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Testing an Asset-Building Approach for Young People

Early Access to Savings Predicts Later Savings

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A major hypothesis of asset-building is that early access to savings accounts leads to continued and improved educational and economic outcomes over time. This study asks whether or not young adults (ages 18 to 22), particularly lower-income young adults, are significantly more likely to own savings accounts and to accumulate more savings when they have access to savings accounts at banking institutions as adolescents (ages 13 to 17). We investigate this question using longitudinal data (low-to-moderate income sample [LMI; N = 530]; low-income sample [LI; N = 354]) from the Panel Study of Income Dynamics and its supplements. Results from propensity score weighting and bivariate probit estimates support this hypothesis. Asset-building policies that extend early access to savings accounts may improve savings outcomes for young people from lower-income households.

Key words: *savings, young adults, economic socialization, institutions, Panel Study of Income Dynamics*

Advances in education like obtaining a college degree are believed to translate into advances in economic standing measured by increases in income or economic mobility. Research reinforces beliefs in the relationship between education and economic mobility (Baum & Ma, 2007; Baum, Ma, & Payea, 2010). For instance, about 20% of intergenerational economic mobility, defined by the correlation between fathers' and their sons' incomes, is attributed to education (Mishel, Bernstein, & Shierholz, 2009). A college degree is of particular importance, especially for those from lower-income backgrounds. Among young people from households in the bottom fifth of the income distribution who earn a college degree, 45% become upwardly mobile as adults (Mishel, et al., 2009). Moreover, advanced degree holders earn hourly wages triple of those who have less than a high school diploma (Mishel et al., 2009).

If education plays a critical role in economic mobility, equal opportunities to enroll in and graduate from college need to be available. However, inequalities in opportunities are evident based on household income and assets (i.e., wealth). In a longitudinal study of college attendance with information from 13,000 young people two years post-high school graduation, Sandefur, Meier, and Campbell (2006) find that those from higher-income households have greater probabilities of attending college compared to those from lower-income households. In a study analyzing educational outcomes of 25-year-olds from the Panel Study of Income Dynamics (PSID), Mayer (2010) finds that growing up in a state with rising income inequality between 1970 and 2000 is associated with inequalities in educational outcomes. Conley (2001) uses a sample of 1,126 young people ages 19 to 30, finding that household net worth is significantly related to total years of schooling.

Findings suggests that even though obtaining a college degree may move young people from lower income households up the economic ladder (for example, those from the bottom fifth of the income distribution; Mishel et al., 2009), opportunities to obtain a college degree are disproportionately available to those from higher-income households. Young people from households with more income and assets start off higher up on the economic ladder. This creates a type of educational advantage gained from unequal distributions of income and assets, making higher-income young people more likely to attain a college degree and propelling them farther up the economic ladder. Asset-building has been proposed as a strategy for helping young people and households— particularly those with lower incomes—accumulate assets to be used for investments in human capital development (Sherraden, 1991; Sherraden & Barr, 2005), like a college education. In this way, assets may help balance the scales of opportunity and provide young people from lower-income households with a better chance to climb the economic ladder.

The purpose of this paper is threefold: (1) to review research on young people's savings using a particular type of asset proposed as a strategy for improving educational and economic outcomes; (2) to present a conceptual framework that offers some explanation regarding young people's saving behaviors; and (3) to test whether early access to asset building may lead to continued and improved savings outcomes for young people from lower income households by analyzing whether young adults' (ages 18 to 22) later savings outcomes are predicted by access to savings accounts as adolescents (ages 13 to 17).

The Potential of Asset-Building

According to Sherraden (1991), a main premise of asset building is that access to institutions (e.g., like opening a savings account at a banking institution) may lead to asset accumulation, such as maintaining account ownership and accumulating more money. In turn, asset accumulation may lead to an ability to pay for college costs and eventually lead to college attendance. There is some research supportive of this (e.g., Bettinger, 2004; Charles, et al., 2007; Hanushek, Leung, & Yilmaz, 2004; Kim, 2007). While asset building began with adults' and households' asset accumulation in mind (Shreiner & Sherraden, 2007), more recently it has been extended to young people (e.g., Elliott, 2012a; Elliott, Destin, & Friedline, 2011; Mason, Nam, Clancy, Kim, & Loke, 2010). That is, young people may also benefit from asset building and, like adults, they may be able to maintain ownership over savings accounts (or other types of assets) and ultimately accumulate more savings (Loke & Sherraden, 2009).

In recent years, policy and research endeavors have emerged that focus on asset building for young people as a way to improve outcomes over time. For instance, the America Saving for Personal Investment, Retirement, and Education (ASPIRE) Act has been proposed in Congress since 2004; this legislation, if passed, would automatically open savings accounts for all newborns in the U.S.

with progressive features (e.g., match contributions) based on income eligibility (Cramer & Newville, 2009). Accounts are proposed to be seeded with an initial deposit of $500. The Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP), a discretionary grant program managed by the U.S. Department of Education to increase the number of lower-income young people enrolled in postsecondary education, recently announced savings accounts as funding a priority in the grant application process.[1] Research-tested innovations in Oklahoma (Saving for Education, Entrepreneurship, and Downpayment [SEED] OK; Nam, Kim, Clancy, Zager, & Sherraden, 2011), Maine (Harold Alfond College Challenge Program; Huang, Beverly, Clancy, Lassar & Sherraden, 2011), and California (San Francisco's Kindergarten to College [K2C] Program[2]) provide savings accounts to young people, all with the intent to encourage human capital development or to improve economic stability with lower-income young people in mind.

Research on Young People's Savings

Despite widespread interest in asset building for young people, especially savings, research is limited. There are approximately 30 separate studies on young people's savings. These studies were conducted between 1969 and 2011; however, the majority (17 out of 30, or 57%) have been produced in the last six years. Just under half of these studies (12 out of 30, or 40%) were conducted with asset building in mind. Most of this research is concerned with how young people are socialized into the economic world rather than examining saving as an asset-building strategy. Little research investigates savings for young people from lower-income households. Taken together, research offers two explanations for how young people come to have savings accounts and their savings amounts: individual level explanations like personal characteristics (e.g., young people's age and future expectations; parents' warmth and involvement) and institutional level explanations like household income and assets.

On the one hand, research points to individual-level explanations like young people's and parents' personal characteristics to explain savings (e.g., Friedline & Elliott, 2011; Friedline, Elliott, & Nam, 2011; Furnham, 1999; Pritchard, Myers, & Cassidy, 1989; Webley & Nyhus, 2006). Furnham (1999) analyzes questionnaire data from 250 British young people using a series of two-way ANOVAs and ordinary least squares (OLS) regression, finding that older young people and males (compared to younger young people and females) were more likely to have accounts. Pritchard and colleagues (1989) examine savings for 1,619 employed high school seniors using Pearson's correlations and Somer's *d*, finding that young people's personal characteristics like being a hard worker, having an internal locus of control, and having future expectations for plans beyond high school significantly relate to savings.

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[1] For more information, visit the U.S. Department of Education's website: http://www.ed.gov/news/press-releases/new-gear-grants-awarded-help-more-275000-middle-schoolers-get-pathway-success-co

[2] For more information, visit the K2C Program's website: http://www.k2csf.org/

On the other hand, research suggests institutional-level explanations like income and assets contribute to how young people come to have savings accounts and accumulate savings (e.g., Elliott, Webley, & Friedline, 2011; Friedline, 2012; Friedline, Elliott, et al., 2011; Mason et al., 2010; Warnarr & Van Praag, 1997). Friedline (2012) analyzes separate samples of young people from the PSID/CDS ages 12 to 15 from high-income (HI; $N = 411$) and low-to-moderate income households (LMI; $N = 333$) with multiple imputation, propensity score analysis, and logistic regression. She finds that young people from LMI and HI households are more likely to have savings accounts of their own when parents have savings accounts on their behalf. Friedline, Elliott, et al. (2011) analyze a sample of 1,003 young people from the PSID/TA ages 17 to 23 using multiple imputation, propensity score analysis, logistic regression, and sensitivity analyses. They find parents with savings accounts for young people and household net worth significantly predict young people's amount saved (Friedline, Elliott, et al., 2011).

Methodologies vary across studies. A majority (23 out of 30, or 77%) use quantitative methods like two-way ANOVAs, Pearson's correlations, and OLS regressions. Notably, most studies (19 out of 30, or 63%) use cross-sectional data and/or bivariate tests; these tests of association provide descriptive information on young people's savings but offer little evidence of potential explanations over time. Only 11 out of 30 studies (37%) use longitudinal data with advanced methodologies like multiple imputation, OLS regression, path analysis, or propensity score analysis. Even fewer studies (7 out of 30, or 23%) test whether early savings (including self reports of money saved at home rather than in a savings account at a bank) leads to improved savings or other economic outcomes over time. Longitudinal analyses with advanced methodologies may extend the existing research and shed light on whether early access to savings leads to improved savings outcomes later in life.

Conceptual Framework on Young People's Saving Behaviors

This conceptual framework pulls from theoretical perspectives that use both individual and institutional-level explanations to offer an account of young people's saving behaviors. The perspectives include economic socialization, the institutional model of saving, and neoclassical economics.

Economic socialization focuses on the role of the family in teaching young people about money and finances (Lunt & Furnham, 1996). As the primary providers of economic socialization, parents provide experiences like giving allowances, helping young people open savings accounts, or teaching them the importance of saving (Kim, et al., 2011; Mandell, 2010; Ward, Wackman, & Wartella, 1977; Williams Shanks et al., 2010). Research suggests that parents' socialization endeavors may be more successful when they display greater degrees of warmth and involvement with young people (e.g., Weiss & Schwarz, 1996) and provide allowances contingent upon chores or other responsibilities (Ashby et al., 2011; Furnham, 1999). Greater displays of warmth and involvement may significantly improve young people's future expectations (Ashby et al., 2011), a variable commonly linked with

saving (Ashby et al., 2011; Friedline, Elliott, et al., 2011; Webley & Nyhus, 2006). From this viewpoint, young people's economic socialization is determined by parents' individual-level decision-making.

Resources like income and assets likely play a role in when and how parents are able to provide economic socialization (Grinstein-Weiss et al., 2011), suggesting that economic socialization may operate to some degree at an institutional level rather than at an individual level. In this case, institutions refer to the broader, structural forces that may shape the distribution of income and assets and, ultimately, economic socialization. In writing on how structural forces shape poverty, Rank (2004) states that, "a major factor leading to poverty in the United States is a failure of the economic structure to provide sufficient opportunities for all who are participating in that system" (p. 59). He goes on to explain that institutions tend to exclude those with the "least advantageous [individual] characteristics" ([individual] added, Rank, 2004, p. 66). Parents with lower incomes and fewer assets, for instance, may have savings accounts less often (Aizcorbe, Kennickell, & Moore, 2003; Bucks, Kennickell, & Moore, 2006), perhaps hindering their ability to socialize young people by connecting them to savings accounts (Grinstein-Weiss, et al., 2011). As a result of unequally distributed income and assets, young people may experience unequal economic socialization that results in gaps in access to savings accounts.

According to the institutional model of saving, access to institutions external to the family can facilitate economic socialization and lead to improved economic outcomes (Sherraden, 1991). Here, institutions refer to intentionally designed "policies, programs, products, and services" that shape economic behavior (Beverly, Sherraden, et al., 2008, p. 90). Access refers to "the ability and right...to approach, enter, use, and communicate with an institution. An individual with access to institutional structures for saving is more likely to save than a person who has no such access" (Sherraden & McBride, 2010, p. 31-32). Intentionally designed institutions offer command over resources to facilitate asset building (Sherraden, 1991). Command over resources and asset building can lead to smoothing consumption, reducing effort needed to carry out goals like paying college tuition and planning for the future (Sherraden, 1991). From this perspective, income and assets are related economic resources with distinct effects—income represents a snapshot of resources at a static point in time that shapes consumption, whereas assets are dynamic resources that have long-term effects over and above consumption (Sherraden, 1991). One can imagine the potentially transformative role of assets for young people from lower-income households who may expend effort solving their economic problems of today with static economic resources (i.e., income) rather than planning for their futures tomorrow (i.e., assets).

Banking institutions may be relevant, then, because they offer commonly-used products to facilitate asset building and to shape economic behavior, like savings accounts. Unfortunately, banking institutions are not necessarily interested in broadening access to young people from lower-income households. This may be due to guiding principles of the life-cycle hypothesis (LCH) within

neoclassical economics (Modigliani & Brumberg, 1954), which suggests that young people, given their low incomes and high consumption, cannot accumulate assets. Moreover, additional principles from neoclassical economics espouse rationality and utility-maximization (e.g., Modigliani & Brumberg, 1954; Simon, 1955), principles referring to individual information and preferences in decision-making regarding consumption. In other words, banking institutions based on neoclassic economic principles may operate under the assumption that access to savings accounts and command over resources is determined at the individual level. According to this perspective, if young people from lower-income households do not have savings accounts, it is because of individual-level decisions (e.g., within their control), not institutional-level limitations like accessibility.

However, the role of banking institutions and their accessibility to those from lower income households may be underestimated in neoclassical economics. First, banking institutions are for-profit entities that assess fees for using their products (Chan, 2011). Such fees are nuanced and sometimes hidden, potentially raising costs for the account holder. Some research suggests savings account fees may be increasing, such as monthly service fees, minimum balances, and initial deposits (Chan, 2011). In other words, it costs money to command resources by using savings accounts offered by banking institutions. This suggests there are regressive costs associated with savings accounts determined at the institutional level. Those willing or able to pay such costs are decidedly from higher-income households (e.g., Aizcorbe et al., 2003).

Second, geographic locations of banking institutions may play a role in their accessibility to account holders from lower-income households (Chan, 2011). In a survey of lower-income households in Chicago, Los Angeles, and Washington, DC, 20% used alternatives to banking institutions such as payday lenders or check cashers because their locations were more geographically convenient (Berry, 2005). People who use these alternatives pay a high price for geographic convenience because payday lenders and check cashers assess higher fees for their products when compared to those offered by traditional banking institutions. In other words, location may matter for banking institutions' accessibility to lower income account holders, who pay disproportionately higher fees to use alternatives to savings accounts offered by traditional banking institutions.

Along these lines, banking institutions may disproportionately attract and incentivize account holders who accumulate greater savings amounts. Once young people gain access to savings accounts offered by banking institutions, those who maintain greater account balances may benefit from waived fees or interest rates that offer greater returns on their investments—providing some indication that incentives may attract account holders with higher incomes (Chan, 2011). Research suggests that interest rates may also be an attractive incentive for lower-income account holders (Bachelder & Aguerre; 1999; Brobeck, 2008; Chan, 2011; Dick, 2001). For instance, among 700 account holders with incomes below $50,000, approximately 50% reported that interest earned on their savings was "very important" when choosing a savings account (Brobeck, 2008). However, an

interest rate of 1% may have little meaning for the young person from a lower-income household who maintains an account balance of $100. The young person from a higher-income household, whose household by definition may have more resources to contribute to the young person's saving, may disproportionately benefit when they maintain a balance of $1,000 and continue to make frequent and sizable deposits. Young people from lower-income households have modest amounts in their accounts to begin with: previous research finds median savings is roughly $500 for young people ages 17 to 23 (Friedline, Elliott, et al., 2011), but median amounts vary by household income and assets (Elliott, 2012b; Friedline & Elliott, 2011). Under existing banking institutions, the young person who maintains a greater account balance earns an increasing portion of their savings via capital. That is to say, assets beget assets (Schreiner & Sherraden, 2007).

The costs associated with savings accounts and the incentives for maintaining greater account balances bring into question banking institutions' accessibility and the utility of their savings accounts for those from lower-income households. As such, savings accounts at banking institutions may provide young people with little ability to command resources and accumulate assets. From this perspective, institutions may be needed that run parallel to banking institutions. For example, the ASPIRE Act is a policy innovation designed to address the accessibility and utility of savings accounts at the institutional level by creating universal access and offering account incentivizes (e.g., a higher interest rate for those who meet income eligibility guidelines). The ASPIRE Act proposes to establish savings accounts with an initial deposit of $500 and offers a 100% interest rate on deposits up to a certain annual amount (also referred to as a 1:1 match rate) for young people from lower-income households.

A question that arises from this conceptual framework is whether or not young people from lower-income households are better off when they have access to savings accounts compared to no savings accounts under the current banking system, in the absence of the ASPIRE Act or a related institution to support saving and asset-building. While it is true that few lower income young people have savings of their own, enough have savings to examine whether policies like the ASPIRE Act, which seek to reduce or eliminate differences in account ownership among young people, would actually increase economic well-being (i.e., account ownership and savings amount) of lower-income young adults if enacted.

Little is known about whether young people from lower-income households who *do* have access to savings accounts fair better than those who *do not* have access in regards to economic well-being. To answer this question, this paper examines whether adolescents (ages 13 to 17) with savings accounts are significantly more likely to have savings accounts and accumulate savings at or above $500 as young adults (ages 18 to 22) compared to adolescents without savings accounts. This savings amount ($500) represents the median amount saved in an aggregate sample of young adults at ages 17 to 23 (Friedline, Elliott, et al., 2011). In addition, the dichotomous savings amount measure represents whether or not adolescents who have access to savings accounts accumulate the

proposed initial deposit of an ASPIRE Act account ($500) by the time they reach ages 18 to 22 compared to adolescents who do not have access to savings accounts, in the absence of the ASPIRE Act or other institution to facilitate saving and asset building. While previous research addresses savings for young people from lower income households descriptively (Elliott, 2012a; Friedline, 2012; Mason et al., 2010), this is one of the first studies to investigate this question using longitudinal data with multivariate analyses. We investigate this question using samples of young people from lower income households (low-to-moderate income sample [LMI; < $79,111; $N =$ 530]; low-income sample [LI; < $50,000; $N =$ 354]) from the PSID and its 2002 Child Development Supplement (CDS) and 2007 Transition into Adulthood (TA) supplement.

Methods

This study used longitudinal data from the PSID and its Child Development Supplement (CDS) and Transition into Adulthood (TA) supplement. The PSID is a nationally representative longitudinal survey of U.S. individuals and families that began in 1968. The PSID collects data on characteristics such as employment, income, and assets. The independent variables related to households and parents were taken from 1989, 1994, 1999, and 2001 PSID data. The CDS was administered to 3,563 PSID respondents in 1997 to collect a wide range of data on parents who participated in the PSID and their children (birth to 12 years). Questions covered a range of developmental outcomes across the domains of health, psychological well-being, social relationships, cognitive development, achievement, motivation, and education. Follow-up surveys were administered in 2002 and 2007. For this study, independent variables for adolescents were taken from the 2002 CDS because that was the first wave to collect information on parents' savings for young people and young people's own savings. The TA supplement, administered in 2005 and 2007, measured outcomes for young adults who participated in earlier waves of the CDS and were no longer in high school. Of the 3,563 respondents from the 1997 CDS, 745 respondents were eligible to be interviewed for the TA in 2005 and 1,472 respondents were eligible to be interviewed for the TA in 2007. In the 2007 TA, 1,115 interviews were completed. Outcome variables for this study were taken from the 2007 TA. The three data sets were linked using PSID, CDS, and TA map files that contained family and personal identification numbers. The linked data sets provided a rich opportunity for analyses in which data collected at one point in time (2002 or earlier) could be used to predict outcomes at a later point in time (2007), with stable background characteristics as covariates.

Variables

There were thirteen independent variables and two dichotomous dependent variables. Independent variables included base model and socio-economic status (SES) variables (adolescents' race, gender, and age; head of households' education level and occupational prestige; households' income, net worth, and parents' savings for adolescent). Assets, including household net worth and parents' saving for adolescent, were included as institutions representing the broader, structural forces that

may shape young adults' savings outcomes for the samples of lower income households. Economic socialization variables were also included (parents' warmth and involvement; adolescents' allowance and financial expectations). The primary variable of interest was adolescents' savings variable (adolescents' savings account), which was used as a proxy for access to banking institutions. The dependent variables were young adults' savings account and savings amount. Table 1 describes in detail how variables were measured.

Sample

This study examined savings with lower-income samples of young people at two time points: adolescence in 2002 and young adulthood in 2007. An aggregate sample of young adults was drawn from the 2007 TA. The sample was restricted to Black and White young adults given small numbers of other racial / ethnic groups in the TA. Further, only those who were not in high school in 2007 (because they graduated, received a general educational development [GED], or left school) were included in the sample (N = 694). An LMI sample was extracted from the aggregate sample by selecting young adults whose households had incomes below $79,111, an amount determined by using quintiles from a U.S. Census Bureau report (De Navas, et al., 2008). The LMI sample (N = 530) included 239 (45%) white and 291 (55%) black young adults ages 18 to 22 (M = 19.670, SD = 1.212). A subset from the LMI sample was also created by restricting the sample to low-income households (LI; < $50,000; N = 354) using quintiles from the U.S. Census Bureau (De Navas, et al., 2008). Among the LI sample, there were 120 (34%) white and 234 (66%) black young adults ages 18 to 22 (M = 19.680, SD = 1.227).

The LMI sample had slightly more female (53%) compared to male (47%) adolescents. A majority of adolescents did not savings accounts (56%) and did not receive an allowance (63%). Among those who did receive allowance (37%), many were required to earn their allowance through chores (28%). A majority (78%) expected to be financially stable in the future. Heads of households had approximately six months of schooling beyond high school (M = 12.517; SD = 2.039) and on average worked in sales and office occupations (M = 2.214; SD = 1.810). A higher percentage of parents did not have savings for adolescents (57%) compared to those who did have savings for adolescents (43%). The mean score on the parental warmth scale was 3.723 (SD = .705, ranging from 1 to 5), indicating parents showed a moderate level of warmth toward adolescents by doing things such as speaking to them by name and giving verbal praise. Their mean score on the parental involvement scale was 22.359 (SD = 4.781), indicating that they knew to a somewhat often degree, for instance, what types of activities adolescents did with their friends or how adolescents spent their money. Households had a median income of $38,205 (log of household income [M = 10.435; SD = .625]) and median net worth of $29,139 (IHS of net worth [M = 8.623; SD = 6.287; range -13.360 to 14.540]).

Table 1. Variable descriptions

Variable Name	Description	Coding
Base Model with Socio-Economic Status (SES) Variables		
Adolescents' race	Race downloaded from the 1997 CDS.	White = 1; Black = 0
Adolescents' gender	Gender downloaded from the 1997 CDS.	Male = 1; Female = 0
Adolescents' age	Age downloaded from the 2002 CDS. Splines (4 knots, including < 14, 14 to <15, 15 to < 16, and ≥16) were included in the analyses	Range from 13 to 17
Head's education level	Continuous variable downloaded from the 2001 PSID where each number represented a year of completed schooling (e.g., 12 years of education indicated graduating from high school).	Range from 1 to 16
Head's occupational prestige	Continuous variable downloaded from the 2001 PSID using 3-digit occupational codes from the 1970 Census issued by the U.S. Department of Congress for industries and occupations. The PSID groups the 984 occupational categories into 12 categories, which were further combined into five categories.	Not currently working = 0; Construction and maintenance = 1; Farming, fishing, and forestry = 2; Sales and office = 3; Service = 4; Management / professional = 5
Household income (natural log transformation)	Continuous variable that averaged household income from the 1996, 1997, 1999, and 2001 PSID after inflation to 2001 price levels based on the Consumer Price Index. Natural log transformation was used. In order to create the low and low-to-moderate income samples, the sample was restricted at two points (Low-to-moderate income [LMI]: < $79,111; Low-income [LI]: < $49,968) based on information from the Census Bureau (De Navas-Walt, Proctor, & Smith, 2008). For ease of interpretation, the low-income sample was rounded to incomes < $50,000. Splines of income (3 knots [lowest, moderate, and highest]) for each sample were included.	Range from 1 to 16.940; Low-to-moderate income (LMI) = < $79,111; Low-income (LI) = < $50,000
Household net worth (IHS transformation)	Continuous variable that summed all assets, including savings, stocks / bonds, business investments, real estate, home equity, and other assets, and subtracted all debts, including credit cards, loans, and other debts and downloaded from the 1989, 1994, 1999, and 2001 PSID. Inverse hyperbolic sine (IHS) transformation was used (Kennickell & Woodburn, 1999). Splines for each sample (3 knots, including ≤ 0 [zero and negative], 0 to < 10 [moderate], and > 10 [high]) were included in the analyses.	Range from -13.360 to 14.540
Parents' savings for adolescents	Two questions from the 2002 CDS asked parents and caregivers whether they had money put aside for their adolescent in a bank account separate from other savings, and whether they had money put aside specifically for their adolescent's future schooling, separate from other savings. Responses were combined to create a dichotomous variable.	Yes = 1; No = 0
Economic Socialization Variables		
Parental warmth	Scale downloaded from the 2002 CDS to measure such things as the extent that parents had conversations with adolescent, answered adolescent's questions verbally, displayed physical affection, encouraged adolescent's contributions, or gave verbal praise.	Range from 1 (never) to 5 (often)

Parental involvement	Scale downloaded from the 2002 CDS to measure such things as the extent that parents knew how adolescent spent free time, how adolescent spent their money, or what adolescent did on evenings and weekends.	Range from 6 (less involvement) to 30 (more involvement)
Adolescents' allowance	Two questions from the 2002 CDS asked adolescents whether or not they received an allowance and, if so, whether they were required to do work such as chores to receive their allowance. Responses were combined to create a three-level variable.	No allowance = 0; Receives an allowance not contingent on chores = 1; Receives an allowance contingent on chores = 2
Adolescents' financial expectations	Adolescents were asked in the 2002 CDS their thoughts on their chances of having enough money to comfortably support themselves and their families by age 30. Responses were coded on a scale of 1 (no chance) to 5 (it will happen), but were dichotomized due to limited variability.	Expect financial stability = 1; Do not expect financial stability = 0
Adolescents' Savings Variable (Institutional Access)		
Adolescents' savings account in 2002	Downloaded from the 2002 CDS, which asked adolescents whether they had a savings or bank account in their name.	Yes = 1; No = 0
Outcome Variables		
Young adults' savings account in 2007	Downloaded from the 2007 TA, which asked young adults whether or not they had a savings account in their name.	Yes = 1; No = 0
Young adults' savings amount in 2007	Young adults with savings accounts in the 2002 CDS were asked how much they had saved with responses ranging from $.01 to $9,999,996. Responses were dichotomized at ± $500, based on the proposed amount of an initial CDA deposit. Quartiles were also included in the analyses.	Savings at or above $500 = 1; Savings below $500 = 0

There were notable differences in variables representing SES between the LMI and LI samples. Heads of households in the LI sample had significantly lower levels of education ($M = 12.007$, $SD = 1.835$, $t = 3.791$, $p < .001$) compared to the LMI sample, averaging a high school diploma. As expected, the LI sample had a significantly lower mean income amount ($M = \$28,743$; $SD = \$12,428$; $t = 9.555$, $p < .001$). The LI sample also had significantly lower mean net worth ($M = \$37,909$; $SD = \$83,893$; $t = 3.822$, $p < .001$) and IHS of net worth amounts ($M = 7.410$, $SD = 6.858$, range -13.360 to 14.540, $t = 2.710$, $p = .002$) compared to the LMI sample. Thirty-five percent of adolescents had savings accounts, a lower percentage compared to the LMI sample (albeit the difference was not significant). Additional descriptive results are available in Table 2.

Analysis plan

The following steps were undertaken to analyze results. Data analysis steps were conducted using SAS (version 9.2), PASW Statistics (SPSS version 18.0), and STATA (version 11) and were undertaken separately for the LMI and LI samples.

Multiple imputation. The first step was to account for missing data. Multiple imputation is the preferred method to complete missing data, limit the threat to validity, and improve generalizability (Rose & Fraser, 2008; Rubin, 1976, 1987; Saunders, et al., 2006). Little and Rubin (2002) recommend multiple imputation for completing missing data when variables have less than 20% missing. Missing data were imputed using the Expectation Maximization (EM) algorithm (Dempster, Laird, & Rubin, 1977). The EM algorithm imputes missing values by maximum likelihood estimation using the observed data in an iterative estimation process (Little & Rubin, 1987).

Propensity score weighting. The second step was to conduct propensity score weighting. Propensity score weighting accounted for observed heterogeneity, or selection bias, in observational data (D'Agostino Jr., 1998; Guo & Fraser, 2010). The majority of research on young people's savings uses observational data and OLS estimates, methods inadequate for accounting for observed heterogeneity and balancing data. When all known covariates are included in OLS regression, the data will be successfully balanced and results will be unbiased (Guo & Fraser, 2010). However, given limited research on young people's savings, it is unlikely that researchers know all important covariates to include in OLS regression, suggesting bias may be present in existing research. Propensity score weighting can be used as an alternative because the propensity score is obtained by balancing, or resampling, the data based on assignment into designated treated (i.e., adolescents with savings accounts) and non-treated (i.e., adolescents without savings accounts) groups. This approach was used to account for observed heterogeneity and to improve balance within the data. Random ordering took place using the variable of interest (Guo & Fraser, 2010): adolescents with and without savings accounts. Significant covariates determined by balance checks were used to estimate propensity scores. The estimated propensity scores were used to compute the average treatment-effect-for-the-treated weight (ATT; i.e., the effect when considering only adolescents with savings accounts) for each imputed dataset. The ATT weight was estimated 1 for adolescents with

savings accounts and $p/(1-p)$ for adolescents without savings accounts, where p equals the propensity score.

In both the LMI and LI samples prior to applying the ATT weight, there was insufficient overlap of propensity scores, which violated the common support condition. This was resolved in both samples after applying the ATT weight. After applying the ATT weight, propensity scores in the LMI sample ranged from .024 to.951 with sufficient overlap, demonstrating compliance with the common support condition. In the LI sample, propensity scores ranged from .030 to .851 and there was sufficient overlap of propensity scores on adolescents' savings account.

Covariate balance checks. The third step was to conduct covariate balance checks through bivariate analyses of adolescents with and without savings accounts. Covariate balance checks determined whether observed heterogeneity existed after assigning adolescents into groups with and without savings accounts (Barth, Guo, & McCrae, 2008). Balance checks were performed using ATT weighted simple logistic regressions (Guo & Fraser, 2010). Results of the weighted simple logistic regressions are reported in Table 5 using regression coefficients and robust standard errors. Results for the LMI and LI samples suggested that the ATT weight successfully (or, in the case for the LI sample, mostly successfully) balanced the data and accounted for observed heterogeneity.

Multivariate (bivariate) probit model. The fourth step was to conduct bivariate probit models using the "mvprobit" command in STATA (version 11) to predict young adults' savings account and savings amount (±$500). When there is a significant correlation between outcomes (in this case, young adults' savings account and savings amount), a bivariate probit model can be used to account for whether the equations share the same unobservables in the error terms. The bivariate probit model estimated the two dichotomous dependent variables simultaneously while explicitly modeling the correlation in error terms using simulated maximum likelihood methods (Cappallari & Jenkins, 2003). The coefficient estimates from the bivariate probit model accounted for unobserved correlation among the outcomes. Therefore, the coefficients were less biased and more efficient than those produced by two independent models (Cappallari & Jenkins, 2003). The bivariate probit models were weighted using the ATT weight. Results can be found in Tables 6 and 7.

Table 2. Characteristics for the low-to-moderate income (LMI; *N* = 530) and low-income (LI; *N* = 354) samples

Covariates	LMI Sample [b] (*N* = 530)	LI Sample [a] (*N* = 354)	Bivariate Comparison Tests (χ^2 or *t*-test)
Base Model with Socio-Economic Status (SES) Variables			
Adolescents' race			
White	45	34	2.092
Black	55	66	
Adolescents' gender			
Male	47	53	.500
Female	53	47	
Adolescents' age in 2002	15.799 (1.174)	15.827 (1.177)	.347
Heads' education level	12.517 (2.039)	12.007 (1.835)	3.791***
Heads' occupational prestige	2.214 (1.810)	2.002 (1.783)	1.717
Household income			
Mean of household income	$39,859 ($19,388)	$28,743 ($12,428)	9.555***
Median of household income	$38,205 ($19,388)	$30,495 ($12,428)	
Log of household income	10.435 (.625)	10.139 (10.325)	.658
Household net worth			
Mean of household net worth	$65,564 ($117,612)	$37,909 ($83,893)	3.822***
Median of household net worth	$29,139 ($117,612)	$17,648 ($83,893)	
IHS of net worth	8.623 (6.287)	7.410 (6.858)	2.710**
Parents' savings for adolescents			
Parents' savings for adolescents	43	32	2.133
No parents' savings for adolescents	57	68	
Economic Socialization Variables			
Parental warmth scale	3.723 (.705)	3.704 (.738)	.385
Parental involvement scale	22.359 (4.781)	21.988 (4.922)	1.117
Adolescents' allowance			
Allowance + chores	28	29	.030
Allowance only	9	9	
No allowance	63	62	
Adolescents' financial expectations			
Expect financial stability	78	77	.029
Not expect financial stability	22	23	
Adolescents' Savings Variable (Institutional Access)			
Adolescents' savings account			
Adolescents with savings accounts in 2002	44	35	1.339
Adolescents without savings accounts in 2002	56	65	
Outcome Variables			
Young adults' age in 2007†	19.670 (1.212)	19.680 (1.227)	.120
Young adults' savings account			
Young adults with savings accounts in 2007	73	65	1.145
Young adults without savings accounts in 2007	27	35	
Young adults' savings amount			
Mean of young adults' savings amount	$1,569 ($2,696)	$1,272 ($2,489)	1.655
Median of young adults' savings amount	$390 ($2,696)	$200 ($2,489)	
Young adults with savings at or above $500 in 2007	46	38	3.095
Young adults with savings below $500 in 2007	54	62	

Source: EM imputed data from the Panel Study of Income Dynamics (PSID) and its Child Development Supplement (CDS) and Transition into Adulthood (TA) supplement.
Note. Percentages reported for categorical variables and means and standard deviations reported for continuous variables. †
Variables included for descriptive purposes only. Fisher's exact chi-square 2-tailed tests and t-tests were used to compare variables. ** *p* < .01; *** *p* < .001

Ordered logistic regression. In addition to bivariate probit models, ordered logistic regressions were run using quartiles of young adults' savings amount. These models were not run simultaneously with young adults' savings account, meaning that results from the ordered logit models do not account for significant correlations between outcomes like the bivariate probit models. However, ordered logit models were intended to offer alternative predictions for young adults' savings amount other than the dichotomous measure. In the LMI sample, quartile amounts included: (1) $0, (2) > $0 to < $390, (3) $390 to < $1,500, and (4) ≥ $1,500. In the LI sample, quartile amounts included (1) $0, (2) > $0 to < $200, (3) $200 to < $1,338, and (4) ≥ $1,338. Results are reported in the footnotes of Tables 6 and 7.

Splines of age, income, and net worth. As opposed to dividing continuous explanatory variables into categories, splines ensure continuity when the effect of the explanatory variable is thought to have a non-linear relationship with the dependent variable (Molinari, Duarès, & Durand, 2001; Royston & Sauerbrei, 2007). This paper included linear splines for age, log of household income, and IHS of household net worth in the bivariate probit analyses. Knots were set by the researchers in order to explore the possibilities of threshold values for age and household net worth. We were interested in exploring, for instance, whether there was an effect of age on young adults' savings for each additional year between ages 13 and 17. That is, the spline terms for age could be interpreted as the effect on young adults' savings (1) before age 14, (2) the effect between age 14 and before age 15, (3) the effect between age 15 and before age 16, and (4) the effect on young adults' savings at age 16 and older. Knots for household net worth were set at (1) ≤ 0, (2) > 0 to < 10, and (3) ≥ 10. In this way, the effect of household net worth on young adults' savings could be examined for varying degrees of positive and negative net worth. We might expect negative net worth to be negatively related to savings outcomes in young adulthood, whereas having positive net worth might be positively related to young adults' savings outcomes. Significant results might suggest that there could be net worth thresholds for achieving effects on young adults' savings. Knots for the log of household income were not set by the researchers. Rather, knots were set by the mkspline command in STATA to find the optimal location given that we did not have predetermined theories about thresholds for where knots should occur. Splines for the log of household income were knotted at the following: LMI sample (< $79,111): (1) ≤ 9.019, (2) > 9.019 to < 10.149, and (3) ≥ 10.149; LI sample (1) ≤ 8.865, (2) > 8.865 to < 9.840, and (3) ≥ 9.840.

Results

Descriptive results

Results for the LMI sample. In the LMI sample, less than half of adolescents (44%) had savings accounts in 2002, increasing to 73% by young adulthood in 2007. The median amount saved by young adulthood was $390. When the sample was disaggregated by demographic characteristics, large percentage point gaps emerged between those with and without savings accounts in 2002 and 2007 and the median amount saved in 2007. During adolescence, there were large percentage point

gaps by the splines of household income (log transformed) and net worth (IHS transformed). There was a 31 percentage point gap between the highest and lowest splines of income. There were percentage point gaps of 26 and 28 between high net worth and zero and negative and modest net worth, respectively. There was a percentage point gap of 38 between heads of households who had a college degree or more (75% of adolescents had savings accounts) and those who had a high school diploma or less (35% of adolescents had savings accounts). There was a percentage point gap of 32 between adolescents whose parents had and did not have savings on their behalf. In addition, there was a 28% point gap between white adolescents with savings accounts (59%) and black adolescents with savings accounts (31%). In many cases, percentage point gaps decreased by young adulthood in 2007 (though many remained sizeable), indicating that adolescents who were at a disadvantage made progress in closing gaps over time. Gaps in median amounts saved were also evident when the sample was disaggregated by demographic characteristics. For instance, adolescents who were white saved $800 by young adulthood compared to $100 saved by those who were black—a gap of $700. Similarly, there was a $700 gap between those who had savings accounts as adolescents and those who did not.

Results for the LI sample. In the LI sample, just over one third of adolescents (35%) had savings accounts in 2002, increasing to 65% by young adulthood in 2007. The median amount saved by young adulthood was $200—about half the median amount saved by the LMI sample. There were notable percentage point gaps when the LI sample was disaggregated by demographic characteristics, similar to the gaps in the LMI sample. However, while percentage point gaps may have been similar in some cases, adolescents and young adults in the LI sample started off at lower percentages in comparison to those in the LMI sample. For instance, in the LMI sample 53% of adolescents from high net worth households had savings accounts in 2002 compared with 43% from high net worth households in the LI sample. The percentage point gap between high and zero and negative household net worth was 26 in the LMI sample; however the sample percentage point gap in the LI sample was 15. Gaps in median amounts saved were also evident when the LI sample was disaggregated. For example, adolescents who were white saved $400 by young adulthood compared to $85 saved by adolescents who were black—a difference of $315. Young adults from high net worth households saved a median amount of $300. There was a gap in median amount saved of $455 between those who had savings accounts as adolescents ($500) compared to those who did not ($45).

Table 3. Percent of adolescents (ages 13 to 17) who had savings in 2002 and young adults (ages 18 to 22) who had savings and their median amount saved in the low-to-moderate income (LMI; *N* = 530) sample

Covariates	% of Adolescents with Savings Accounts in 2002	% of Young Adults with Savings Accounts in 2007	Young Adults' Median Savings Amount in 2007
Full Sample	44%	73%	$390
Base Model with Socio-Economic Status (SES) Variables			
White adolescents	59	85	$800
Black adolescents	31	62	$100
Male adolescents	40	69	$300
Female adolescents	47	76	$400
Adolescents ages < 14	47	81	$450
Adolescents ages 14 to < 15	36	68	$270
Adolescents ages 15 to < 16	45	71	$300
Adolescents ages ≥ 16	47	75	$400
Head has college degree or more	75	92	$900
Head has some college education	47	81	$300
Head has high school diploma or less	37	67	$300
Head works in white collar occupation	55	75	$500
Head works in blue collar occupation	42	77	$400
Head is not currently working	29	58	$60
Highest income (Log transformation [≥10.149])	50	80	$500
Modest income (Log transformation [> 9.019 to < 10.149])	27	53	$5
Lowest income (Log transformation [≤ 9.019])	19	56	$200
High net worth (IHS transformation [≥ 10])	53	81	$600
Modest net worth (IHS transformation [> 0 to < 10])	25	60	$100
Zero and negative net worth (IHS transformation [≤ 0])	27	54	$5
Parents have savings for adolescents	62	85	$650
Parents do not have savings for adolescents	30	64	$137
Economic Socialization Variables			
Above-average parental warmth	46	74	$350
Below-average parental warmth	41	72	$396
Above-average parental involvement	47	78	$510
Below-average parental involvement	40	67	$200
Adolescents receive allowance for chores	45	67	$200
Adolescents receive allowance only, no chores	49	63	$200
Adolescents do not receive any allowance	43	77	$400
Adolescents expect future financial stability	50	73	$400
Adolescents do not expect future financial stability	23	71	$150
Adolescents' Savings Variable (Institutional Access)			
Adolescents with savings accounts in 2002	--	85	$800
Adolescents without savings accounts in 2002	--	63	$100

Source: EM imputed from the Panel Study of Income Dynamics and its 2002 Child Development (CDS) and 2007 Transition into Adulthood (TA) Supplements.

Note. Row percentages are reported.

Covariate balance results

The results are reported for the bivariate probit models using the ATT weight given that the LMI and LI samples were more successfully balance with propensity score weighting.

Results for the LMI sample. In the LMI sample ($N = 530$), many of the variables (adolescents' race, age, and financial expectations; heads of households' education level, occupational prestige, and parents' savings for adolescent; and household's income and net worth) showed significant group differences between adolescents with and without savings accounts. For instance, adolescents with savings accounts on average were significantly more likely to be White than Black ($\beta = 1.242$, $SE = .241$, $p < .001$) and were significantly older ($\beta = .189$, $SE = .097$, $p = .051$). Their heads of households had significantly more education ($\beta = .329$, $SE = .062$, $p < .001$) and more prestigious occupations ($\beta = .204$, $SE = .063$, $p < .001$). Adolescents with savings accounts also expected future financial stability more often than adolescents without savings accounts ($\beta = 1.524$, $SE = .306$, $p < .001$). All significant variables were used to compute propensity scores in the LMI sample. Following the ATT weight, group differences on all variables were no longer significant at $p < .05$ or $p < .10$.

Results for the LI sample. In the LI sample ($N = 354$), the following variables were significant: race ($\beta = .831$, $SE = .286$, $p = .004$), head's education level ($\beta = .274$, $SE = .088$, $p = .002$), log of household income ($\beta = 1.084$, $SE = .301$, $p < .001$), parents' savings for adolescent ($\beta = 1.399$, $SE = .322$, $p < .001$), and adolescents' financial expectations ($\beta = 1.157$, $SE = .421$, $p = .006$). These variables were used to compute propensity scores in the LI sample. Following application of the ATT weight, these variables were no longer significant. However, significant differences emerged by adolescents' age ($\beta = .281$, $SE = .109$, $p = .010$), indicating that adolescents who had savings accounts were significantly older ($M = 16.002$, $SD = 1.174$) than those who did not have savings accounts ($M = 15.611$, $SD = 1.183$) in the LI sample weighted by the ATT weight. To conserve space, these results for the LI sample are available in the footnote of Table 5.

Table 4. Percent of adolescents (ages 13 to 17) who had savings in 2002 and young adults (ages 18 to 22) who had savings and their median amount saved in the low-income sample (LI; *N* = 354)

Covariates	% of Adolescents with Savings Accounts in 2002	% of Young Adults with Savings Accounts in 2007	Young Adults' Median Savings Amount in 2007
Full Sample	35%	65%	$200
Base Model with Socio-Economic Status (SES) Variables			
White adolescents	45	78	$400
Black adolescents	29	59	$85
Male adolescents	32	60	$200
Female adolescents	37	70	$200
Adolescents ages < 14	37	68	$300
Adolescents ages 14 to < 15	24	63	$100
Adolescents ages 15 to < 16	32	60	$112
Adolescents ages ≥ 16	40	69	$300
Head has college degree or more	80	100	$500
Head has some college education	36	76	$170
Head has high school diploma or less	32	60	$100
Head works in white collar occupation	42	69	$385
Head works in blue collar occupation	34	68	$200
Head is not currently working	27	57	$10
Highest income (Log transformation [≥ 9.840])	39	69	$275
Modest income (Log transformation [8. 865to < 9.840])	20	55	$10
Lowest income (Log transformation [< 8.865])	30	50	$50
High net worth (IHS transformation [≥ 10])	43	74	$300
Modest net worth (IHS transformation [> 0 to < 10])	24	57	$80
Zero and negative net worth (IHS transformation [≤ 0])	28	52	$3
Parents have savings for adolescents	57	81	$500
Parents do not have savings for adolescents	25	58	$40
Economic Socialization Variables			
Above-average parental warmth	36	63	$100
Below-average parental warmth	34	69	$300
Above-average parental involvement	35	69	$300
Below-average parental involvement	34	60	$90
Adolescents receive allowance for chores	34	58	$100
Adolescents receive allowance only, no chores	44	47	$0
Adolescents do not receive any allowance	34	71	$300
Adolescents expect future financial stability	39	64	$190
Adolescents do not expect future financial stability	20	70	$200
Adolescents' Savings Variable (Institutional Access)			
Adolescents with savings accounts in 2002	--	79	$500
Adolescents without savings accounts in 2002	--	58	$45

Source: EM imputed data from the Panel Study of Income Dynamics and its 2002 Child Development (CDS) and 2007 Transition into Adulthood (TA) Supplements.
Note. Row percentages are reported.

Bivariate probit results predicting young adults' savings for the LMI sample ($N = 530$)

Bivariate probit correlation. The bivariate probit results are presented in Table 6. The correlation between young adults' savings account and savings amount for the LMI sample was significant and positive ($r = .819$; $SE = .068$; $p < .001$), suggesting that equations for each outcome shared the same unobservables in the error terms. The expected unconditional relationship between young adults' savings account and savings amount was removed by including the independent variables.

Model 1: Savings account. Significant predictors of young adults' savings account included adolescents' race, IHS of household net worth, parental warmth, and adolescents' savings account. White adolescents were 40% more likely to have savings accounts as young adults compared with black adolescents ($OR = 1.400$, $p = .040$). There were significant predictions by the IHS of household net worth. For example, having zero or negative household net worth was negatively related to having a savings account in young adulthood ($OR = .841$, $p < .001$). An additional point increase in the IHS of household net worth, when the threshold was zero or negative, led to approximately a 16% decrease in the odds of having a savings account in young adulthood. However, having positive net worth was positively related to having a savings account in young adulthood ($OR = 1.179$, $p = .002$). That is, an additional point increase in the IHS of household net worth between > 0 and < 10 led to an 18% increase in the odds of having a savings account in young adulthood. Every additional point increase in parental warmth resulted in a 27% increase in the odds of having a savings account in young adulthood ($OR = 1.266$, $p = .046$). Adolescents with savings accounts were 65% more likely to have savings accounts as young adults compared to adolescents without savings accounts ($OR = 1.650$, $p < .001$).

Table 5. Covariate balance checks by adolescents' savings account in 2002 in the low-to-moderate income (LMI; $N = 530$) and low-income (LI; $N = 354$; results reported in footnote) samples, before and after applying the ATT weight [a]

Covariates	LMI Sample (N = 530)				ATT Weighted LMI Sample (N = 530)			
	No Savings Account (%)	Savings Account (%)	β	Robust SE	No Savings Account (%)	Savings Account (%)	β	Robust SE
Race			1.242	.241***			.261	.241
White	33	61			55	61		
Black	67	39			45	39		
Gender			-.272	.236			-.201	.249
Male	50	43			48	43		
Female	50	57			52	57		
Adolescents' age	15.721	15.899	.189	.097*	15.894	15.899	.005	.091
Heads' education level	12.025	13.149	.329	.062***	13.137	13.149	.003	.076
Heads' occupational prestige	1.909	2.606	.204	.063***	2.473	2.606	.041	.073
Log of household income	10.283	10.630	1.526	.235***	10.620	10.630	.035	.226
IHS of household net worth	7.617	9.914	.105	.029***	9.498	9.914	.013	.020
Parents' savings for adolescent			1.299	.243***			.067	.233
Has savings	29	61			59	61		
Does not have savings	71	39			41	39		
Parental warmth	3.691	3.765	.117	.178	3.786	3.765	-.049	.165
Parental involvement	22.143	22.637	.048	.027	22.351	22.637	.012	.025
Adolescents' allowance								
Allowance + chores	27	28	.103	.281	28	28	.044	.310
Allowance only	8	10	.244	.385	9	10	.237	.479
No allowance	64	61			63	61		
Adolescents' financial expectations			1.524	.306***			.225	.289
Expect financial stability	70	88			86	88		
Not expect financial stability	30	12			14	12		
N	298	232			215	232		

Source. EM imputed data from the Panel Study of Income Dynamics (PSID) and its Child Development Supplement (CDS).

Note. [a] ATT = the average treatment effect for the treated using the weight of 1 for adolescents with savings accounts in 2002 and $p/(1-p)$ for adolescents without savings accounts in 2002. β = regression coefficients. Robust *SE* = robust standard error. In the LI sample (< $50,000; $N = 354$), the following covariates were significant: race (β = .831, *SE* = .286, $p = .004$), head's education level (β = .274, *SE* = .088, $p = .002$), log of household income (β = 1.084, *SE* = .301, $p < .001$), parents' savings for adolescent (β = 1.399, *SE* = .322, $p < .001$), and adolescents' financial expectations (β = 1.157, *SE* = .421, $p = .006$). These variables were used to compute propensity scores in the LI sample. Following application of the ATT weight, these variables were no longer significant. However, there was a significant difference by adolescents' age (β = .281, *SE* = .109, $p = .010$), indicating that adolescents who had savings accounts were significantly older (*M* = 16.002, *SD* = 1.174) than those who did not have savings accounts (*M* = 15.611, *SD* = 1.183) in the LI sample weighted by the ATT weight.
* $p < .05$; *** $p < .001$

Model 2: Savings amount (± $500). Significant predictors included IHS of household net worth, parental involvement, and adolescents' savings account. There were significant predictions by the IHS of household net worth. Having zero and negative net worth was negatively related to having savings at or above $500 in young adulthood (*OR* = .788, *p* < .001). An additional point increase in the IHS of household net worth, when the threshold was at or below 0, led to a 21% decrease in the odds of having savings at or above $500 in young adulthood. However, having IHS of household net worth > 0 and < 10 was positively related to savings amount (*OR* = 1.265, *p* < .001). That is, an additional point increase in the IHS of household net worth between > 0 and < 10 led to a 27% increase in the odds of having savings at or above $500 in young adulthood. Every additional point increase in parental involvement resulted in a 5% increase in the odds of having savings at or above $500 in young adulthood (*OR* = 1.049, *p* = .008). Adolescents with savings accounts were 65% more likely to have savings at or above $500 as young adults compared to adolescents without savings accounts (*OR* = 1.645, *p* = .002).

Bivariate probit results predicting young adults' savings for the LI sample (*N* = 354)

Bivariate probit correlation. The bivariate probit results are presented in Table 6. The correlation between young adults' savings account and savings amount for the LI sample was significant and positive (*r* = .860; *SE* = .091; *p* < .001), suggesting that equations for each outcome shared the same unobservables in the error terms. The expected unconditional relationship between young adults' savings account and savings amount was removed by including the independent variables.

Model 3: Savings account. Significant predictors of young adults' savings account included adolescents' gender, head of households' education level, IHS of household net worth, adolescents' financial expectations, and adolescents' savings account. Male adolescents were about 31% less likely compared to female adolescents to have savings accounts as young adults (*OR* = .691, *p* = .030). Every additional year of head of households' education level resulted in an 11% increase in the odds of having a savings account in young adulthood (*OR* = 1.110, *p* = .036). An additional point increase in the IHS of household net worth, when the threshold was at or below 0, led to approximately an 18% decrease in the odds of having a savings account in young adulthood (*OR* = .824, *p* < .001). However, having positive net worth, when the IHS of net worth was between > 0 and < 10, was positively related to having a savings account in young adulthood (*OR* = 1.229, *p* < .001). That is, an additional point increase in the IHS of household net worth between > 0 and < 10 led to approximately a 23% increase in the odds of having a savings account in young adulthood. Adolescents who expected financial stability were about 46% less likely to have savings accounts as young adults compared to adolescents who did not expect financial stability (*OR* = .539, *p* = .017). Adolescents with savings accounts were 50% more likely to have savings accounts as young adults compared to adolescents without savings accounts (*OR* = 1.502, *p* = .028).

Model 4: Savings amount (± $500). Household net worth was the only significant predictor of young adults' savings amount. An additional point increase in the IHS of household net worth, when the threshold was at or below 0, led to approximately an 18% decrease in the odds of having savings at or above $500 in young adulthood (*OR* = 1.817, *p* < .001). An additional point increase in the IHS of household net worth, when the threshold was between > 0 and < 10, led to a 23% increase in the odds of having savings at or above $500 in young adulthood (*OR* = 1.226, *p* < .001).

Bivariate probit results with interaction terms predicting young adults' savings

Interaction terms were added between key SES and economic socialization variables with adolescents' savings account in the LMI (*N* = 530) and LI (*N* = 354) samples. Interactions predicting young adults' savings account were significant in both samples. There were no significant interactions predicting amount saved. Therefore, only significant results from Models 5 and 7 that predict young adults' savings account are reported here. Complete results can be found in Table 7.

Model 5: Savings account in the LMI sample. There was a significant, positive interaction between adolescents' savings account and the IHS of household net worth (β = .062, *SE* = .025, *OR* = 1.064, *p* = .013). This indicated that the positive relationship between adolescents' savings account and young adults' savings account was present and strongest when households had higher net worth (IHS transformed). Adolescents appeared to be about 6% more likely to have a savings account in young adulthood for every point increase in the IHS of household net worth. See Figure 1 for a graphical display of this interaction, which uses categories based on the splines of the IHS of household net worth as cutoff points. There was a significant, negative interaction between adolescents' savings account and adolescents' allowance (β = -.454, *SE* = .180, *OR* = .635, *p* = .012). This indicated that the negative relationship between adolescents' savings account and young adults' savings account was present and strongest when adolescents received an allowance plus chores and weakest when adolescents did not receive any allowance. Adolescents appeared to be about 36% less likely to have a savings account in young adulthood when they received allowances that were contingent upon chores compared to adolescents who received no allowances. See Figure 2 for a graphical display of the interaction between adolescents' savings account and allowance.

Table 6. Bivariate probit estimates: Young adults' savings account and savings amount (±$500) with low-to-moderate income (LMI) and low-income (LI) samples (ATT weighted)

Covariates	LMI Sample (< $79,111)						LI Sample (< $50,000)					
	Savings Account (Model 1)			Savings Amount (±$500) (Model 2)			Savings Account (Model 3)			Savings Amount (±$500) (Model 4)		
	β	SE	OR	β	SE	OR	β	SE	OR	β	SE	OR
Base Model with Socio-Economic Status (SES) Variables												
White	.333*	.162	1.400	.259	.169		.150	.206		-.034	.212	
Male	-.158	.162		.022	.155		-.370*	.170	.691	.021	.177	
Adolescents' age: < 14	-2.166	1.442		-1.608	1.033		1.354	1.537		.170	1.393	
14 to < 15	-.321	.452		.238	.392		-.476	.516		.273	.461	
15 to < 16	.593	.391		-.076	.337		.071	.385		-.414	.373	
≥ 16	-.183	.174		-.003	.163		.081	.185		.154	.215	
Heads' education level	.021	.048		-.035	.043		.103*	.049	1.110	.025	.046	
Heads' occupational prestige	.074	.050		.032	.045		.037	.055		.052	.054	
Log of household income: Splines [a, b]												
Spline 1: Lowest income	.342	.783		-1.600	.872		.454	.966		-.404	1.025	
Spline 2: Modest income	-.251	.384		-.104	.386		-.333	.550		-.836	.557	
Spline 3: Highest income	.245	.268		-.075	.248		-.231	.331		.095	.323	
IHS of household net worth: Splines												
≤ 0: Zero and negative net worth	-.173***	.051	.841	-.238***	.058	.788	-.193***	.049	.824	-.202***	.056	.817
> 0 to < 10: Moderate net worth	.165**	.054	1.179	.235***	.059	1.265	.206***	.050	1.229	.204***	.057	1.226
≥ 10: High net worth	.043	.121		.017	.088		.122	.109		.154	.103	
Parents have savings for adolescent	.094	.157		.217	.147		.146	.185		.339	.183	
Economic Socialization Variables												
Parental warmth	.236*	.118	1.266	.060	.111		.052	.127		.078	.140	
Parental involvement	.029	.018		.048**	.018	1.049	.033	.021		.027	.020	
Adolescents' allowance + chores	-.148	.180		-.265	.191		-.201	.228		-.087	.207	
Adolescents' allowance only	-.049	.294		.045	.263		-.491	.319		-.273	.300	
Adolescents expect financial stability	-.061	.232		.257	.216		-.618*	.258	.539	.226	.233	
Adolescents' Savings Variable (Institutional Access)												
Adolescents have savings accounts	.501***	.152	1.650	.498**	.162	1.645	.407*	.186	1.502	.341	.182	
N		530			530			354			354	
Constant	24.291	21.097	p = .250	32.939	16.452	p = .045	-25.353	23.189	p = .274	-2.178	21.280	p = .918
Correlation coefficient (rho21)	.819	.068	p < .001				.860	.091	p < .001			
Draws = 5 Log pseudolikelihood = -416.711							Draws = 5 Log pseudolikelihood = -232.984					

Wald χ2 = 140.570***   Wald χ2 = 112.180***

Source. EM imputed data from the Panel Study of Income Dynamics (PSID) and its Child Development (CDS) and Transition into Adulthood (TA) supplements.

Note. [a] Log of household income splines for the LMI sample (< $79,111): income (1) ≤ 9.019, (2) > 9.019 to < 10.149, (3) ≥ 10.149. [b] Log of household income splines for the LI sample (< $50,000): income (1) ≤ 8.865, (2) > 8.865 to < 9.840, (3) ≥ 9.840. ATT = the average treatment effect for the treated using the weight of 1 for adolescents with savings and $p/(1-p)$ for adolescents without savings. β = regression coefficients. Robust *SE* = robust standard error. *OR* = odds ratio.

* p < .05; ** p < .01; *** p < .001

Ordered logit results. LMI sample (< $79,111): For a one point increase in zero and negative household net worth, there was a 29% decrease in the odds of having the highest savings amount quartile versus the combined lower quartile amounts (β = -.338, *SE* = .100, *OR* = .713, p < .001). For a one point increase in moderate household net worth, there was a 41% increase in the odds of having the highest savings amount quartile versus the combined lower quartile amounts (β = .343, *SE* = .095, *OR* = 1.406, p < .001). For a one point increase in parental involvement, there was a 5% increase in the odds of having the highest savings amount quartile versus the combined lower quartile amounts (β = .050, *SE* = .025, *OR* = 1.051, p = .043). For adolescents with savings accounts, the odds of having the highest quartile versus the combined lower quartile was over 2 times greater compared to adolescents without savings accounts (β = .786, *SE* = .133, *OR* = 2.195, p < .001). LI sample (< $50,000): For a one point increase in zero and negative household net worth, there was a 26% decrease in the odds of having the highest savings amount quartile versus the combined lower quartile amounts (β = -.295, *SE* = .071, *OR* = .745, p < .001). For a one point increase in moderate household net worth, there was a 41% increase in the odds of having the highest savings amount quartile versus the combined lower quartile amounts (β = .341, *SE* = .078, *OR* = 1.046, p < .001). For adolescents with savings accounts, the odds of having the highest quartile versus the combined lower quartile was 2 times greater compared to adolescents without savings accounts (β = .744, *SE* = .282, *OR* = 2.104, p = .008).

Figure 1. Interaction between adolescents' savings account in 2002 and the IHS of household net worth in the LMI sample (*N* = 530).
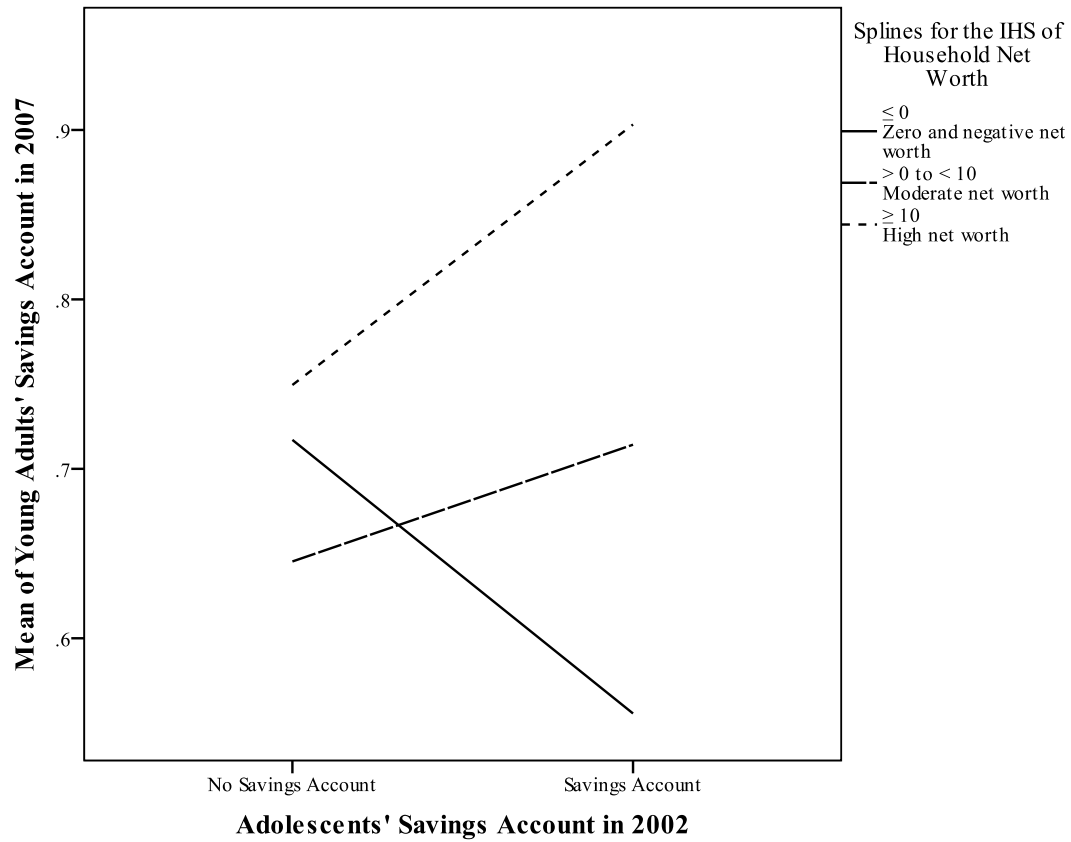
Notes. Cross-level interaction between adolescents' savings account in 2002 and the IHS of household net worth in predicting young adults' savings account in 2007 in the ATT weighted sample. Numbers on both X and Y axes range from 0 = no savings account to 1 = savings account. Categories based on splines for the IHS of household net worth are used to display the interaction. The figure representing the interaction in the LI sample (*N* = 354) was similar, with the exception that there was a steeper incline for moderate net worth (> 0 to < 10) and a gentler decline for zero and negative net worth (≤ 0).

Figure 2. Interaction between adolescents' savings account and allowance in 2002 in the LMI sample
($N = 530$).
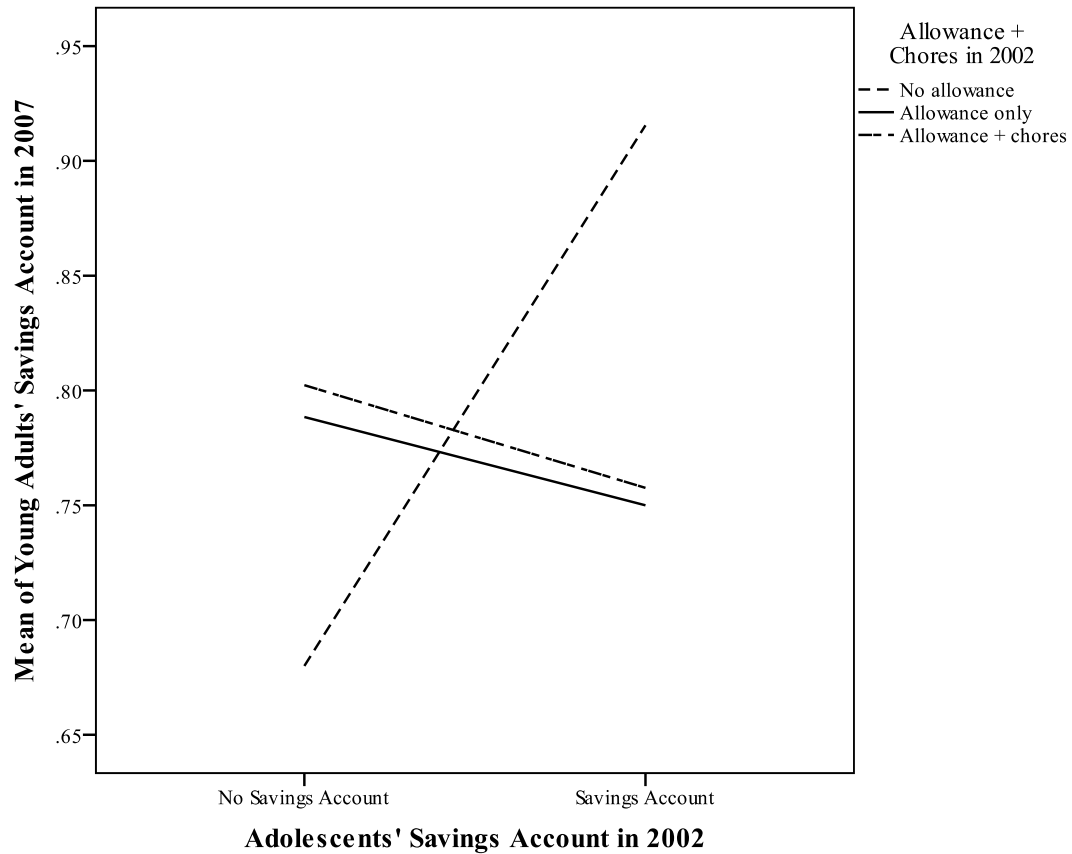
Notes. Cross-level interaction between adolescents' savings account and allowance in 2002 in predicting young adults' savings account in 2007 in the ATT weighted sample. Numbers on both X and Y axes range from 0 = no savings account to 1 = savings account.

Model 7: Savings account in the LI sample. There was a significant, positive interaction between adolescents' savings account and the IHS of household net worth ($\beta = .049$, $SE = .024$, $OR = 1.050$, $p = .041$). This indicated that the positive relationship between adolescents' savings account and young adults' savings account was present and strongest when households had higher net worth (IHS transformed). Adolescents appeared to be about 5% more likely to have a savings account in young adulthood for every point increase in the IHS of household net worth. Given that the graphical display for the LI sample was similar to that of the LMI sample, another figure displaying this interaction for the LI sample was not included. Please see Figure 1 for a graphical display of this interaction in the LMI sample, which was similar for the graphical display in the LI sample.

Table 7. Bivariate probit estimates with interaction terms: Young adults' savings account and savings amount (±$500) with low-to-moderate income (LMI) and low-income (LI) samples (ATT weighted)

| Covariates | LMI Sample (< $79,111) | | | | | | LI Sample (< $50,000) | | | | | |
| | Savings Account (Model 5) | | | Savings Amount (±$500) (Model 6) | | | Savings Account (Model 7) | | | Savings Amount (±$500) (Model 8) | | |
	β	SE	OR	β	SE	OR	β	SE	OR	β	SE	OR
Interaction Terms												
Adolescents' savings accounts x IHS of household net worth	.062*	.025	1.064	.031	.025		.049*	.024	1.050	-.035	.022	
Adolescents' savings accounts x Parents savings for adolescent	-.186	.321		.137	.294		-.222	.349		.098	.356	
Adolescents' savings accounts x Parental warmth	-.205	.223		-.059	.208		-.133	.258		.112	.254	
Adolescents' savings accounts x Parental involvement	-.047	.037		-.049	.036		-.062	.044		-.036	.040	
Adolescents' savings accounts x Adolescents' allowance	-.454*	.180	.635	-.096	.181		-.119	.205		.045	.190	
Adolescents' savings accounts x Financial expectations	-.145	.480		.076	.442		-.277	.677		.146	.432	
N			530			530			354			354
Constant	-6.165	1.816	p = .001	-3.475	1.914	p = .069	-3.192	2.266	p = .159	-3.088	2.133	p = .148
Correlation coefficient (rho21)	.848	.083	p < .001				.909	.077	p < .001			p < .001
Draws = 5 Log pseudolikelihood = -221.306							Draws = 5 Log pseudolikelihood = -238.184					
Wald χ2 = 169.200***							Wald χ2 = 112.020***					

Source. Imputed data from the Panel Study of Income Dynamics (PSID) and its Child Development (CDS) and Transition into Adulthood (TA) supplements.
Note. Only results from the interactions are reported. ATT = the average treatment effect for the treated using the weight of 1 for adolescents with savings and $p/(1-p)$ for adolescents without savings. β = regression coefficients. Robust *SE* = robust standard error. *OR* = odds ratio.
* $p < .05$
Ordered logit results. LMI sample (< $79,111): There was a significant interaction between adolescents' savings account and the IHS transformation of household net worth at trend level (β = .076, *SE* = .041, *OR* = 1.079, $p = .065$) when predicting savings amount quartiles. LI sample (< $50,000): There were no significant interactions in the ordered logit model for the LI sample.

Discussion

While researchers and policy makers are enthusiastic about the potential of asset-building innovations for young people from lower-income households, a limited number of studies test whether early access to savings accounts leads to the desired economic outcomes. This paper aimed to examine a key question of inquiry in young people's savings research: whether or not young adults from lower income households experienced continued and significantly better savings outcomes when they had savings accounts as adolescents. Such information may allude to young adults' ability to invest in human capital development (e.g., college attendance) and experience economic stability (e.g., whether they have assets to endure unexpected events like unemployment). In addition, findings that are supportive of asset-building innovations may mean that early access to savings accounts may improve the chances of experiencing upward mobility by climbing the economic ladder later in life.

Young adults' savings account in 2007

Our findings in both lower-income samples support the supposition that access to savings accounts in adolescence predicts savings account ownership in young adulthood. This finding is consistent with previous research (Ashby, et al., 2011; Elliott, Webley, et al., 2011; Friedline & Elliott, 2011; Friedline, Elliott, et al., 2011) and the institutional model of saving (Sherraden, 1991). Ashby and colleagues (2011) analyze data from 2,361 British young people with path analysis, finding that young people's self-reported saving at age 16 was directly related to saving at age 34. Friedline, Elliott, et al. (2011) analyze an aggregate sample of 1,003 young people from the PSID with propensity score analysis and find that having a savings account in adolescence (ages 12 to 17) significantly predicts having a savings account in young adulthood (ages 17 to 23).

Of interest is the significant relationship between household net worth and young adults' savings account in both the LMI and LI samples. We used splines to test whether there were net worth thresholds necessary for achieving effects on young adults' savings outcomes. Zero and negative household net worth was negatively related to young adults' savings account, while positive household net worth was positively related to young adults' savings account. The significant relationships in both positive and negative directions using splines suggest a non-linear relationship between household net worth and young adults' savings account. In addition, there was a significant, positive interaction between household net worth and adolescents' savings account for predicting young adults' savings account in both samples. Despite small effects, this suggests that the relationship between adolescents' and young adults' savings accounts is present and strongest when there are increases in household net worth. This suggests that even among lower-income households, households' economic resources still play a role in adolescents' and young adults' savings.

Previous research regarding the relationship between household net worth and savings account ownership is mixed. Research that uses cross-sectional data and bivariate tests finds a significant relationship between household net worth (and assets more broadly like parents' savings and home ownership; Mason, et al., 2010) and savings (Kim, La Taillade, et al., 2011; Pritchard, et. al., 1989). Kim, La Taillade, et al., (2011) use a cross-sectional sample of 1,471 young people ages 12 to 18 from the PSID / CDS and find that household net worth (natural log transformed) is significantly related to owning a savings account. In research that uses multivariate analyses with longitudinal data, household net worth is typically not predictive of owning a savings account (Friedline & Elliott, 2011; Friedline, Elliott, et al., 2011). One exception is a recent study by Elliott, Webley, et al. (2011) that uses an aggregate sample of 694 young adults from the PSID analyzed with path analysis. They find that the IHS of household net worth is significantly related to having a savings account in young adulthood. The mixed findings may be explained by different data (cross-sectional vs. longitudinal), methodologies (propensity score analysis and regression vs. path analysis), and transformations of net worth (categorical vs. natural log vs. IHS). It may also be that studies assume a linear relationship between household net worth and young adults' savings account. Our findings provide some evidence suggesting that this relationship is non-linear.

Among economic socialization variables, parental warmth was significant in the LMI sample. In this study, the parental warmth scale was based on observations made by PSID researchers when interviewing parents and observing parents' interactions with adolescents. It appears that for the LMI sample, having parents who interacted with adolescents by displaying physical affection, encouraging adolescents' contributions to conversations, or offering verbal praise was significantly related to their savings as young adults. This finding is consistent with theoretical development and some previous research on economic socialization (Ashby, et al., 2011; Kim, La Taillade, et al., 2011). Researchers propose that economic socialization may be more successful when parents display greater degrees of warmth (e.g., Weiss & Schwarz, 1996). In turn, parents' greater displays of warmth may significantly improve young people's future expectations (Ashby, et al., 2011), a variable commonly linked with saving (Ashby, et al., 2011; Friedline, Elliott, et al., 2011; Webley & Nyhus, 2006).

In the LI sample, adolescents' financial expectations were significantly and negatively related to young adults' savings account. That is, adolescents who reportedly thought financially supporting themselves and their families by age 30 was "pretty likely" or were convinced that "it will happen" were less likely to have savings accounts. The relationship was also negative for the LMI sample, albeit not significant. It may be that for the LI sample, adolescents used current household information to develop their expectations for future financial stability. Given that their households had low-incomes (median $30,495) and net worth (median $17,648), they may have been less likely to have savings accounts despite their high expectations, resulting in a negative relationship. Future research may want to consider interactions between household income and net worth with adolescents' financial expectations for predicting savings outcomes later in life.

Finally, there was a significant, negative interaction between adolescents' allowance and savings account in predicting young adults' savings account. Adolescents with savings accounts and without allowances were significantly more likely to have savings accounts as young adults, suggesting that parents who socialize adolescents by giving allowances may inhibit their access to savings accounts. In other words, economic socialization via allowances may potentially delay access to banking institutions if used as a substitute for savings accounts. This may seem counterintuitive; however, a review of research by Mandell (2010) presented at the Consumer Federation of America Financial Services Conference in Washington, DC suggests that those who receive allowances perform poorly on several indicators—including financial literacy tests. There are only two studies that simultaneously test for adolescents' savings and allowance to predict later savings outcomes (Ashby, et al., 2011; Elliott, Webley, et al., 2011). Ashby et al. (2011) find that adolescents' allowance is not directly related to young adults' savings at age 34. Similarly, Elliott, Webley, and colleagues (2011) find that adolescents' allowance is not significantly related to young adults' savings account at ages 18 to 22.

Young adults' savings amount in 2007

In terms of savings amount, adolescents' savings account predicted accumulating savings at or above $500 for the LMI sample. Less than half (46%) had savings at or above $500 in young adulthood, suggesting that a notable percentage of those from LMI households has difficulty accumulating savings greater than the proposed initial deposit of an ASPIRE Act savings account. This percentage was even lower for young adults from LI households (38%). Young adults from the LMI sample were more likely to have savings at or above $500 when they had savings accounts as adolescents. Multivariate findings are mixed compared to previous research. Friedline, Elliott, et al. (2011) find that adolescents' savings account does not significantly predict a median amount saved of $500 in an aggregate sample of 1,003 young people ages 17 to 23. In separate samples of blacks and whites, Friedline and Elliott (2011) do not find a significant relationship between adolescents' savings account and young adults' median amounts saved. Instead, studies find that household assets played a greater role in predicting savings amounts. In a statewide experimental study in Oklahoma (SEED OK), researchers find that participants in the experimental group ($N = 1,340$) who were assigned 529 college savings accounts accumulated significantly more assets compared to those in the control group who were not assigned 529s (Nam, Kim, et al., 2011). Ssewamala and Ismayilova (2009) conduct an experimental study with orphaned adolescents (mean age 13.72) in Uganda (the Suubi Project), finding that adolescents in the experimental group who had savings accounts saved significantly more per month compared with those in the control group. In the latter two studies, savings accounts in the experimental groups were incentivized with match contributions to increase asset accumulation, which was not the case with the current study.

Splines of the IHS of household net worth significantly predicted savings amount in the LMI and LI samples, similar to results predicting savings account ownership. Zero and negative household net

worth was significantly and negatively related to young adults' savings amount while positive household net worth was significant and positive. These findings suggest a potentially non-linear relationship between household net worth and young adults' savings amount. Research on the relationship between household net worth and savings amount is limited; however, the relationship is often positive and significant (Friedline & Elliott, 2011; Friedline, Elliott, et al., 2011; Nam, Kim, et. al., 2011). Friedline, Elliott, et al. (2011) analyze a sample of 1,003 young adults ages 17 to 23 from the PSID / TA with propensity score analysis and logistic regressions, finding that household net worth (natural log transformed) was significantly related to savings at or above $500.

There was evidence for economic socialization from results predicting savings amount in the LI sample. Young adults were more likely to have savings at or above $500 when their parents were more involved with them as adolescents. The parental involvement scale asked adolescents the extent to which their parents knew how they spent their free time, what they did on the weekends, who their friends were, and most notably, how adolescents spent their money. It may be that in the LI sample, adolescents who reported their parents were more involved also experienced greater economic socialization and had some guidance from parents about how to spend and save their money.

Limitations

The results of this study should be considered in light of several limitations. One limitation is that there is not much time between adolescence (ages 13 to 17) and young adulthood (ages 18 to 22). This is a notable limitation because in some cases, the time between baseline and outcome is only one year, for example, with those who are age 17 in adolescence and age 18 in young adulthood. Splines for age were used in order to better account for the effects of age thresholds on later savings outcomes; however, future research should test whether early access to savings accounts leads to improved savings outcomes with a longer time frame between baseline and outcome.

Another limitation is the construction of the low-income samples. The LMI sample was constructed using a cutoff based on information from a U.S. Census Bureau report (De Navas-Walt, et al., 2008). In this report, income quintiles were created based on census data: (1) $0 to $11,551, (2) $11,552 to $29,442, (3) $29,443 to $49,968, (4) $49,969 to $79,111, (5) $79,112 to $167,971, and (6) greater than $167,971. Before restricting the sample, approximately 41% of the aggregate sample (N = 694) had incomes between zero and $49,968, and an additional 28% had incomes between $49,969 and $79,111. The decision was made to combine the first four categories (< $79,111) to create the LMI sample (N = 530). By categorizing the LMI sample in this way, there was a larger sample size, thus improving statistical power. In addition, results were intended to represent households with low *and* moderate incomes. A subset of the LMI sample was created by restricting the sample to household incomes < $50,000—the LI sample ($N$ = 354)—in order to examine results for a representative sample of households with low incomes. However, if young people's

savings is intended to improve economic mobility among the lowest-income households, research should investigate whether early savings predicts later savings outcomes particularly for those from households with incomes below $11,551 or $29,442. This was not possible here as only 19% ($N =$ 132) of the aggregate sample had incomes below $29,442. Splines for the log of household income were included to better account for effects for the lowest-income households.

A third limitation is the use of propensity score weighting. Propensity score weighting may increase random error in the estimates due to endogeneity and specification of the propensity score estimation equation (Freedman & Berk, 2008). In some cases, propensity score weighting has been found to exaggerate endogeneity (Freedman & Berk, 2008). Adolescents' savings account may be endogeneous if assignment into the treated (i.e., with savings accounts) and non-treated (i.e., without savings accounts) groups correlated with unobserved covariates that impact their savings in young adulthood. Relatively few studies examine predictors of adolescents' or young adults' savings and it is likely that we do not yet know all of the relevant or important predictors of young adults' savings. As a result, endogeneity may be introduced due to unknowingly omitting relevant or important predictors from this study. More research is needed that predicts adolescents' and young adults' savings.

A fourth limitation has to do with interpretation of the results. It is possible that inertia helps explain the relationship between early and later savings account ownership. Once a savings account is opened, it may lead to continued savings later in life (whether or not it is used) because of inertia. This means having a savings account as an adolescent could predict owning (but not necessarily using) a savings account as a young adult. Based on the amounts held in savings accounts, there is indication that young people use their accounts to some degree and inertia may only explain part of our findings.

A final limitation is that this study does not test the effects on savings outcomes when young people grow up with savings accounts. That is, asset-building approaches for young people are based on the premise that outcomes can be improved if young people grow up with the knowledge that they have savings accounts (Elliott & Beverly, 2011; Elliott, Destin, et al., 2011); according to this model, young people with accounts would begin the asset-building process sooner, which could allow for accumulation of greater assets, and, may begin planning for their futures earlier. The ASPIRE Act, for instance, proposes establishing savings accounts at birth. In this study, savings accounts are measured at baseline in adolescence, at ages 13 to 17.

Implications

Findings from this study have several implications for theory, research, and policy. Results confirm that young adults from lower-income households who have access to savings accounts as adolescents fair better with regard to economic well-being than those who do not have access as

adolescents, in terms of their savings accounts and amounts saved. This suggests that adolescents and young adults from lower-income households may indeed benefit from a policy like the ASPIRE Act, which aims to reduce or eliminate differences in account ownership and to improve economic well-being.

This study also highlights the complicated relationships between household net worth and adolescents' and young adults' savings. Young adults' savings outcomes were progressively worse as negative net worth increased (e.g., as households accumulated greater debt), while savings outcomes were progressively better as moderate net worth increased. This suggests that even within lower-income households, there may be thresholds for achieving effects on savings outcomes and young adults are at an advantage when households have greater net worth. Asset-building policies like the ASPIRE Act typically include income thresholds to determine eligibility for receiving subsidies for young people's savings. However, such policies may also want to take household assets into consideration as another layer of eligibility for young people whose households meet income thresholds for savings subsidies, but may be at a disadvantage based on their households' assets. A question that arises from the relationship between net worth and young adults' savings outcomes is whether there are different effects on outcomes for different types of negative net worth. The household net worth variable in this study combined liquid and illiquid forms of negative net worth, including loans, credit card debt, and home equity—each of which may have distinct effects on young adults' savings outcomes. By examining the effects of different types of negative net worth on young adults' savings outcomes, research can begin to determine whether holding any type of negative asset is worthwhile for improving savings outcomes, or whether the relationship with young adults' savings outcomes is consistently and progressively worse as households accumulate negative net worth.

Another example of advantage when households have greater net worth is the significant interaction between net worth and adolescents' savings account, which indicates that adolescents may be more likely to gain access to savings accounts when their households have greater net worth. In turn, this relationship predicts savings outcomes in young adulthood. In the absence of asset-building policies like the ASPIRE Act, some adolescents are at an advantage for gaining access to savings accounts over others based on net worth of lower-income households.

Findings also suggest that adolescents and young adults may benefit from simultaneously engaging in saving and asset-building alongside their households. For instance, adolescents' savings may be enhanced when their families and households simultaneously engage in asset building, perhaps improving economic well-being in the long run for everyone involved. Notably, this is not to say that asset building for families and households takes precedence over asset building for adolescents and young adults. Rather, this is to recognize that lower-income households typically have fewer assets and may benefit from building assets themselves. Meanwhile, adolescents and young adults may benefit from sharing a common goal with their households that are simultaneously engaged in

asset-building—saving and accumulating assets. For example, Elliott, Choi, et al. (2011) and Elliott, Destin, et al. (2011) refer to household assets as providing young people with important contextual cues about the goals they set and the strategies they use to accomplish those goals. When households are simultaneously engaged in asset building, adolescents and young adults may receive affirming messages about saving as a strategy for asset building and may be more likely to engage in saving themselves. In this way, their saving behavior is congruent with their family and household context.

Lastly, the significant, negative interaction between adolescents' savings account and allowance suggests that parents from lower-income households may take an "either / or" approach to economic socialization. This is because adolescents who received allowances—whether or not they were required to do chores—were less likely to have savings accounts in adolescence. Adolescents who received allowances were less likely to have savings accounts, which negatively predicted savings outcomes in young adulthood. On the one hand, if parents socialize with allowances, adolescents may be be less likely to have savings accounts and ultimately, may have worse economic well-being in young adulthood. On the other hand, if adolescents have access to savings accounts, parents may be less likely to socialize via allowances, and they may have improved economic well-being in young adulthood. It may be that those from lower-income households have limited resources and therefore choose between economic socialization via allowances or savings accounts. However, results from this study suggest that access to savings accounts is the better choice for improving young adults' savings outcomes, which runs contrary to the theoretical perspective of economic socialization. Adolescents from lower-income households may benefit from access to asset-building policies designed to support their saving given that savings accounts may not be accessible to them, leaving them to rely on economic socialization via allowances.

Conclusion

This study finds that young adults are more likely to continue to own savings accounts and have more money saved when they have savings accounts as adolescents. Given this finding, policies that extend early access to savings accounts may help young people improve their economic outcomes over time. Findings from this study have implications for policies supportive of young people's asset-building.

Recognizing the potentially transformative role of asset-building, some have proposed providing universal savings accounts to all young people at birth. The ASPIRE Act has been regularly introduced into Congress since 2004, including the most recent versions introduced in 2010 as H.R. 4682 and S. 3577. Noteworthy features of these ASPIRE Act accounts, which remain consistent across all proposed versions of the legislation, include universal availability, automatic enrollment, progressive contributions, and restrictions. Accounts would be opened automatically at birth with an initial $500 deposit to all newborns with a valid social security number. Parents initially serve as the

custodians of these accounts. Young people from lower-income households would benefit from progressive features, including higher initial deposits and match contributions. In exchange for restricting access and limiting withdrawals for pre-approved purposes (e.g., education, home ownership, and retirement), money in the accounts would not count against young people when decisions are made regarding college financial aid.

Despite the role early savings accounts play for improving later educational and economic outcomes—especially for young people from lower-income households—policy makers should consider the legitimacy of encouraging saving in banking institutions as currently designed. In an era where fee-for-service is the norm and banking institutions have little motivation to help young people from lower-income households save, it is legitimate to ask whether recommending saving in banking institutions for all young people is a wise policy decision. Given banking institutions' rooting in neoclassical economics and their fee-for-service inclination, they may not have the best interests of young people from lower-income households in mind. Despite the fact that young people have better economic outcomes once they have institutional access (i.e., early access to savings accounts as adolescents), institutional level limitations of existing banking institutions call into question their capability and willingness to support the saving of young people from lower-income households.

In line with these concerns, researchers and policymakers question whether institutions can be created that run parallel to and redress the limitations of savings accounts within banking institutions. It is important to note that the ASPIRE Act would be a step toward such an institution because the legislation would automatically enroll all newborns in the U.S.—lower and higher income alike—in accounts held separately from banking institutions. Account features would be progressive, contrary to accounts at banking institutions with regressive features (e.g., fees that disproportionately disadvantage lower income account holders). Young people with savings accounts under the ASPIRE Act would certainly not be prohibited from opening additional accounts at banking institutions. In fact, having an ASPIRE Act account might encourage more young people to open accounts at banking institutions. However, young people, especially those from lower-income households, might be better supported by an institution as proposed in the ASPIRE Act that has their well-being in mind and has crafted an account with features supportive of their saving.

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