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Staying on Course

The Effects of Savings and Assets on the College Progress of Young Adults

William Elliott III
University of Pittsburgh
School of Social Work

Sondra G. Beverly
Center for Social Development

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Campus Box 1196 One Brookings Drive St. Louis, MO 63130-9906 • (314) 935.7433 • csd.wustl.edu

Washington University in St.Louis

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Staying on Course: The Effects of Savings and Assets on the College Progress of Young Adults

Increasingly, college graduation is seen as a necessary step toward achieving the American Dream. However, large disparities exist in graduation rates. This study examines the college progress of young adults. Findings suggest that 57% of young adults between the ages of 17 and 23 are "on course," that is, are currently attending or have graduated from college. Those with family assets and savings of their own are more likely to be on course. In multivariate analysis, both net worth and youth school savings are strong predictors of college progress. Youth school savings and parental savings for youth are strong predictors of youth's college expectations and appear to have indirect effects on college progress, through expectations.

Key words: *Wealth, assets, college attendance, college graduation, savings, Child Development Accounts (CDAs), college expectations, PSID, college progress*

The American Dream can be thought of as the opportunity for all Americans to achieve economic mobility through the exercise of effort and ability. The public education system continues to be a key instrument for making the Dream a reality (Hochschild & Scovronick, 2003). However, a high school degree is increasingly seen as insufficient in the highly competitive global economy. For example, Elfin (1993) writes,

> Of all the truths that this generation of Americans holds self-evident, few are more deeply embedded in the national psyche than the maxim 'It pays to go to college.' Since the GI Bill transformed higher education in the aftermath of World War II, a college diploma, once a birthright of the leisured few, has become a lodestone for the upwardly mobile, as integral to the American Dream as the pursuit of happiness itself (p. 288).

Haskins (2008) provides empirical evidence of the importance of college by examining outcomes for adults who grew up in households in the bottom quintile of the income distribution. Of those without college degrees, 45% remain in the bottom quintile of the income distribution in adulthood; only 14% reach the top quintile. In contrast, of those with college degrees, only 16% remain at the bottom of the income distribution, and 41% make it to the top. These findings suggest that obtaining a college degree can be a very effective path to achieve the Dream in America.

However, high college costs may make the education path to income mobility inaccessible. The total cost of college attendance, which includes room and board, for an in-state student at a public four-year college for the 2007-08 school year was $13,589 (College Board, 2007a). This is an increase of 5.9% from the prior school year (College Board, 2007a). The cost of a four-year private college also

rose by 5.9% in 2007-08, up to $32,307 (College Board, 2007a). According to the 2002 Advisory Committee on Student Financial Assistance (ACSFA), a group charged by Congress with enhancing access to post-secondary education for low-income youth, unmet need is "the portion of college expense not covered by the expected family contribution and student aid, including work-study and loans" (ACSFA, 2002, p. 5). Choy and Carroll (2003) find that, during the 1999-2000 school year, the average unmet need for low-income students was between $4,000 and $9,300, depending on the type of college.

High college costs and high unmet need may contribute to disparities in college attendance and completion. It is well recognized that attendance and completion rates vary by race, gender, and socioeconomic status (Brown, Chingos, & McPherson, 2009). For example, in 2005, 71% of White youth who had recently graduated from high school attended college, compared to 59% of Black youth (College Board, 2007b). In the same year, 67% of males and 70% of females who had recently graduated from high school attended college (College Board, 2007b). Finally, nearly 72% of high-income youth and about 50% of low-income youth who had recently graduated from high school attended college (College Board, 2007b). Similar disparities exist with respect to college completion (Brown, et al., 2009).

Given these disparities and the need to be competitive in a global economy, the question of the 21st century has become how to create greater access to college for all of America's youth and how to help youth who attend to progress toward graduation. In recent years more attention has been given to savings and asset accumulation as a way to increase access to education (Conley, 1999; Oliver & Shapiro, 2006; Shapiro, 2004). If, as Oliver and Shapiro (2006) suggest, high unmet need for college is largely the result of low asset accumulation, then asset accumulation may reduce the number of youth who cannot attend or complete college due to cost. However, researchers have only begun to examine the relationship between assets and post-secondary education outcomes.

Existing Research

Research on Assets and College Attendance

A number of studies examine the relationship between household assets and college attendance (Charles, Roscigno, & Torres, 2007; Conley, 2001; Destin, 2009; Elliott III & Beverly, 2010; Haveman & Wolff, 2005; Jez, 2008; Nam & Huang, 2009; Williams Shanks & Destin, 2009). Much of the research examines household net worth. Findings are mixed. Conley (2001), Destin (2009), Williams-Shanks and Destin (2009), and Haveman and Wilson (2007) find that net worth is positively related to college attendance. However, Jez (2008), Nam and Huang (2009), and Elliott and Beverly (2010) find that net worth is not significantly related to college attendance. It appears that findings are sensitive to the inclusion of youth's academic achievement or cognitive ability in the regression model. None of the studies that find that net worth is significant control for achievement or ability (Conley, 2001; Destin, 2009; Williams Shanks & Destin, 2009). All of the

studies with insignificant results for net worth control for achievement or ability (Elliott & Beverly, 2010; Jez, 2008; Nam & Huang, 2009).[1]

In addition to net worth, a few studies examine liquid forms of assets. Controlling for youth cognitive ability, Nam and Huang (2009) find that liquid assets (sum of financial assets minus unsecured debt) are positively related to college attendance. Charles, Roscigno, and Torres (2007) find that whether or not parents have savings for youth's college expenses is positively related to attendance at both two-year and four-year colleges, while the amount of school savings is positively related only to four-year college attendance. This study does not control for academic achievement or cognitive ability. In the only study to test youth savings and college attendance, Elliott and Beverly (2010) find that youth savings is positively related to college attendance, but parental savings for youth is not. This study uses a sample of youth who expected to graduate from college and controls for academic achievement (i.e., combined reading and math score).

Research on Assets and College Completion

Six studies examine the association between assets and college completion (Conley, 1999, 2001; Haveman and Wilson, 2007; Nam and Huang, 2009; Zhan and Sherraden, 2009, 2010). Most find that assets are significantly related to college completion. Conley (1999) finds that net worth is positively related to college completion among young adults ages 18 to 30. In a later study of young adults ages 22 to 30, Conley (2001) finds that the relationship between net worth and college completion is significant at $p < .10$. Haveman and Wilson (2007) find that net worth is significantly related to college completion for 25 and 29-year-olds. Zhan and Sherraden (2009) examine the effects of assets on college completion for young adults aged 23 to 26. They find that both liquid assets (such as savings, stocks, and bonds) and illiquid assets (such as a home or business) are significantly related to college completion. In a more recent study of young adults ages 23 to 26 years, Zhan and Sherraden (2010) find that financial assets are positively related to college completion for Whites, while nonfinancial assets are positively related to college completion for Blacks.

Nam and Huang's (2009) study is the only one to find that net worth and liquid assets are not significantly associated with college completion. This may be because theirs is the only study to include proxies for young adult's cognitive ability (i.e., whether ever in a gifted class or ever repeated a grade).

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[1] Jez (2008) finds that net worth is significant in the basic model but is no longer significant once academic achievement is controlled. Nam and Huang (2009) find that net worth is significant at the .10 level until they control for whether youth were ever in a gifted program or ever repeated a grade. Elliott and Beverly (2010) control for academic achievement in all models.

Research on College Expectations as a Mediator

Increasingly, asset researchers are examining whether assets help to explain children's educational outcomes through their impact on children's college expectations and on parents' college expectations for their children. In a sample of Black parents, Williams Shanks and Destin (2009) find that net worth is positively related to parents' expectations. Elliott and Beverly (2010) use a sample of young adults who expected to graduate from a four-year college to test the relationship between youth school savings and enrollment in four-year colleges. They find that young adults who had savings as youth were more likely to enroll in a four-year college soon after high school than those who had no savings as youth (Elliott & Beverly, 2010).

Several other studies have explicitly tested whether college expectations mediate the relationships between assets and educational outcomes (Elliott, 2008; Elliott & Beverly, 2010; Grinstein-Weiss, Yeo, Irish, & Zhan, 2009; Williams Shanks & Destin, 2009; Zhan, 2006; Zhan & Sherraden, 2003; Zhan & Sherraden, 2009). All of these studies use the Baron and Kenny (1986) method of testing for mediation. In addition, Elliott (2008) uses bootstrapping (Bollen & Stine, 1992; Preacher & Hayes, 2004) and the Sobel (1982) test of indirect effects.

In a sample of youth ages 12 to 18, Elliott (2008) finds that children's college expectations act as a partial mediator between their own savings and their math achievement. Using a sample of single mothers, Zhan and Sherraden (2003) find that mothers' college expectations for their children partially mediate both the relationship between mothers' savings and whether children graduate from high school and the relationship between homeownership and children's grades. They suggest that two-way causation may be present; that is, assets may affect attitudes, and attitudes may also affect asset accumulation. In a sample of youth ages 5 to 17, Grinstein-Weiss, Yeo, Irish, and Zhan (2009) find that parents' college expectations partially mediate the relationship between total household assets and children's school outcomes (having ever repeated a grade, having ever been expelled or suspended, and interest in schoolwork). In a sample of youth ages 7 to 14, Zhan (2006) also finds that mothers' expectations partially mediate the relationship between net worth and children's performance in math and reading.

In the only study that does *not* find evidence of mediation, Zhan and Sherraden (2009) examine the indirect association of parental assets on college completion through both parents' and children's college expectations. They find evidence that financial assets are positively related to parents' and children's college expectations but little evidence of mediation. This is the only study to test for mediation between assets and college completion; other studies examine earlier educational outcomes. Moreover, Zhan and Sherraden use only the Baron and Kenny (1986) method to test for mediation. When used with smaller samples such as Zhan and Sherraden's (N=750), the Baron and Kenny (1986) method may not be powerful enough to detect mediation (Preacher & Hayes, 2004).

Summary of Existing Research

In sum, a growing body of research examines the relationship between different forms of assets and college attendance or completion. Most of the research focuses on household assets, especially net worth. Findings appear to be sensitive to the inclusion of youth's academic achievement or cognitive ability. Studies that control for achievement or ability have consistently found that net worth is not related to attendance. Most of the research on college completion finds that assets are positively related to completion. However, the one study that controls for ability finds that net worth and liquid assets are not significant. Only one study examines the effect of youth savings on educational outcomes, and it uses a sample of youth who expected to graduate from college.

Finally, research suggests that the effects of assets and savings on educational outcomes may be mediated by parent or youth educational expectations. However, no study looks at youth's college expectations as a mediator of the relationship between youth school savings and college attendance. Further, most studies have relied on the Baron and Kenny (1986) method for testing mediation, but this may not be the most rigorous method (Preacher & Hayes, 2004).

This study uses longitudinal data to examine the effects of savings and assets on young adults' college progress. Unlike previous studies, this study includes a measure of youth school savings. In addition to conducting descriptive analyses, logistic regression is used to identify the independent effects of assets while controlling for a number of parent and youth characteristics, including youth's academic achievement. Finally, this study examines whether youth's college expectations mediate the relationships between assets and college progress using both the Baron and Kenny (1986) method and bootstrapping (Preacher & Hayes, 2004).

Theory and Hypotheses

We hypothesize in this study that household net worth, parental savings, and youth savings are positively related to educational outcomes. We also hypothesize that youth college expectations mediate the relationships between assets and educational outcomes. Although evidence thus far is mixed, there is reason to believe that assets are positively related to educational outcomes for youth. We assume that assets may have two effects on educational outcomes. One effect is direct and mainly financial. In the short run, savings may increase ability to solve school-related problems such as buying books or a computer or paying fees related to school activities. In the long run, savings may help families afford college.

Another effect of assets on educational outcomes is indirect and mainly attitudinal. If youth believe they will have the financial resources to pay for future schooling, they may have higher college expectations (Elliot, 2008). In turn, higher expectations may lead to increased academic efforts and achievement (Cook, et al., 1996; Marjoribanks, 1984; Mau, 1995; Mau & Bikos, 2000; Mickelson, 1990). As Shobe and Page-Adams (2001) suggest, "…future orientation may play an intermediate role in the relationship between assets and other positive social and economic outcomes." Savings,

they say, "…provide[s] people with otherwise unattainable opportunities to hope, plan, and dream about the future for themselves and their children" (p. 119). This attitudinal effect of having savings could be as important as or more important than the money itself in affecting the transition from high school to college. If some portion of the effect of assets is indirect, through college expectations, then the associations between assets and educational outcomes will be weaker when expectations are included in the model.

Finally, we hypothesize that youth savings is more strongly associated with educational outcomes than are the other assets. The bulk of research on assets and youth educational outcomes has focused on household assets (e.g., Conley, 2001; Jez, 2008; Nam & Huang, 2009). However, when both youth savings and household assets have been included in the same model, youth savings has been more closely related to youth educational outcomes (Elliott, 2008; Elliott & Beverly, 2010; Elliott, Jung, & Friedline, 2010). Parents are typically the primary decision makers for household accounts and thus have power over how they are used. Some evidence suggests, however, that youth are given more latitude over their own money to spend and save as they choose (Meeks, 1998). This latitude may lead to an increased sense of perceived control among youth, which is one of the most robust predictors of student resilience and academic success (Skinner, Wellborn, & Connell, 1990). According to Skinner, Zimmer-Gembeck, Connell, Eccles, and Wellborn (1998), perceived control can be thought of as the perception that one has the ability, resources, or opportunities to achieve positive outcomes or avoid negative effects through one's own actions. We suggest here that having savings of any form may increase a young person's perceived control over financing college, which may in turn lead to improved college progress. However, savings in a youth's name may have especially powerful effects.

Methods

Data

This study uses longitudinal data from the Panel Study of Income Dynamics (PSID) and its supplements, the Child Development Supplement (CDS) and the Transition into Adulthood supplement (TA). The PSID is a nationally representative longitudinal survey of U.S. individuals and families that began in 1968. The PSID collects data on such things as employment, income and assets. Our independent variables related to households and parents were taken from 1999, 2001, and 2002 PSID data.

The CDS was administered to 3,563 PSID respondents in 1997 to collect a wide range of data on parents and their children, aged birth to 12 years. Questions covered a broad 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 young adults are taken from the 2002 CDS because this was the first year data were collected on parental savings for youth and youth savings. The TA supplement, administered in 2005 and 2007, measures outcomes for

young adults who participated in earlier waves of the CDS and were no longer in high school. Our outcome variables are taken from the 2007 TA.

The three data sets are linked using PSID, CDS, and TA map files containing family and personal ID numbers. The linked data sets provide a rich opportunity for analyses in which data collected at one point in time (2001 or earlier) can be used to predict outcomes at a later point in time (2007) and stable background characteristics can be used as covariates. Because the PSID initially oversampled low-income families, both the descriptive and multivariate analyses are weighted using the last observed weight variable as recommended by the PSID manual (Gouskova, 2001).

Variables

Savings and Assets. Three different types of savings and assets are examined: net worth, parental savings for youth, and youth school savings.

Net worth. Net worth in the PSID is a continuous variable that sums separate household values for a business, checking or savings accounts, real estate, stocks, and other assets, and subtracts out credit card and other debt. In this analysis, net worth does not include home equity. Net worth is averaged for 1999 and 2001, after 1999 net worth is inflated to 2001 price levels. Because net worth is skewed, the log form of net worth is used for regression analyses. In descriptive analysis, we use a trichotomous net worth variable with the following categories: negative net worth (< $0), modest net worth ($0~$10,000), and high net worth (>$10,000). [2] High net worth households serve as the reference group.

Parental savings for youth. Heads of households were asked in 2002 whether they (or another caregiver) had any money put aside for their youth in a bank account that was separate from other types of savings. They were also asked whether they (or another caregiver) had any money put aside specifically for their youth's college or future schooling, separate from other types of savings they may have had for him or her. Responses to these two questions were combined to create a dichotomous variable indicating whether parents had any money put aside separately for their youth.

Youth school savings. Youth were asked in 2002 whether they had a savings or bank account in their name. If they had an account, they were also asked whether they had designated a portion of this savings for future school, like college. The youth school savings variable divides youth into two categories: (1) those who in 2002 had an account and designated a portion of the savings in the account for school, and (2) those with no account and those who had an account but did not designate a portion of the savings in the account for school.

Potential Mediating Variable. College expectations is a dichotomous variable indicating whether youth expected to graduate from a four-year college. This variable is taken from the 2002 CDS,

[2] These categories are based on work done by Nam and Huang (2009).

when youth were asked how likely they were to graduate from a four-year college. They could respond by saying no chance, some chance (about 50:50), pretty likely, or it will happen. Youth who chose either of the latter two responses are defined as "expecting to graduate."

Outcome Variable. The outcome variable used in this study is college progress. College progress indicates whether youth are "on course" for achieving the American Dream via the education path. Youth who are currently enrolled in or who have graduated from a two-year or four-year college are defined as on course. Those who are not currently enrolled and who do not have college degrees are defined as off course.[3]

Control Variables. There are seven control variables: family income, household size, head's education, head's marital status, and youth's race, youth's gender, and youth's academic achievement. Family income is calculated by averaging family income for 1997 and 2001. The 1997 income is inflated to 2001 price levels using the Consumer Price Index. Because family income is skewed, the log of family income is used in regression analyses. In descriptive analyses, we use a trichotomous variable with the following categories: low-income (< $33,377), modest-income ($33,377 to $84, 015), and high-income ($84,016 or more).[4]

Household size, head's marital status, and head's education all come from the 2001 PSID. Household size is a continuous variable. Head's marital status is a categorical variable (married or unmarried). Head's education is a continuous variable (1 to 16), with each number representing a year of completed schooling. We also use a categorical variable, dividing heads into three groups: those with a high school degree or less, those with some college, and those with a four-year degree or more. Youth's race (White or Black), gender (male or female), and academic achievement come from 2002 CDS data. Academic achievement is a continuous variable, a combination of math and reading scores. The Woodcock Johnson (WJ-R), a well-respected measure, is used by the CDS to assess math and reading ability (Mainieri, 2006). In descriptive analysis, we use a dichotomous variable indicating whether youth have above- or below-average achievement.

Study Sample

The 2007 TA sample consists of 1,118 participants. The sample in this study is restricted to Black and White youth because only small numbers of other racial groups exist in the TA. Our final weighted sample of 1,003 youth includes 795 Whites and 208 Blacks. Youth age, in 2007, ranges

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[3] The former category includes youth who have a graduate degree or are currently enrolled in a graduate program. The latter category includes those who have not graduated from high school, those with a high school diploma or GED who have not attended college, and those who have attended college but are not currently enrolled. Very few youth have graduated from college: 15 have two-year college degrees, 31 have four-year college degrees, two have graduate degrees, and four are currently in a graduate program.

[4] Category amounts are based on those used in the US Census Bureau's Current Population Report "Income in the United States: 2002" (De Navas-Walt, Cleveland, & Webster, 2002). De-Navas-Walt et al. used five income categories; we recoded into three categories to increase the sample size within each group.

from 17 to 23 (mean = 20, SD = 1.6).[5] Household size ranges from two to 11 (mean = 4.2, SD = 1.2). Academic achievement ranges from 138 to 339 (mean = 213, SD = 33.0). Other sample characteristics are summarized in Table 1.

Analysis Plan

In the case of survey data, common SAS syntax for analyzing descriptive data may not be appropriate (SAS Institute Inc., 2008). To account for the survey design of the PSID, SURVEYFREQ is used to determine the percentage of youth who are "on course" (SAS Institute Inc., 2008). Multivariate analyses are used to examine the independent effects of assets on college progress using PROC SURVEYLOGISTIC (SAS Institute Inc., 2008). Because a small portion of households have more than one young adult, standard errors are clustered into the same family unit with the CLUSTER statement (SAS Institute Inc., 2008).

Additional regressions are estimated to test for mediation using the Baron and Kenny (1986) method. A mediating variable is a variable that helps explain the relationship between an independent and dependent variable. Mediation occurs when an independent variable has an indirect effect on a dependent variable, that is, when an independent variable influences a mediator, which in turn influences a dependent variable (Baron & Kenny, 1986). This study examines whether youth's college expectations mediate the relationship between each asset variable and college progress (Figure 1).

Statistical evidence of mediation can be established using a series of linear regressions testing whether (a) the independent variable is related to the outcome variable, (b) the independent variable is related to the proposed mediator, and (c) the mediator is related to the outcome in a model controlling for the effects of the independent variable (Baron & Kenny, 1986). If the independent variable is related to the outcome variable and the proposed mediator, and if the association between the independent variable and the outcome variable is reduced (or eliminated) when the proposed mediator is included in the model, then there is evidence of mediation.
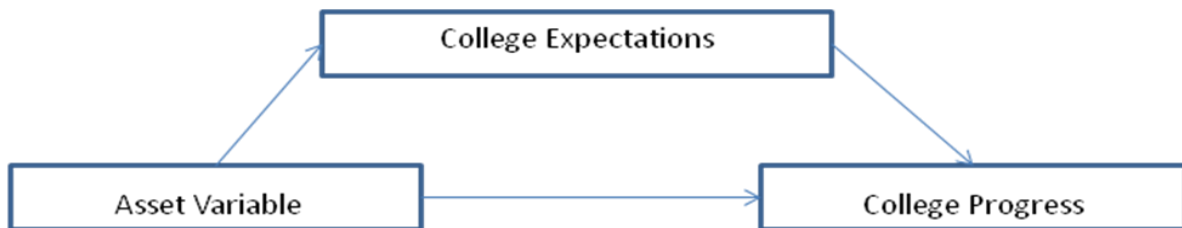

Figure 1: Path diagram of college expectations mediating the relationship between an asset variable and college progress.

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[5] The frequencies of age are as follows: age 17 = 49; age 18 = 193; age 19 = 171; age 20 = 204; age 21 =165; age 22 = 171; and age 23 = 45. Even the seventeen-year-olds are no longer in high school.

Three regressions are presented. Model 1 estimates the effects of assets on college progress. Model 2 estimates the effects of assets on college expectations. Model 3 estimates the effects of assets on college progress, while controlling for expectations, and the effects of expectations on college progress while controlling for assets. Comparing models 1 and 3 shows the effects of adding expectations to the main regression model. If the association between an asset variable and college progress is reduced when expectations are added, there is evidence that the effect of that asset variable partially operates through expectations (Baron & Kenny, 1986).

According to Baron and Kenny (1986), mediation can occur only when the total effect of an independent variable on the dependent variable is significant. For example, if an asset variable is not significantly related to college progress, there is nothing to mediate. More recently, however, researchers have suggested that indirect effects—more broadly defined—may occur when there is no total effect (e.g., Mathieu and Taylor, 2006; Preacher and Hayes, 2004). For example, an indirect effect exists when an asset is associated with youth's college expectations and expectations are associated with college progress—even if the asset is not significantly related to college progress. In this case, expectations do not account for any portion of the relationship between the asset and college progress because there is no relationship between those two variables. Instead, expectations act as a "linking mechanism" (Mathieu and Taylor, 2006, p. 1039): assets are linked to college progress through the relationship between expectations and college progress.

Some scholars claim that the Baron and Kenny (1986) test is unable to detect these more broadly defined indirect effects (e.g., Mathieu and Taylor, 2006; Preacher and Hayes, 2004). In addition, confounding, suppression, and interactive effects could mitigate any overall effects that the independent variable has on the dependent variable (Mathieu and Taylor, 2006). This can cause researchers to erroneously conclude that there are or are not indirect effects. Therefore, scholars increasingly suggest using a direct test of indirect effects, such as bootstrapping (Bollen & Stine, 1992; MacKinnon, Lockwood, & Williams 2004; Mathieu and Taylor, 2006; and Preacher & Hayes, 2004).

Bootstrapping is a nonparametric approach to effect-size estimation and hypothesis testing (Mooney & Duval, 1993). Bootstrapping does not make assumptions about the shape of the distribution of the variables or the sampling distribution of the statistic (Mooney & Duval, 1993). Shrout and Bolger (2002) suggest that bootstrapping is a way of circumventing the power problem introduced by asymmetries and other forms of non-normality in the sampling distribution of the indirect effect. Bootstrapping is accomplished by taking a large number of samples of size n (where n is the original sample size) from the data, sampling with replacement, and computing the indirect effect in each sample (Preacher & Hayes, 2004).

Results

Descriptive Results

Table 1 shows the percentage of young adults who are enrolled in or have graduated from a two-year college, a four-year college, or graduate program soon after high school. An estimated 57% of young adults are "on course" for achieving the Dream via the education path. Young adults who lived in high-income households (82%), Whites (64%), females (62%), young adults with above-average achievement (78%), and young adults who lived in the most educated households (84%) are more likely to be on course. Also, young adults who expected to graduate from college (71%) are more likely to be on course.

Table 1. Characteristics of the study sample and percent who are on course

	Percent	Percent On Course
Full sample	--	57
Controls		
White	79	64
Black	21	35
Male	50	54
Female	50	62
Above-average academic achievement	36	78
Below-average academic achievement	64	44
Married head	74	66
Unmarried head	26	37
Head has four-year degree or more	28	84
Head has some college	23	58
Head has high school degree or less	49	42
High-income (>$84,016)	32	82
Moderate-income ($33,377~$84,016)	41	54
Low-income (< $33,377)	27	36
Asset variables		
High net worth (>$10,000)	62	69
Modest net worth ($0~$10,000)	21	41
Negative net worth (< 0)	16	35
Parental savings for youth	56	68
No parent savings for youth	44	47
Youth school savings	46	75
No youth school savings	54	45
Potential mediator		
Expected to graduate from college	71	71
Did not expect to graduate from college	29	29

Source: Weighted data from the Panel Study of Income Dynamics and its supplements.

Notes: The sample includes 1,003 young adults aged 17 to 23 and not in high school in 2007. "On course" includes young adults who are currently enrolled in, or have a degree from, a two-year college, a four-year college, or graduate program.

Savings and assets appear to matter. About 69% of young adults who have lived in high net worth households as youth are on course, compared to 41% of young adults who have lived in modest net worth households and 35% of young adults who have lived in negative net worth households. About 68% of young adults who have lived with parents who had savings for them are on course. In comparison, only 47% of young adults who have lived with parents who did not have savings for them are on course. Finally, 75% of young adults who have had some of their own savings designated for school are on course, compared to 45% of young adults without school savings.

In sum, the overall pattern for young adults just out of high school is that those who are White and who have lived in more educated, higher-income, and wealthier households as youth are more likely to be on course to achieve the Dream via the education path. Young adults with household assets and young adults who had school savings of their own are also more likely than others to be on course.

Logistic Regression Results

Model 1 estimates the independent effects of assets on college progress controlling for demographic variables and academic achievement (Table 2). Approximately 43% of the variance in college progress is explained. Gender, academic achievement, head's education, net worth, and youth school savings are significant predictors of whether young adults are on course. Girls are almost twice as likely as boys to be on course (*odds ratio* = 1.80, *p* = .009). For each one-point increase in academic achievement, the odds of being on course increase by 3% (*odds ratio* = 1.03, *p* < .0001). For each one-year increase in head's education, the odds of being on course increase by 20% (*odds ratio* = 1.20, *p* = .02). For each one-point increase in log of net worth, the odds of being on course increase by 8% (*odds ratio* = 1.08, *p* = .008). Young adults who had accounts as youth and had designated some savings for school are over twice as likely to be on course than those who had no accounts or who had accounts but did not designate some savings for school (*odds ratio* = 2.13, *p* = .002).

Model 2 estimates the independent effects of assets on youth's college expectations while controlling for demographic variables and academic achievement (Table 2). Approximately 26% of the variance in expectations is explained. Academic achievement, parental savings for youth, and youth school savings are significant predictors of expectations. For each one-point increase in academic achievement, the odds that a youth expected as a youth to graduate from college increase by 3% (*odds ratio* = 1.03, *p* < .0001). Young adults whose parents had savings for them are twice as likely to have expected to graduate from college as young adults whose parents had no savings for them (*odds ratio* = 2.01, *p* = .005). Young adults who had accounts and had designated some savings for school are more than twice as likely to have expected to graduate than those who had no accounts or who had accounts but did not designate some savings for school (*odds ratio* = 2.35, *p* = .0008).

Table 2. College expectations as a mediator between assets and college progress for young adults

Items	Model 1 Predictors of College Progress			Model 2 Predictors of College Expectations			Model 3 Predictors of College Progress, Controlling for Expectations		
	B	S.E.	O.R.	B	S.E.	O.R.	b	S.E.	O.R.
Controls									
Black	0.302	0.305	---	0.660	0.414	---	0.158	0.291	---
Female	0.589	0.226**	1.80	0.288	0.242	---	0.530	0.236*	1.70
Academic achievement	0.031	0.007***	1.03	0.026	0.006***	1.03	0.026	0.007***	1.03
Married head	0.334	0.325	---	-0.289	0.323	---	0.410	0.334	---
Head's education	0.186	0.077*	1.20	0.124	0.072	---	0.148	0.069*	1.16
Household size	0.206	0.111	---	-0.008	0.104	---	0.234	0.108*	1.26
Log of family income	0.047	0.040	---	0.005	0.041	---	0.042	0.036	---
Asset variables									
Log of net worth	0.073	0.028**	1.08	-0.052	0.030	---	0.094	0.028***	1.10
Parental savings for youth	0.241	0.252	---	0.698	0.251**	2.01	0.084	0.256	---
Youth school savings	0.754	0.237**	2.13	0.853	0.256***	2.35	0.589	0.250*	1.80
Mediator									
Expected to graduate from college	---	---	---	---	---	---	1.422	0.279***	4.14
Pseudo R^2			.43			.26			.48
N			726			728			725

Source: Weighted data from the Panel Study of Income Dynamics and its supplements.

Notes: College progress identifies young adults who are "on course", that is, those who are currently enrolled in, or who have a degree from, a two-year college, a four-year college, or graduate program. S.E. = robust standard error. O.R. = odds ratio.

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

Model 3 estimates the independent effects of assets on college progress while controlling for demographic variables and academic achievement as well as youth's college expectations (Table 2). Approximately 48% of the variance in college progress is explained. Gender, academic achievement, head's education, household size, log of net worth, youth school savings, and expectations are significant predictors of college progress. The odds ratios for gender, academic achievement, and head's education are very similar to those in Model 1. For each one-point increase in household size, the odds of being on course increase by 26% (*odds ratio* = 1.26, *p* = .03). For each one-point increase in log of net worth, the odds of being on course increase by 10% (*odds ratio* = 1.10, *p* = .0007). Young adults who had accounts and had designated some savings for school are almost twice as likely to be on course as those who had no accounts or who had accounts but did not designate some savings for school (*odds ratio* = 1.80, *p* = .02). Young adults who expected to graduate from college are nearly four times more likely to be on course than young adults who did not (*odds ratio* = 4.14, *p* < .0001).

Testing Mediation with Baron and Kenny Method

Parental savings for youth is not significantly related to college progress (Model 1), so there is no need to examine whether college expectations mediate this relationship. The other two asset variables are significantly related to college progress in Model 1. However, according to Baron and Kenny (1986), expectations cannot mediate the relationship between net worth and college progress because net worth is not significantly related to expectations (Model 2).

The Baron and Kenny (1986) test does, however, provide evidence that college expectations partially mediate the relationship between youth school savings and college progress in young adulthood. First, youth school savings is significantly related to college progress (Model 1). Second, youth school savings is significantly related to college expectations (Model 2). Third, comparing Model 3 to Model 1 reveals a modest drop in the association between youth school savings and college progress when expectations are added to the model.

Testing Mediation and Indirect Effects with Bootstrapping

Bootstrapping is used as a direct test of indirect effects. Like the Baron and Kenny (1986) test, bootstrapping provides evidence that college expectations partially mediate the relationship between youth school savings and college progress. The true indirect effect is estimated to lie between .04 and .10 with 99% confidence. Because zero is not in the 99% confidence interval, one can conclude that the indirect effect is significantly different from zero at *p* < .05 (two tailed).

We do not use bootstrapping to test whether net worth has indirect effects on college progress because net worth is not significantly related to expectations in Model 1. We do use bootstrapping to test whether parental savings has an indirect effect on college progress, even though Model 1 indicates that parental savings is not significantly related to college progress. Preacher and Hayes (2004) acknowledge that *mediation* cannot exist when there is no evidence of a total effect, but they

claim that an indirect effect can exist in these circumstances. Bootstrapping does provide evidence for an indirect effect; the true indirect effect is estimated to lie between .04 and .11 with 99% confidence.

Summary

Consistent with our first hypothesis, controlling for other factors, both net worth and youth school savings are positive, strong, and significant predictors of college *progress* soon after high school. Contrary to the first hypothesis, parental savings is not a significant predictor of college progress. Both parental savings and youth school savings are significantly associated with youth's college *expectations* when controlling for demographic and academic achievement variables. Net worth is not significantly related to college expectations. The consistent results for youth school savings and the mixed results for household assets (net worth and parental savings) provide some support for our second hypothesis, that youth school savings may have an especially strong relationship with young adult's college progress.

The Baron and Kenny (1986) test produces mixed results regarding mediation. According to this test, youth's college expectations partially mediate the relationship between youth school savings and college progress, but do not mediate the relationships between net worth and college progress or parental savings and college progress. Bootstrapping confirms that expectations partially mediate the relationship between youth school savings and college progress. While there is no evidence to suggest that expectations *mediate* the relationship between parental savings and college progress, bootstrapping results suggest that parental savings does have an indirect effect on college progress, through expectations. In other words, expectations appear to act as a "linking mechanism" (Mathieu & Taylor, 2006, p. 1039): parental savings is linked to college progress through the relationship between expectations and college progress.

It should also be noted that—controlling for many other variables—gender, academic achievement, head's education, and youth's college expectations are significantly related to college progress, while race and family income are not related to college progress.

Discussion

Increasingly, completing college is seen as a necessary part of achieving the American Dream. However, large disparities exist in who attends college, and ultimately, who graduates from college. This has caused some to question the ability of education to reduce inequality in America (e.g., Haskins, 2008; Hertz, 2006). Many of these disparities exist as a result of high college costs. This study examines the potential for assets and savings to help young adults to stay on course, that is, to continue progressing toward the American Dream via the education path.

Past studies have measured college attendance as whether youth *ever* attended college during a particular age range; the outcome variable in this study requires that young adults are currently attending or have graduated from college.

Findings suggest that almost 57% of young adults between the ages of 17 and 23 were "on course" in 2007, and 43% were off course. There are important race and class differences. Whites and young adults who lived in more educated, higher-income, and wealthier households as youth were more likely to be on course. Additionally, young adults of parents who had savings for them as youth and young adults with savings of their own as youth were more likely to be on course.

In logistic regression analyses, academic achievement, college expectations, and head's education were strong positive predictors of college progress. This is consistent with previous research (e.g., ACSFA, 2006; Elliott, 2008; Haskins, 2008; Hertz, 2006). For asset variables, results are mixed. Both net worth and youth school savings are positive predictors of college progress. The finding that net worth is significant is inconsistent with previous research that controls for youth's academic achievement or cognitive ability (Elliott & Beverly, 2010; Jez, 2008; Nam & Huang, 2009).

Consistent with previous research on college attendance (Elliott & Beverly, 2010), youth school savings is determined to be a powerful predictor of college progress. Young adults who as youth had school savings of their own are about two times more likely to be on course than those who did not. However, parental savings for youth is not significantly related to college progress. This finding is in contrast to research by Charles et al. (2007) who find that parental savings is significantly related to college attendance. The different findings may be due to sample size (13,699 vs. 1,003).

The second hypothesis, that youth savings has a stronger association with college progress than net worth or parental savings, is based on the theoretical proposition that having savings in her own name may increase a young person's perceived control over financing college, which may in turn lead to improved college progress. Evidence for this hypothesis is mixed. Net worth and youth school savings are significant predictors of college progress, but parental savings is not. Previous research that includes youth savings finds stronger evidence for this hypothesis than does this study (Elliott III & Beverly, 2010; Elliott, 2008; Elliott, et al., 2010). The difference may be due to sample characteristics (this study examines youth who expected to graduate from college as well as youth who did not) or differences in the outcome variable.

In his seminal book, *Assets and the Poor*, Sherraden (1991) suggests that assets may have indirect effects on people's outcomes, through attitudinal changes, for example. Findings from our study are mixed with respect to this general theoretical statement. Using more rigorous methods than have been used in the past,[6] this study finds that the relationship between youth school savings and college progress is mediated by youth's college expectations. There is also evidence that expectations

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[6] Elliott (2008) is the only other study to use bootstrapping; however, he examined the relationship between youth school savings and math achievement.

act as a "linking mechanism" for parental savings and college progress (Mathieu & Taylor, 2006, p. 1039): parental savings is positively associated with youth's college expectations, and expectations are positively associated with college progress. These findings are consistent with previous research on expectations (parents' and children's) as a mediator between assets and educational outcomes for youth (Elliott, 2008; Zhan, 2006; Zhan & Sherraden, 2003).

In contrast, although net worth is significantly related to college progress, evidence does *not* suggest that this relationship works partly through college expectations. This finding is consistent with Zhan and Sherraden's (2010) findings that the effects of liquid and illiquid assets on college completion are not mediated by college expectations. Scholars in the asset field have argued that more research is needed on the mechanisms through which assets may bring about positive outcomes (Schreiner & Sherraden, 2007; Sherraden, 2005).

Limitations

A limitation of this study is the uncertainty of omitted variable bias. Young adults who had savings as youth may differ from other young adults in other ways that affect college progress (e.g., motivation or self-discipline). Thus, it could be that the significant effect of assets is spurious. This is dealt with, in part, by controlling for various factors that are commonly associated with college attendance and completion, including academic achievement, but alternative explanations cannot be fully ruled out. It is also impossible in this study to measure whether youth *grow up* with knowledge that they have financial resources to help pay for current and future schooling. In this study, savings is only measured at a single point in time—around age 15.

Another limitation is the mean age of youth, at age 20 (59% of the youth are 20 or older). Although age 20 is old enough for young adults to attend college, some will take longer. Moreover, some may start college at a young age but stop and then start again later. The percentage of young adults "on course," therefore, may increase over time.

However, more 18 to 21-year-olds are enrolled in college than any other age group. Approximately 50% of young adults 18 to 21 are enrolled in college. In comparison, only about 30% of 22 to 24-year-olds are enrolled, and just over 10% of 25 to 29-year-olds are enrolled (Baum & Ma, 2009). In addition, research consistently shows that older students are less likely than younger students to graduate from college (Choy, 2002). Overall, if youth do not attend college shortly after high school the likelihood of ever attending or completing college is greatly reduced.

Finally, we do not claim that assets are the most important factor for understanding college progress. Assets appear to matter and are an understudied factor. More research is needed to determine the importance of assets for educational outcomes.

Implications

With the rising cost of a college education, college may be seen by many as a desired but elusive goal. For many families, current family income is not enough to finance college. They must rely on accumulated assets (especially savings) and/or take out education loans that may be difficult to repay. Therefore, programs that help parents and youth accumulate savings may help families finance college. Overall multivariate findings from this study provide evidence that savings and assets are associated with young adults staying "on course." All assets in this study appear to play some role in the college progress of young adults. Youth school savings demonstrates both direct and indirect associations with later college progress. Net worth demonstrates a direct association only. While parental savings for youth does not have a direct association with college progress, it does have a direct link to youth's college expectations. Moreover, bootstrapping results indicate that it may also have an indirect effect on college progress through youth's college expectations. Overall, the potential for savings and assets—especially liquid assets—to have both direct and indirect effects on educational outcomes may make savings and asset-building programs of interest to policymakers.

One policy tool designed to provide every youth in the United States with an account is a universal Child Development Account (CDA). In their simplest form, CDAs are incentivized savings accounts that can be used for long-term investments, such as education, home and business ownership, and retirement. CDAs have been proposed as a way to help students finance college (Boshara, 2003; Goldberg & Cohen, 2000; Sherraden, 1991). An example of a CDA policy is the America Saving for Personal Investment, Retirement, and Education (ASPIRE) Act. ASPIRE would create "KIDS Accounts," or a savings account for every newborn, with an initial $500 deposit, along with opportunities for financial education.[7] Youth living in households with incomes below the national median would be eligible for an additional contribution of up to $500 at birth and a savings incentive of $500 per year in matching funds for amounts saved in accounts. When account holders turn 18, they would be permitted to make tax-free withdrawals for costs associated with post-secondary education, first-time home purchase, and retirement security. Other examples of youth asset-building policies are the Young Saver's Accounts, 401Kids, Baby Bonds, and Plus Accounts.[8] At the state level, College Savings (529) Plans are becoming more inclusive and are a promising platform for CDAs (Lassar, Clancy, & McClure, 2010).

Conclusions

Increasingly, college completion is seen as a necessary step toward achieving the American Dream. However, large disparities exist in graduation rates. In this study, we find that three types of savings and assets—household net worth, parental savings for youth, and youth school savings—may help

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[7] At this writing, the ASPIRE Act remains on the Congressional agenda (http://www.assetbuilding.org/resources/the_aspire_act_of_2004_kids_accounts_s_2751_hr_4939).

[8] More information on these policies can be found at: http://www.assetbuilding.org/resources/childrens_savings_accounts.

young adults stay on course in the years immediately following high school. Educational expectations may be an important mechanism for transmitting these asset effects. Policies such as universal CDAs that can help parents and youth accumulate savings—especially savings for college—may be a simple and effective strategy for keeping young adults "on course" in their college education.

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