyses while fully accounting for age differences. Our growth curve models control for initial income and wealth and estimate changes in those financial standing measures. Our methods, which estimate within-household change, therefore help address potential concerns about age or other between-household differences.

A second limitation is that, although we document household financial trajectories leading up to and through the recession, our analyses do not identify causal effects of the

recession. Identifying patterns of change in household income and net worth is important, and can inform policymakers about the characteristics of households that may face greater risk or insecurity in future recessions, for example. To understand the effect of the recent recession on particular households, however, would require causal inference techniques not employed here. An additional limitation is that we cannot conclusively explain our findings. We offer potential explanations, given the context and what is already known about the time period, but establishing conclusive explanations is beyond the scope of this paper. Future research could attempt to establish conclusive explanations.

Despite these limitations, our results offer useful information about household change in income and net worth. For example, given the significant variation we find for both high- and low-income groups, it appears there were winners and losers among both high- and low-income households during the Great Recession. This supports existing arguments that emphasize unequal effects of the recession by industry of employment and other factors (U.S. Bureau of Labor Statistics 2012; Friedline et al. 2014; Prawitz et al. 2013; Stein et al. 2013). Whether due to industry of employment or other reasons, therefore, our results suggest households may experience a recession very differently. In future recessions, policymakers could work to target support toward households most negatively affected. By targeting the households most affected, policymakers could minimize the negative effects of financial stress on children, adolescents, and families, ranging from food insecurity, alcohol or substance use, and depression, to partner relationship strain (Chang et al. 2014; Romo 2014; Serido et al. 2014; Stein et al. 2013). Evidence suggests that even small amounts of emergency savings can help reduce the extent and negative consequences of economic hardship (Gjertson forthcoming).

Results are consistent with the idea that low-income households face a ceiling on what they can earn. Although we certainly cannot identify it definitively, such a ceiling would mean that while experience and seniority may improve income among those at the bottom of the income distribution within a particular field of employment, those at the top (of the low-income category) may cease to experience any income gains over time beyond a certain level.

Contrary to rate of income change, results suggest low-income households accumulate net worth at a similar rate regardless of initial income. This is relatively promising, suggesting low-income households earning less than others in their income category have a similar potential for asset accumulation as those earning more. Policymakers could use this information to help low-income households build net worth to weather future recessions. By targeting all low-income households, for example, policymakers could efficiently incentivize saving or investment.

At the same time, we find that initial income is associated with more rapid wealth change among high-income, but not low-income households. This finding suggests that income carries less potential for intra-generational wealth mobility among low-income households. This could reflect a number of factors, including the ability of higher income households to save more quickly or limited diversity in investment, which could increase variability of wealth among high income households. Regardless of the explanation, however, this difference suggests policymakers aiming to increase intra-generational wealth mobility may have to develop wealth-building strategies targeted at low-income households.

Contrary to initial income, initial wealth is associated with slower income changes among high-income households. Thus, it appears that wealth helped to buffer higher income households from income change during the recession but did not play the same role among lower income

households. This suggests net worth may play a more stabilizing role in the income of investors than wage earners. Once again, we can only speculate, but it might have to do with the types of assets that low-income households are more likely to hold. That is, low-income households are more likely to hold the bulk of their wealth in a home, which is more difficult to turn into income and which was particularly vulnerable to devaluation in the recent recession. Households with higher incomes and wealth, in contrast, are more likely to have greater income and asset diversity – in stocks, dividends, and other income generating assets (Mishel et al. 2013). If policymakers want to minimize the income shocks of future recessions, therefore, they may need to help low-income households build both assets and the diversity of those assets.

Overall, we find different patterns of income change and different relationships between income, net worth, and their rates of change for high- and low-income households. Thus, although neither income category passed through the recession unscathed, results suggest the income and net worth trajectories of young adult households depend on initial financial standing. Although the rich did not get richer during the recession, they did enjoy greater financial security. Among higher income households, those holding more wealth in 1989 experienced lower rates of net worth change. Wealth provided greater economic security. Among lower income households, wealth did not lower rates of income or wealth change, but those with higher initial incomes experienced lower rates of income change. While the form of capital differs by income category, results suggest those with higher initial financial standing experienced less financial insecurity with the Great Recession. These findings suggest lower income households may need assistance during economic recessions to reduce financial insecurity. At the same time, however, results suggest low-income households are able to accumulate assets. Policies could assist this accumulation to help reduce financial insecurity during a recession.

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Tables and Figures

Table 1: Descriptive Statistics by Household Income Category in 1989

	Low-Income (< $50,000)		High-Income (>=$50,000)	
	Mean	Std Dev	Mean	Std Dev
Family Size	3.03	1.50	3.28	1.38
Region				
Northeast	0.14	0.35	0.27	0.45
North Central	0.34	0.47	0.27	0.44
South	0.38	0.49	0.24	0.43
West	0.14	0.35	0.22	0.41
Head of Household				
Age	28.72	5.89	32.38	5.57
White	0.75	0.43	0.93	0.25
Male	0.79	0.41	0.91	0.28
High School or Less	0.51	0.50	0.20	0.40
Some College	0.34	0.47	0.35	0.48
4-Years of College or More	0.16	0.37	0.45	0.50
Married	0.70	0.46	0.90	0.30
N	1449		1740	

Source: Weighted data from the 1989 PSID. N (unweighted) = 3,189

Table 2: Mean Household Income and Net Worth over Time by 1989 Income Category

Household Income Category		1989	2003	2007	2011
Low Household Income	Income	$30,683	$78,458	$78,196	$81,009
(<$50,000)	Net Worth	$27,961	$175,559	$159,633	$177,120
High Household Income	Income	$95,777	$138,053	$152,567	$141,680
(≥$50,000)	Net Worth	$174,269	$608,987	$651,075	$602,298

Source: weighted PSID. Sample consists of adults 18-44 in 1989 and 40-66 in 2011.
All numbers are rounded. (N unweighted = 3,189; low income N = 1,449, high income N = 1,740)

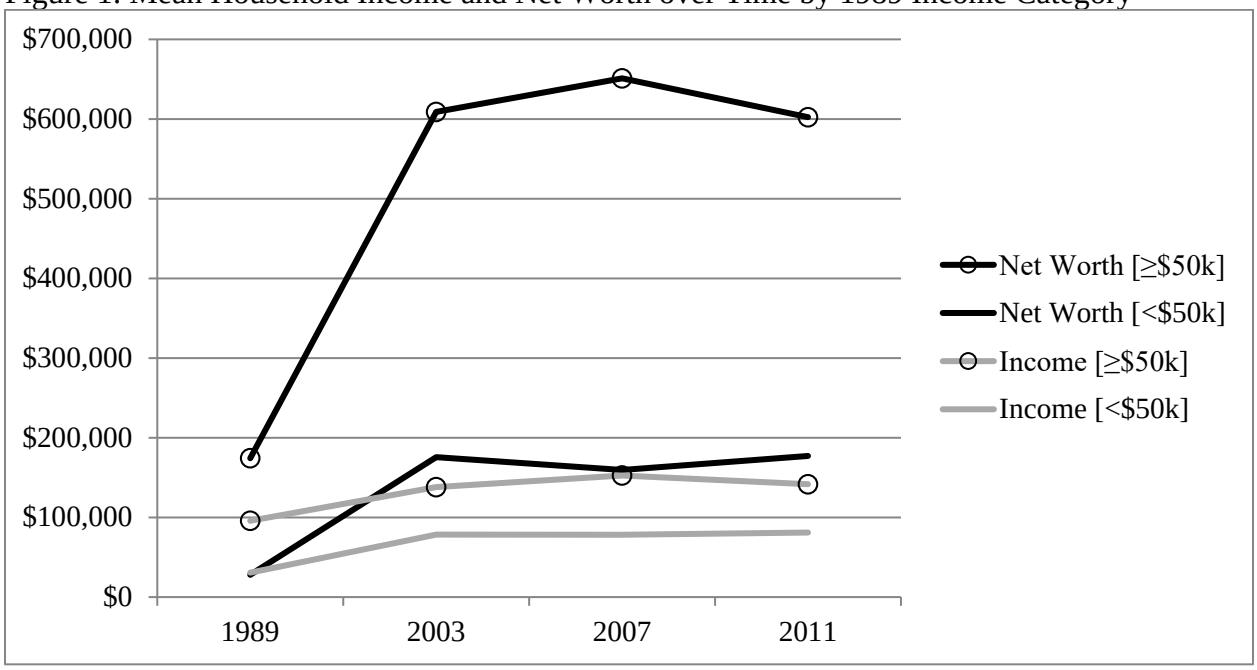
Table 3. Regression Coefficients of Multi-Group Multivariate Growth Model

		Low-Income (< $50,000)				High-Income (≥ $50,000)					
DV	IV	B	β	p	R^2	B	β	p	R^2	χ^2	p
Rate of change Income					0.457				0.353		
	Initial income	-0.53	-0.53	<0.001		0.19	0.22	0.424		18.80	<0.001
	Initial net worth	0.03	0.05	0.477		-0.04	-0.20	0.193		11.94	0.001
	Family size	-0.03	-0.05	0.225		0.07	0.20	<0.001		15.03	<0.001
	Region (vs. Northeast)										
	North Central	-0.25	-0.15	0.004		-0.10	-0.09	0.074		3.22	0.073
	South	-0.21	-0.13	0.019		-0.16	-0.14	0.006		0.62	0.431
	West	0.00	0.00	0.973		0.11	0.09	0.099		0.26	0.607
	Age	-0.02	-0.17	<0.001		-0.03	-0.29	<0.001		7.08	0.008
	Race	0.14	0.07	0.042		0.37	0.18	<0.001		3.42	0.065
	Sex	0.32	0.16	0.001		0.54	0.30	<0.001		11.09	0.001
	Education	0.18	0.33	<0.001		0.06	0.17	0.072		0.16	0.691
	Marital status	0.23	0.13	0.012		-0.04	-0.03	0.523		1.08	0.298
Rate of change Net worth					0.250				0.443		
	Initial income	-0.44	-0.22	0.317		0.99	0.32	0.008		2.95	0.086
	Initial net worth	0.05	0.05	0.934		-0.45	-0.64	<0.001		1.44	0.230
	Family size	-0.20	-0.18	0.007		0.00	0.00	0.988		2.50	0.114
	Region (vs. Northeast)										
	North Central	0.24	0.07	0.388		0.06	0.01	0.705		0.75	0.387
	South	0.19	0.06	0.506		-0.16	-0.04	0.372		1.77	0.183
	West	0.39	0.08	0.340		0.49	0.11	0.004		2.66	0.103
	Age	0.01	0.02	0.845		-0.06	-0.19	<0.001		15.41	<0.001
	Race	0.24	0.06	0.331		0.76	0.10	0.002		2.91	0.088
	Sex	0.74	0.19	0.045		0.91	0.14	0.001		0.27	0.607
	Education	0.28	0.27	<0.001		0.16	0.12	0.009		0.02	0.877
	Marital status	0.29	0.08	0.333		0.39	0.06	0.140		9.10	0.003
Initial income					0.204				0.301		
	Family size	0.05	0.10	0.015		-0.05	-0.11	0.014		15.43	<0.001
	Region (vs. Northeast)										
	North Central	-0.23	-0.13	0.021		-0.17	-0.13	0.010		1.19	0.276
	South	-0.05	-0.03	0.648		-0.17	-0.13	0.009		0.09	0.768
	West	-0.11	-0.05	0.328		-0.19	-0.14	0.006		0.90	0.343
	Age	0.03	0.19	<0.001		0.03	0.32	<0.001		1.14	0.285
	Race	0.24	0.13	0.004		0.04	0.02	0.599		6.10	0.014
	Sex	0.36	0.18	<0.001		0.11	0.05	0.212		13.89	<0.001
	Education	0.04	0.08	0.029		0.15	0.35	0.000		11.75	0.001
	Marital status	0.35	0.20	<0.001		0.14	0.07	0.027		20.43	<0.001

Initial net worth				0.148				0.266		
Family size	0.11	0.12	0.048		-0.08	-0.04	0.286		0.72	0.397
Region (vs. Northeast)										
North Central	-0.47	-0.16	0.037		-0.97	-0.17	<0.001		0.73	0.394
South	-0.36	-0.13	0.115		-1.17	-0.19	<0.001		7.40	0.007
West	-0.47	-0.12	0.087		-0.60	-0.10	0.017		3.80	0.051
Age	0.05	0.22	<0.001		0.21	0.45	<0.001		8.71	0.003
Race	0.42	0.13	0.015		0.95	0.09	<0.001		9.15	0.002
Sex	0.71	0.21	0.001		0.46	0.05	0.152		4.59	0.032
Education	0.07	0.08	0.200		0.15	0.08	0.025		1.73	0.189
Marital status	-0.09	-0.03	0.669		0.93	0.11	0.003		26.43	<0.001
N	1,449				1,740				3,189	

Source: PSID. Sample consists of adults 18-44 in 1989 and 40-66 in 2011. All numbers are rounded.
B indicates standardized coefficient. DV indicates dependent variable. IV indicates independent variable.

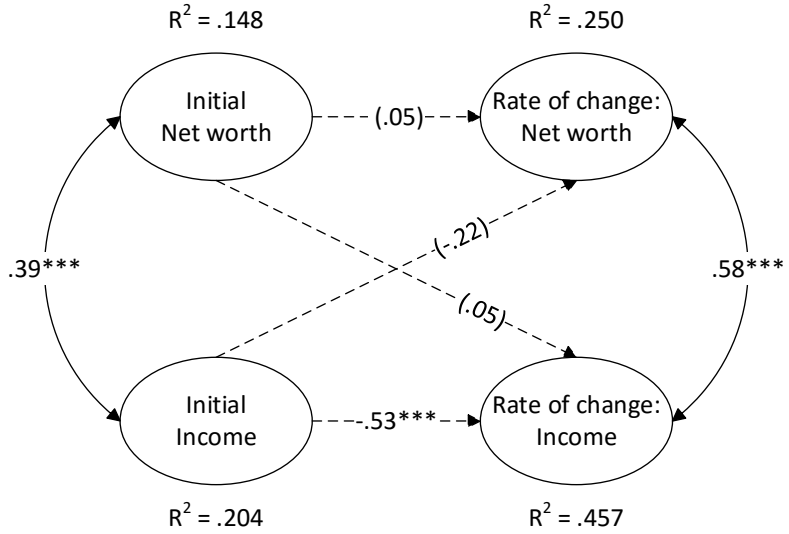
Figure 1: Mean Household Income and Net Worth over Time by 1989 Income Category



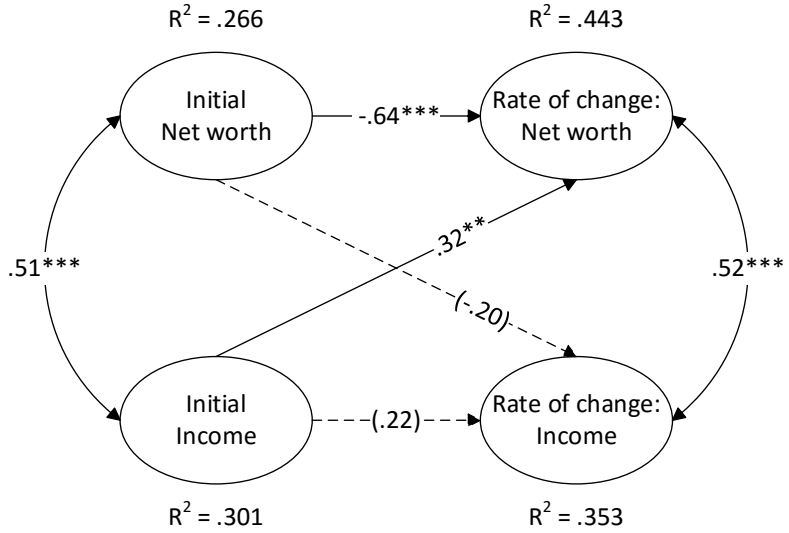
Source: weighted PSID.
<$50k = household income in 1989 less than $50,000 (N = 1,449)
≥$50k = household income in 1989 greater than or equal to $50,000 (N = 1,740)

Figure 2: Multivariate Growth Model for Low- and High-Income Households

Low-Income Households (< $50,000)



High-Income Households (≥ $50,000)



Path diagrams illustrate the growth curve model in Table 3.
Source: PSID. Sample consists of adults 18-44 in 1989 and 40-66 in 2011. All numbers are rounded. (N = 3,189)
* p < .05, ** p <.01, *** p <.001.