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A Process Model of Children's Savings Indirect Effects on College Progress

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A Process Model of Children's Savings Indirect Effects on College Progress

In addition to direct effects that accompany owning savings, asset researchers hypothesize that savings also has indirect effects. However, theory and research on the psychological effects of assets are in their early stages of development. One promising area of theoretical and research inquiry is the study of college expectations as an explanatory mechanism for the relationship between assets and children's educational outcomes. However, little theory has been developed about how assets may influence college expectations. A recent study uses Identity-Based Motivation (IBM) theory to explain the indirect effects of assets. There are three core components of IBM: (1) salience, (2) group congruence, and (3) difficulty. We build on IBM by suggesting that institutions (1) provide important contextual cues that bring the college-bound identity to the forefront of the mind; (2) provide an embedded thought process or strategies for overcoming difficulty; and (3) provide power over resources. Our results suggest that children's savings programs may promote college progress by making children's college-bound identity more salient.

Key words: *Children's savings, college progress, identity-based motivation theory, assets, Child Development Accounts (CDAs)*

Low- and modest-income children continue to believe in the *idea* of education as a means to achieving the American Dream. With limited opportunities for accumulating savings for college, however, many college qualified low- and modest-income children do not believe that college is within reach. They learn this at a very young age. Asset accumulation, especially in the form of savings, can assist children in preparing and affording college, leading to increased college expectations and greater educational engagement and academic achievement. That is, low- and modest-income children may be more likely to seek a college education if—from a very young age—they have a way to pay for it. Greater control by low- and modest-income children over financing college should lead to more children viewing college as within reach. Doubts about this may be quelled by observing the route to college for wealthier children.

How might this be accomplished? Policies that encourage and facilitate college savings may help low- and modest-income children think about college as within reach. Currently, publicly-funded college savings schemes, such as College 529 Plans, offer little advantage to low- and modest-income families because they are based on tax incentives (Newville, Boshara, New America Foundation, & Clancy, 2009). However, innovations that structure and provide incentives for college saving in low- and modest-income families are currently being field tested.¹ At the policy level, children's savings proposals are being discussed in Congress and in state legislatures. One such policy is the America Saving for Personal Investment, Retirement, and Education (ASPIRE) Act. If adopted, the ASPIRE Act might help to empower children to view college as within reach by creating "KIDS Accounts,"

¹ See for example, SEED for Oklahoma Kids at <http://csd.wustl.edu/AssetBuilding/SEEDOK/Pages/default.aspx>

or a savings account for every newborn, with an initial \$500 deposit, along with opportunities for financial education.²

In addition to direct effects (e.g., paying for college) that accompany owning savings, asset researchers hypothesize that savings also has indirect effects (e.g., savings affects children's expectations and children's expectations, in turn, affect educational outcomes). In fact, one of the most compelling aspects of children's savings programs is their potential for changing how children think and act in regards to school. However, theory and research on the psychological effects of assets are in their early stages of development (Schreiner & Sherraden, 2007). One promising area of theoretical and research inquiry is the study of college expectations as an explanatory mechanism for the relationship between assets and children's educational outcomes (e.g., Elliott, 2009; Elliott & Beverly, forthcoming-a; Zhan, 2006; Zhan & Sherraden, forthcoming). Until recently, little theory has been developed about *how* assets may influence college expectations. In a recent article, Elliott, Choi, Destin & Kim (2011) use Identity-Based Motivation (IBM) theory to explain how assets may influence children's expectations for college. IBM focuses on visions children have of themselves in a future state (i.e., a possible self or, more specifically, a college-bound identity).

In this paper we build on Elliott, Choi, et al.'s (2011) use of IBM to further outline and test a process model of children's savings indirect effects. One way that we do this is by articulating the role that formal institutions play in determining whether children's college-bound identity is salient (i.e., at the forefront of their mind when deciding to act) or not. More specifically, we suggest that institutions (1) provide important contextual cues that bring the college-bound identity to the forefront of the mind, (2) provide an embedded thought process (or strategies) for overcoming difficulty, and (3) provide power over resources. In their simplest form, formal institutions are constraints imposed on human behavior (North, 1990). When talking about institutions within the applied social science context, Sherraden and Barr (2004) state that they can be thought of as "interventions, designed to alter behaviors and outcomes for individuals" (p. 8). We focus on formal institutions because they, more so than informal institutions, have the capacity to redistribute resources (intellectual and material) to low- and modest-income children so that they can compete with their higher-income peers.

A College-Bound Identity Theory of Children's Savings Psychological Effects

IBM theorists suggest that three principal components explain the relationship between conceptions of the self and motivation, with significant attention given to how context (social and cultural identities) drives the process. The three core principles are: 1) identity salience, 2) congruence with group identity, and 3) interpretation of difficulty. These principles have been shown to be important predictors of children's school behaviors (Oyserman & Destin, 2010). In the remainder of this section, we describe each IBM core principle. In addition, we outline how children's savings programs, as a type of institution, fit into a college-bound identity theory of children's savings indirect effects.

² For more information on the ASPIRE Act go to <http://www.newamerica.net/files/ASPIRE%20Act%202009%20Summary%206-09.pdf>.

Salience

Although the term “identity” can be invoked to refer to a diverse array of concepts, IBM focuses on the aspects of identity that directly influence behavioral choices. Abstract conceptions of the self are most likely to guide everyday behaviors when they are salient. We suggest that identities are salient (i.e., causes of things that matter) when they are (1) on the mind, (2) linked to detailed strategies, and (3) provide power over resources. From this perspective it is not enough that they be on the mind.

1. On the mind. It is clear that in order for abstract conceptions of the self to guide children’s behavior, they must be “on their minds”. This does not mean that conceptions of the self have to be cued or activated by children themselves. In fact, because people are unable to actively process all cognitive stimuli and have a limited capacity for making conscious decisions (i.e., Bargh & Chartrand, 1999), it is unlikely that children spend much of their time consciously activating identities.

Therefore, IBM theory explains that contextual cues carry an overwhelming influence on college-related goals that children set and the strategies that are activated to pursue college (a future goal). According to institutional theorists, institutions provide the context within which all human interaction takes place (e.g., Nee & Ingram, 1998). Sen (1999) states, “Individuals live and operate in a world of institutions. Our opportunities and prospects depend crucially on what institutions exist and how they function” (1999, p. 142). From this perspective, institutions are one of the main providers of cues for activating children’s college-bound identity.

2. Linked to strategies. It is not enough for an identity to be on the mind. In order for a child’s college-bound identity to be salient, it must also be effective. Effective identities are identities that are linked to detailed strategies for overcoming difficulties (Oyserman, 2010). Accordingly, children who have college-bound identities linked to detailed strategies are more likely to sustain ongoing self-regulatory behavior (sustained engagement in school). IBM focuses on informal institutions (social and cultural) as the primary mechanisms children use to link college-bound identity to strategies related to college. However, too often low- and modest-income children’s college-bound identities are not linked to detailed strategies (Oyserman & Destin, 2010). We suggest that this is because children develop strategies for achieving goals associated with their college-bound identity at the same level of need they live at. If children’s level of need is food, shelter, and clothing (survival needs), they will have very little time and quite frankly, very little inclination to develop strategies related to college even though they want to go to college and know that it is very important for their future.

This draws on Maslow’s (1954) hierarchy of needs theory. Maslow contends that people will attempt to fulfill higher-level needs only after lower-level needs have been met. Needs can be categorized into two types: survival or lower-level needs and growth needs that are at a higher-level. People seek to fulfill their survival needs first. Only after fulfilling survival needs do they begin to act in ways that are congruent with fulfilling growth needs. Since low- and modest-income families and neighborhoods by definition struggle to meet survival needs, they spend little time developing informal institutions that provide strategies for college, a growth need. The cost of fulfilling growth needs is simply too high. It requires personal, family, and community sacrifice that goes well beyond what is required of high-income children to achieve similar levels of success at college. This violates

a basic tenant of the American Dream, that people with similar levels of effort and ability should achieve similar outcomes. It also raises questions about whether the education path does serve as the “great equalizer” in society.

We propose that formal institutions could provide a way for society to level the playing field and restore the education path as the “great equalizer” in society by providing children with schemas, rules, norms, and routines (i.e., strategies) that become “embedded thought processes” for overcoming difficulties related to college. This proposition is based in institutional theory. For example, in an analysis of institutions and rational choice, North (2005) states, “... much of what passes for rational choice is not so much individual cogitation as the embeddedness of the thought process in the larger social and institutional context” (p. 24). Similarly, in reference to asset accumulation, Sherraden (1991) observes, the middle-class “participates in retirement pension systems ... not [as] a matter of making superior choices. Instead, a priori choices are made by social policy, and individuals walk into the pattern that has been established” (p.127). The kinds of informal that are most accessible to low- and modest-income children are by necessity related to survival needs and do not level the education playing field. Instead, formal institutions (such as children’s savings programs) that provide “embedded thought processes” for overcoming academic and financial difficulties related to achieving the goal of college attendance and completion are required. Therefore, we suggest that children’s savings programs, as formal institutions, can have a positive effect on the salience of college-bound identities, particularly for low- and modest-income children.

Research about how institutions shape behavior may be helpful in further understanding what it means for thought processes to be embedded in children’s savings programs. In their research on saving, Sherraden, Schreiner, and Beverly (2003) identify five institutional constructs that encourage people to save: access, incentives, information, facilitation, and expectations.³ What asset theorists have found is that the poor can and will save when given access to institutions for saving, suggesting that when institutions are accessible, people acquire an “embedded thought process” that makes the decision to save (or engage in school) more likely. When low- and modest-income children suffer from lack of access to institutions, they are also likely to lack the “embedded thought processes” that allow them to more easily make decisions that are in line with achieving agreed upon societal goals such as college. From our perspective, institutions (not culture) serve as a type of inertia that perpetuates inequality in college outcomes from one generation to the next.

3. Power over resources. We suggest that whether college-bound identity is salient also depends on whether or not it provides children with the power they need over resources to achieve desired outcomes. That is, a child may have a college-bound identity but not the resources needed to go to college. It is equally true, however, that children can possess strategies for attending and completing college such as doing homework, seeking out financial aid, and so forth and still not have enough money to pay for college. From this standpoint, strategies and power over resources are independent concepts.

In order for an identity to give a person power over resources, it must be supported by institutions. What separates some Americans from others, in many ways, are their formal institutions and their

³ Access provides a structured mechanism for engaging in desired behavior. Incentives attract and keep people engaged

ability to redistribute resources to give even the common person a realistic chance to achieve the America Dream. Some ways that institutions have given people power over resources has been through the Constitution that extends liberties and rights, construction of laws that made vast areas of land available to large portions of Americans such as the Homestead Act, the GI Bill which opened up access to education to many who could not go otherwise, or a legal system that protects property, the right to contract, and one's person. In the highly specialized, technologically advanced society we live in today, the kinds of outcomes people achieve are directly related to the power that institutions give people over resources.

Drawing on the idea that people view college as a commodity to be bought and sold (Cayton, 2007), we propose that owning savings gives children a sense of power in regard to college and therefore they begin to act as though they have a right to attend college; they expect to attend. This sense of power comes from their faith in the rules and regulations governing capitalist economic markets that are designed to protect the individual's right to buy and own property. As a result, they are more inclined to take control over their educational experience if they own savings. This feeling of power may manifest itself in many different ways. For example, children who feel empowered may feel more comfortable about asking teachers, counselors, and school administrators for information about their education or financial aid. They may also be more likely to take college prep classes, the SAT/ACT or apply to four-year colleges instead of two-year colleges. In this manner, children's savings programs empower children to participate in, negotiate with, influence, control, and hold accountable the schools they attend.

Congruence

Another important factor in the connection between context, college-bound identities, and behaviors is a link to group identity. When an image of the self feels tied to ideas about relevant social groups (e.g., friends, classmates, family, cultural groups), the congruent personal identity becomes reinforced. For children, assets are almost always connected to a larger social unit or family. The family is recognized as one of the key contexts in which children's development takes place, and there is a rich literature on the topic (e.g., Bronfenbrenner, 1979; Lerner, 1984; Lerner & Steinberg, 2004; Steinberg & Morris, 2001). Even when opening their own accounts, children are often supported by parents or other family members. When children and their families save money for college, the meta-message asserts "we save," "we go to college," reinforcing the college-bound identity through its congruence with the actions and goals of the larger group.

When elements of a family's environment contain cues about assets, like when a parent has school savings for their child, the presence of such resources can bolster parents' expectations for their children (Elliott & Beverly, forthcoming-a), influencing their own interactions with children and children's own college expectations and school-related behaviors. A lack of assets, on the other hand, makes economic struggles salient, which can be incongruent with a focus on future goals like college. As college-bound identities lose salience, school behaviors decline.

Difficulty

A final key insight from IBM highlights the importance of a means for interpreting and overcoming difficulty as normative. In this paper, we have in mind difficulties related to academic preparedness and financial costs to include not only paying for college but such things as books, fees, clothes,

computers, tutoring, and so forth. In order to sustain and work towards an image of a future self, the context must provide tangible ways to address inevitable obstacles to the goal. Further, it is commonly recognized that high college costs act as an obstacle to attending and graduating from college (e.g., ACSFA, 2010). How children interpret the meta-message “college costs a lot” (i.e., how they interpret difficulty) when bringing to mind their college-bound identity will help determine whether they see college as within reach or out of reach.

Process Model

In our process model, we use parents' school savings for their child and children's school savings as proxies for children's savings programs. There are several reasons we include both parents' and children's school savings. First, as proposed in the ASPIRE ACT, children's savings programs start from birth. Therefore, it is a number of years before children are able to take an active role in these accounts. In the meantime, parents are the main managers of these accounts. In line with this, financial socialization theory proposes that a key way children learn is from imitating their parents, who provide them with their first encounters with money (Lunt & Furnham, 1996). Drawing on financial socialization theory, we posit that it is likely that parents' savings is an important part of children's savings programs and comes prior to children taking an active role in their accounts.

There is also reason to suggest that children's savings is a distinct aspect of children's savings programs that may have unique effects that parents' savings does not and should be examined separately. Webley and Lea (1993) propose that the problems children face in their everyday life are meaningful to them, and therefore they contend that a child-centered approach to economic activity should be adopted. Behavioral economists studying children's savings suggest that it is not until around age 12 that children develop the ability to think about saving for long-term goals such as college or a need for money in the future (Sonuga-Barke & Webley, 1993). However, younger children still value savings but tend to save for short-term consumption goals, like Christmas presents (Furnham & Thomas, 1984). Being in a school savings program may help children to develop a pattern of saving for college that speeds up their economic development and/or replaces the cognitive processes needed for saving for future goals.

In addition, children, particularly low- and modest-income children, may not be able to count on household assets in the same way they can count on money they have saved in their own account. They may experience their parents' savings being drained on a regular basis for such things as car repairs, home repairs, appliances, vacations, and so forth. So, while low- and moderate-income children have a host of experiences with their parents' savings not being available to them evidence from behavioral economics suggests that children are given greater latitude over their own money to spend and save it as they see fit (Meeks, 1998). Greater latitude might instill in children a greater sense of perceived control, which can improve persistence in school (Skinner, Wellborn, & Connell, 1990).

A goal of this study is to conduct an advance test of large-scale children's savings policies, but there are several important differences between the accounts examined in this study and accounts that have been proposed in the ASPIRE Act and other popular education accounts such as Coverdell Education Savings Accounts, Uniform Gifts to Minors Act (UGMAs), 529 College Savings Plans run by states, and Roth Individual Retirement Arrangements (IRAs). Popular educational accounts

offer their owner's protection from taxation and in some cases an infrastructure that provides such things as direct deposit and match savings to encourage and promote savings. In order not to be taxed, however, savings in these accounts typically cannot be withdrawn without penalty until youth reach college age and it must be spent on college related expenses. As a result, these accounts can more aptly be defined as being non-liquid in nature. Unlike in these popular education accounts, children can easily withdraw money from the accounts in this study and use that money without penalty but they do not benefit from tax breaks or other incentives that are common components of CDAs (such as initial deposits or match saving where for every dollar a child saves the federal government or other agency matches it with an additional dollar).

The Model

Figure 1 presents the connections among salience, group congruence, school savings and college progress (i.e., whether children who have recently left high school are currently enrolled in college or have graduated from college). In this study, children's expectations serve as a proxy for whether or not college-bound identity is salient. While some researchers treat children's expectations and aspirations as synonymous, we treat them as distinct concepts. This is because expectations do not typically match the aspirations that low- and modest-income children have. Aspirations are "values that express the desire for alternative forms of behavior" (Gans, 1968). Another way of thinking about aspirations is that they are weakly held expectations or a non-salient college-bound identity. Low- and modest-income children often still hold normative aspirations, such as attending college, but are forced to adopt less desirable patterns of behavior and values ("subcultures") to support these behaviors because they lack access to institutional resources necessary for achieving normative aspirations successfully (Gans, 1968; Gould, 1999; Rodman, 1963). The question becomes what makes college expectations actionable? We suggest that the answer to this question is whether or not they are salient (i.e., "on the mind," effective, and provide power over resources). Findings suggest that positive expectations are associated with increased academic effort and achievement (e.g., Elliott & Beverly, forthcoming-a; Marjoribanks, 1984; Mau, 1995; Zhan & Sherraden, forthcoming). This relationship is illustrated in Figure 1, path 2.

Children's college-bound identity may be "on their minds" but may not be linked to detailed strategies for attending and completing college nor give them power over resources required for success in school. In such cases, our process model suggests that children will be less likely to sustain engagement in school (persist) than if they are linked to strategies and give them power over resources. We propose that institutions such as children's savings programs are purposefully designed to help children form detailed strategies and to provide them with power over resources for attending and completing college.

Findings from previous research provide some support for the hypothesis that children's savings programs provide children with strategies for making financing college seem more manageable. In a study of 51 fourth-grade children in a college savings program, Elliott, Sherraden, Johnson, and Guo (2010) find that children who are in the school savings program are statistically more likely to perceive saving as a way to help pay for college than children in a comparison group. Also, while they did not directly test whether having savings provides children with detailed strategies, using a sample of children who expect to graduate from a four-year college, Elliott and Beverly (forthcoming-b) find that children who expect to graduate from a four-year college are more likely

to attend college if they have savings of their own than if they do not. This suggests that college-bound identity may be more likely to be salient when children have savings. There is also some evidence for the causal ordering of variables. Elliott et al. (2011) find that children's savings has a slightly stronger effect on children's expectations than children's expectations has on children's savings.

A way to illustrate the hypothesis that savings works through children's expectations (i.e., by linking expectations to a strategy for overcoming difficulty related to college) to affect college progress is through a mediated model. In the case of parents' school savings, paths 5 and 2 in Figure 1 illustrate this relationship. Figure 1, paths 1 and 2 show how children's expectations carry the effects of children's savings onto college progress. However, we hypothesize that this mediation is only partial. This is because we propose that school savings (parents' and children's) has direct effects on college progress by providing children with resources for college (see Figure 1, paths 6 and 3).⁴

Related to children's school savings, we also hypothesize that children who have parents with school savings for them are more likely to have savings of their own (see Figure 1, path 4). This hypothesis is based in part on research conducted by Friedline, Elliott, Nam and Choi (forthcoming). They find that parents' savings is significantly related to whether or not children have school savings of their own (also see Friedline, Elliott, & Nam, 2011). More generally, this hypothesis draws on research on financial socialization. Financial socialization focuses on the roles that family, peers, schools, and media play in transmitting knowledge, values, attitudes, and norms about consumption and related financial behaviors (McNeal, 1987; Schuchardt et al., 2009; Ward, Wackman, & Wartella, 1977). However, financial socialization theorists have most often focused on the role of the family. In regard to children's savings habits, financial socialization is often used as a way to explain financial behavior in adulthood (Ashby et al., forthcoming; Devaney, Anong, & Whirl, 2007).

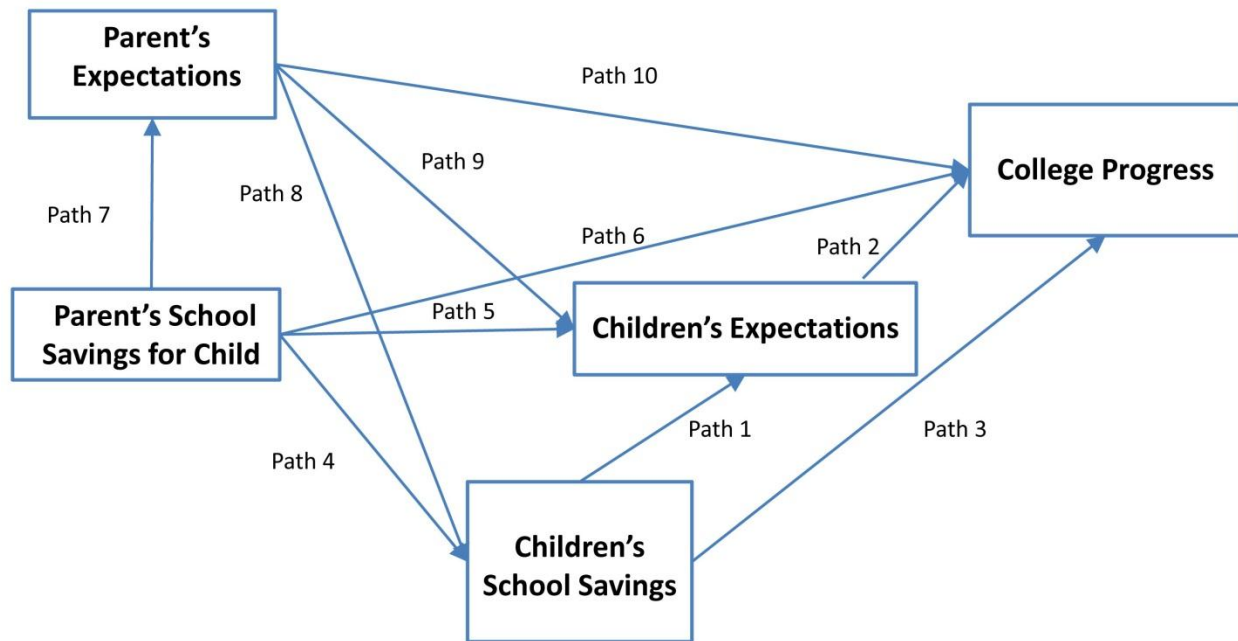
We also hypothesize that when an image of the self feels tied to ideas about relevant social groups such as the family, children's expectations are more likely to be salient and, in turn, children are more likely to be on course. We use parents' expectations for their child attending college as a proxy for group congruency. Research suggests that parents' expectations for their child are positively related to children's expectations (Hossler Stage, 1992; Zhan & Sherraden, forthcoming) and whether or not they attend college (Conklin & Dailey, 1981; Lippman et al., 2008; Zhan & Sherraden, forthcoming). This relationship is shown in Figure 1, paths 9 and 2. Further, there is some evidence to suggest that parents' school savings leads to higher parents' expectations (Figure 1, path 7). For example, Yadama and Sherraden (1996) find that the relationship between household assets, particularly savings, is more strongly linked to expectations than expectations are to household assets.

Difficulty is not modeled in this study, as it is assumed that children face difficulty in paying for college and that this difficulty influences their plans for attending and completing college (e.g., ACSFA, 2002, 2006, 2010). It is commonly recognized that college costs are on the rise (College Board, 2010). Rising college costs result in high unmet need for many economically disadvantaged children. Unmet need is "the portion of college expense not covered by the expected family

⁴ While we have hypothesized that parents' school savings has a direct effect on college progress because it makes intuitive sense, the evidence for this is mixed at best (e.g., Elliott & Beverly, forthcoming-a; Charles, Roscigno, & Torres, 2007; O'Connor, Hammack, & Scott, 2010).

contribution and student aid, including work-study and loans” (ACCSFA, 2002, p. 5). High unmet need is thought to be the result of low asset accumulation (Oliver & Shapiro, 2006). It has been estimated that, over the next decade, two million college-qualified students from low-to-modest-income households will not be able to attend any college due to high unmet need, while four million will have to attend two-year colleges (ACCSFA, 2006). High unmet need leads to concerns by low- and modest-income children and their families about their ability to finance college. For example, 71% of low-income children say they are very concerned about the cost of college compared to less than 34% of high-income children (ACCSFA, 2006, p. 13). These concerns undercut low- and modest-income children’s plans to attend a 4-year college.

Figure 1. A process model of children’s savings indirect effects on college progress.



Notes: The core principles of a college-bound identity theory of children’s savings indirect effects include: 1) identity salience, 2) congruence with group identity, and 3) interpretation of difficulty. Parents’ expectations are a proxy for group congruence. Children’s expectations are a proxy for salience. Parents’ school savings for child and children’s school savings are proxies for an institutional child’s savings program. Parents’ school savings and children’s school savings are assumed in this model to help children interpret the difficulty of paying for college.

Methods

Data

This study uses longitudinal data from the PSID and its supplements, the CDS and the 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 wealth.

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. Specifically, it focused on a broad array of developmental outcomes across the domains of health, psychological well-being, social relationships, cognitive development, achievement motivation, and education that were not contained in the PSID. Follow-up surveys were administered in 2002 and 2007. The TA supplement, administered in 2005 and 2007, measured outcomes for youth who participated in earlier waves of the CDS, and were no longer in high school. Our outcome variable is 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 an earlier point can be used to predict outcomes at a later point. Because the PSID initially oversampled low-income families, analyses are weighted using the last observed weight variable as recommended by the PSID manual (Gouskova, 2001).

Variables of Interest

The variables of interest in this study are parents' expectations, children's college expectations, parents' school savings for child, and children's school savings. Parents' expectations are a proxy for group congruence and children's expectations are a proxy for salience. Parents' school savings for their child and children's school savings are proxies for children's savings programs. Parents' school savings and children's school savings are assumed in this model to help children interpret the difficulty associated with paying for college as manageable.

Salience. *Children's college expectations* are a dichotomous variable indicating whether young adults expected to graduate from a four-year college as children. This variable is taken from the 2002 CDS, when children are asked how likely they are 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. Children who chose either of the latter two responses are defined as "expecting to graduate." College expectations serve as a proxy for salience.

Group congruence. *Parents' college expectations* are measured by asking heads of households in the CDS how much schooling they expected their child to complete. Response categories included: (1) eleventh grade or less (2) graduate from high school (3) post-high school vocational training, (4) some college (5) graduate from a two-year college, (6) graduate from a four-year college, (7) master's degree, or (8) MD, LAW, PHD, or other doctoral degree. Parental expectations are recoded into a dichotomous variable. The reference group consists of parents who responded by selecting the number 4, 5, 6, 7, or 8. Parents' expectations are downloaded for 2002 from the CDS and serve as a proxy for group congruence.

Children's savings program. There are two proxies for children's savings program used in this study: (1) parents' school savings for child and (2) children's school savings.

Parents' school savings for child. Heads of households are asked in 2002 whether they (or another caregiver) have any money put aside specifically for their child's college or future schooling, separate from other types of savings they may have had for him or her. The parents' school savings variable divided children into two categories: (1) those who in 2002 have school savings for their child, and (2) those with no school savings for their child.

Children's school savings. In this study, we focus on savings children have designated specifically for school instead of savings that can be used for any purpose. We suggest that because these savings have been mentally designated by children for school, it is more likely to be predictive of school outcomes because the link between saving and school is clearer. Specifically, children are asked in 2002 whether they have a savings or bank account in their name. If they have an account, they are also asked whether they have designated a portion of this savings for future school, like college. The children's school savings variable divides children into two categories: (1) those in 2002 who have an account and designated a portion of the savings in the account for school, and (2) those with no account and those who have an account but did not designate a portion of the savings in the account for school.

Outcome variable. The outcome variable used in this study is college progress. It is drawn from the 2007 TA data set. College progress indicates whether children are "on course." Children 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.

Controls. There are six control variables: family income, net worth, head's education, adolescent's race, academic achievement, and age in 2002. Family income is calculated by averaging family income for 1993, 1997 and 2002. Income averaged over multiple years provides the best estimate of "permanent income" (Blau, 1999). Family income is inflated to 2002 price levels using the Consumer Price Index. Because family income is positively skewed, the log transformation is used in regression analyses. In descriptive analyses for the full sample, 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).⁵

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 1994, 1999 and 2001; each year of net worth is inflated to 2002 price levels. Because net worth is positively skewed, the natural log transformation of net worth is used for regression analyses. Since some individuals have a negative value on the net worth variable, it is necessary to make adjustments to these numbers so that the natural log transformation of net worth could be calculated. All net worth values that are less than or equal to 0 are re-coded as 1 so that the natural log could be ascertained (e.g., Henretta & Campbell, 1978). 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).⁶ High net worth households serve as the reference group.

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.

⁵ 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.

⁶ These categories are based on work done by Nam and Huang (2009).

Children's race (White or Black), age, 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). Age in 2002 is a continuous variable.

Study Samples

The 2007 TA sample consisted of 1,118 participants. The samples in this study are restricted to Black and White children because only small numbers of other racial groups exist in the TA. Our final weighted "full" sample had 1,003 children. Children's age, in 2002, ranges from 12 to 19 (mean = 16, SD = 1.59). Children's age in 2007 ranges from 17 to 23 (mean = 20, SD = 1.64). Median family income is \$56,551.

Using the family income variable, we created a dichotomous variable with the following categories: low-to-modest income (LMI) (< \$50,000), and high income (\$50,000 or more).⁷ This variable is used to create a sample of LMI children and their parents. Our final weighted "LMI" sample had 544 children. Children's age, in 2002, ranges from 12 to 19 (mean = 16, SD = 1.64). Children's age in 2007 ranges from 17 to 23 (mean = 20, SD = 1.64). Median family income is \$26,920. Other sample characteristics are summarized in Table 1.

⁷ LMI categories are determined based on the categories used by ACSFA (2002).

Table 1: Study characteristics.

Items	Full Sample (N=1003)			LMI Sample (N=544)		
	Percent					
<i>Variables of Interest</i>						
Children expect to graduate from college	71			61		
Parents expect child to graduate from college	79			65		
Parents have school savings for child	54			16		
Children have savings for school	50			39		
<i>Controls</i>						
Black children	21			37		
Head has four-year degree or more	26			06		
Head has some college	22			18		
Head has high school degree or less	52			75		
High-income (>\$84,016)	27			--		
Moderate-income (\$33,377~\$84,016)	45			--		
Low-income (< \$33,377)	28			--		
High net worth (>\$10,000)	62			37		
Modest net worth (\$0~\$10,000)	21			33		
Negative net worth (< 0)	17			29		
<i>Outcome variable</i>						
On course	57			36		
Continuous Variables	Mean	SD	Median	Mean	SD	Median
Heads' education level	13	2.43	13	12	2.26	12
Net worth (\$)	168,893	1,008,686	27,565	76,061	189,022	14,110
Log	8.65	4.37	9.98	6.26	4.74	8.38
Family income (\$)	67,014	79,111	56,551	25,053	15,563	26,920
Log	10.13	2.90	10.94	8.54	3.79	10.20
Children's age in 2002	16	1.59	16	16	1.64	16
Children's age in 2007	20	1.64	20	20	1,70	20
Academic achievement	211	33.06	209	199.93	31.84	196

Source: Weighted data from the Panel Study of Income Dynamics and its supplements. Data imputed using Expectation-Maximization imputation.

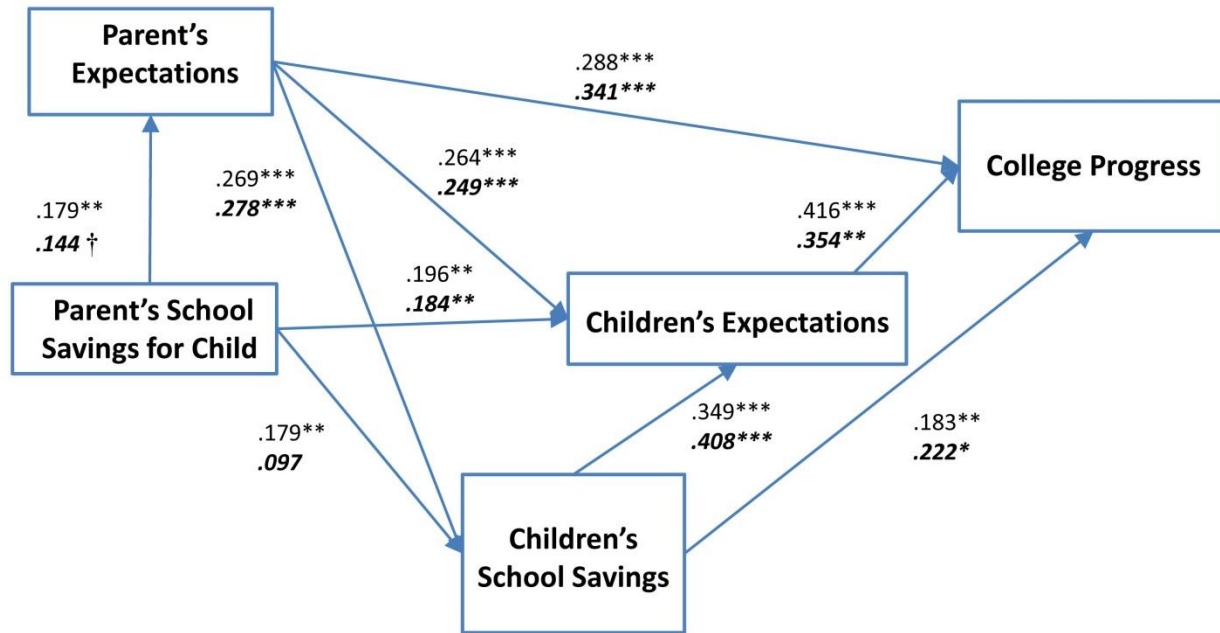
Notes: The sample includes children aged 17 to 23 and not in high school in 2007. "On course" includes children who are currently enrolled in, or have a degree from, a two-year college, a four-year college, or graduate program. LMI = Low-to-Modest Income (below \$50,000).

Analysis Plan

Path analysis was used to assess the interplay between parents' expectations, children's expectations, and parents' school savings and children's savings. Path analysis is an extension of multiple regression which assumes that the relationships between observed variables are linear, additive, and asymmetric (Loehlin, 1998). Path analysis requires that each dependent variable is completely determined by variables within the system. We used a weighted least squares analysis and theta

parameterization for estimation of a categorical dependent variable in Mplus Version 5.1 (Muthen & Muthen, 2007). All parameters were reported in Figure 2.

Figure 2. Estimated standardized path coefficients for a process model of children's savings indirect effects on college progress, full and LMI samples.



Source: Weighted data from the Panel Study of Income Dynamics and its supplements. Missing data replaced using Expectation-Maximization imputation.

Notes: LMI results presented in bold, italicized print. College progress identifies children 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. β = standardized path coefficient. LMI = Low-to-Modest Income (below \$50,000).

Model fit: Full model, CFI = 1.00; RMSA = 0.01; WRMR = .18; R^2 = .49. LMI model, CFI = 1.00; RMSA = 0.00; WRMR = .06; R^2 = .51.

Significance level: $\dagger p < .10$; $* p < .05$; $** p < .01$; $*** p < .001$.

Three goodness-of-fit indices were reported: comparative fit index (CFI), the root-mean square error of approximation (RMSEA), and WRMR (Weighted Root Mean Square Residual). A CFI fit index that exceeds .95 indicates that the model provides a good fit to the observed data. A RMSEA index at or below .06 is indicative of good fit (Hu & Bentler, 1999), even though RMSEA is sensitive to the number of parameters. A WRMR fit index of less than .90 indicates a good fit to the observed model (Yu, 2002).

Bootstrapping was used to directly test indirect effects (Bollen & Stine, 1992). 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). In this study, two thousand replications were performed.

First, Pearson's correlations between variables under study were calculated. Second, a saturated model was run and adjustments were made. Third, a full model was run with controls. These control variables were of no theoretical or policy interest in the present discussion. Nonetheless, controls are used here to remove doubt about the independent effect of variables of theoretical and policy interest and to reduce the uncertainty of omitted variable bias. This model is only reported in Appendix A. There were no significant differences between the full model with controls and without controls. Fourth, the model was run on a reduced sample containing LMI children and their parents.

Missing Data Imputation

Missing data among the variables might result in limitations regarding generalizability of the findings as well as reduced power (Rubin, 1987). Missing data were assumed to be missing at random, and handled by expectation-maximization imputation (Dempster, Laird, & Rubin, 1977). This method estimates unmeasured data and is based on iterating through two alternating steps (i.e., the expectation and maximization steps). A value is calculated for the missing data based on the observed data and its distribution in the expectation step, and calculated based on the current updated dataset in the maximization step. These two steps are alternated numerous times until a better model can be specified to estimate more accurate missing values.

Results

In this section we present the direct and indirect effects of savings (i.e., parents' and children's) on salience (i.e., children's college expectations), congruence (i.e., parents' college expectations), and children's college progress shortly after leaving high school. Two models are estimated. The first is estimated using the full sample and the second was estimated using only LMI children and their parents. Full results are reported in Figure 2. However, in the text of the results section only results from the full model are reported except where differences in significance level exist between the two models.

When the model, which is displayed in Figure 1, was fitted to the data, one of the predicted pathways was non-significant, and the model was adjusted accordingly. The "final" model, which is displayed in Figure 2, was a good fit to the data, as suggested by the goodness of fit indicators in the full model, CFI = 1.00; RMSA = 0.01; WRMR = .18. The model explains 49% of the variance in college progress. This model was also a good fit for the data set containing only LMI children and their parents, CFI = 1.00; RMSA = 0.00; WRMR = .06, explaining 51% of the variance in college progress. Table 2 shows the correlations between variables of interest and college progress.

Table 2. Pearson correlation matrix for variables of interest, full and LMI samples.

Items	1	2	3	4	5
Full Sample (N=1003)					
1 Children's expectations	1				
2 Parents' expectations	.367***	1			
3 Parents' school saving	.203***	.165***	1		
4 Children's school savings	.287***	.236***	.159***	1	
5 College progress	.397***	.419***	.191***	.303***	1
LMI Sample (N=544)					
1 Children's expectations	1				
2 Parents' expectations	.295***	1			
3 Parents' school saving	.220***	.170***	1		
4 Children's school savings	.220***	.113***	.128**	1	
5 College progress	.302***	.359***	.197***	.197***	1

Source: Weighted data from the Panel Study of Income Dynamics and its supplements. Missing data replaced using Expectation-Maximization imputation.

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

Significance level: * $p < .05$; ** $p < .01$; *** $p < .001$.

Direct Effects

Parents' college expectations. Parents' college expectations were hypothesized to have a direct relationship with children's college progress, their college expectations, and whether or not they had school savings of their own. As predicted, children who have parents who expect them to attend or graduate from college were significantly more likely to be on course than children who have parents who did not expect them to attend or graduate from college. Parents' expectations were also significant positive predictors of children's college expectations and children's school savings.

Children's college expectations. Children's expectations were hypothesized to have a direct relationship with college progress. Children who expected to graduate from college were more likely to be on course than children who did not expect to graduate from college.

Parents' school savings for child. Parents' school savings was hypothesized to have a direct relationship with children's college progress, their expectations, with whether or not children had school savings, and with parents' expectations. A significant association was found between parent's school savings and children's expectations as well as between parent's school savings and parent's expectations. In regard to its relationship with children's school savings, the evidence was mixed. It was significant in the full model but not significant in the LMI model. Further, it did not have a significant relationship with college progress in either the full model or the LMI model.

Children's school savings. Children's school savings was hypothesized to have a direct relationship with children's college progress and expectations. As expected, it had a significant positive relationship with both.

Indirect Effects

As predicted, bootstrapping results suggest that children's college expectations partially mediated the relationship between children's school savings and college progress in both the full model and the LMI model. This is the only significant indirect path for the LMI model using bootstrapping. In the full model, children's school savings and children's expectations carried part of the effect of parents' expectation onto college progress. The indirect effect of parents' expectations through children's school saving and children's school savings through children's expectations is significant in the full model.

Parents' school savings had a significant indirect effect on children's college progress through its relationship with children's expectations in the case of the full model. Findings suggest that there was not a significant indirect effect of parents' school savings through children's school savings because the confidence interval crossed zero in the full sample. A significant indirect effect on college progress was found for the paths children's school savings to children's expectations; the path parent's expectations to children's expectations; and the path parent's expectations to children's school savings to children's expectations in the full model.

Summary

This study provides support for a college-bound identity theory of indirect effects of college savings on children's college progress as young adults. The only variable of theoretical and policy interest in the model that was not directly related to college progress was parents' school savings. Despite this, it was directly related to parents' expectations, children's expectations in both models, and children's school savings in the full model. It also had indirect effects through children's expectations and parents' expectations. Children's school saving had both a direct and indirect effect (through children's expectations) on college progress in both the full model and the LMI model.

A PROCESS MODEL OF
CHILDREN'S SAVINGS INDIRECT EFFECTS ON COLLEGE PROGRESS

Table 3. Indirect effect for a process model of children's savings indirect effects on college progress, full and LMI samples.

Path	Full Sample (N=1003)			LMI Sample (N=544)		
	β	<i>Lower</i> 95% <i>CI</i>	<i>Upper</i> 95% <i>CI</i>	β	<i>Lower</i> 95% <i>CI</i>	<i>Upper</i> 95% <i>CI</i>
College progress						
by children's school savings → children's expectations	.145*	.070	.221	.144*	.024	.265
by parents' expectations → children's school savings	.049*	.006	.092	.062	-.030	.153
by parents' expectations → children's expectations	.110*	.047	.173	.088	-.036	.212
by parents' expectations → children's school savings → children's expectations	.039*	.012	.066	.040	-.005	.085
by parents' school savings → children's expectations	.082*	.025	.139	.065	-.003	.133
by parents' school savings → children's school savings	.028	-.001	.058	.021	-.018	.060
by parents' school savings → children's school savings → children's expectations	.023*	.003	.042	.014	-.009	.037
by parents' school savings → parents' expectations → children's expectations	.020*	.006	.033	.013	-.015	.040
by parents' school savings → parents' expectations → children's school savings → children's expectations	.007*	.001	.013	.006	-.004	.015

Source: Weighted data from the Panel Study of Income Dynamics and its supplements. Missing data replaced using Expectation-Maximization imputation.

Note: College progress identifies children 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. β = standardized path coefficient.

Bootstrapping with 95% of confidence interval (*CI*): *CI* that does not include zero indicates the significant indirect effect at $p < .05$.

Discussion

In addition to direct effects that accompany owning savings, asset researchers hypothesize that savings also has indirect effects. However, theory and research on the psychological effects of assets are in their early stages of development (Schreiner & Sherraden, 2007). One promising area of theoretical and research inquiry is the study of college expectations as an explanatory mechanism for the relationship between assets and children's educational outcomes. However, little theory has been developed about *how* assets may influence college expectations. In a recent article, Elliott et al. (2011) use IBM theory to explain the indirect effects of assets. There are three core components of IBM: (1) salience, (2) group congruence, and (3) difficulty. We build on Elliott et al. (2011) by suggesting that institutions (1) provide important contextual cues that bring the college-bound identity to the forefront of the mind; (2) provide an embedded thought process or strategies for overcoming difficulty; and (3) provide power over resources. Further, we test a process model of children's savings programs' indirect effects on college progress. In our model, children's expectations serve as a proxy for salience, parents' expectations serve as a proxy for group congruence, and parents' school savings for child and children's school savings serve as a proxy for children's college savings programs.

To date, asset researchers have not documented the mechanism by which savings produces indirect effects on children's college progress. Our results in the full and LMI models suggest that savings may promote college progress by making children's college-bound identity more salient. More specifically, we find that children's school savings is a positive predictor of children's college progress, children's and parents' school savings are positive predictors of children's expectations, and children's expectations are a strong and positive predictor of children's college progress. This is consistent with previous research that tests the independent effects of savings and expectations on children's college attendance and completion rates (e.g., Elliott & Beverly, forthcoming-a; Zhan & Sherraden, forthcoming).

In regard to group congruence, we find that parents' expectations are a strong and positive predictor of children's college progress in and of themselves. That is, parents' expectations are a strong and positive predictor of children's expectations, which in turn are a strong and positive predictor of children's college progress. As proposed, findings suggest that when children's college-bound identity is congruent with their group identity it is more likely that their college-bound identity will be perceived as being salient. An IBM theory of motivation and behavior proposes that group congruency has a positive influence on children's college-bound identity (Oyserman, 2010; Oyserman, Bybee, & Terry, 2006). In line with this thinking, working toward a positive college-bound identity may feel more difficult to children when their parents do not expect them to attend college. The experience of difficulty when bringing to mind the college-bound identity can provide feedback as to whether college is within reach or not.

In our model, children's savings programs are posited to have a positive effect on whether there is group congruence or not because children's savings are almost always connected to a larger social unit or family. Even when opening their own accounts, children are often supported by parents or other family members. Our findings provide evidence that parents' school savings is a positive predictor of parent's expectations. This is in line with previous research on parents' assets in general. For example, Zhan and Sherraden (forthcoming) find that financial assets (assets that are more easily turned into cash such as savings accounts, CDs, Bonds, stocks, and mutual funds) are positively

associated with parents' and children's college expectations. What this suggests is that when children and their families save money for college, the meta-message asserts "we save," "we go to college," reinforcing the college-bound identity through its congruence with the actions and goals of the larger group.

In addition, we propose that while parents' and children's school savings serve as a proxy for children's savings programs, parents' school savings is assumed to cause children's school savings. A reason for this is how children's savings programs are designed in policy proposals such as the ASPIRE Act in which accounts start from birth. Therefore, parents are the main managers of these accounts for a number of years prior to children taking an active role. Therefore, we posit that it is likely that parents' savings is an important part of children's savings programs and comes prior to children taking an active role in their accounts. Our results are mixed in regard to this proposition. In the full model, parent's savings has a small but significant effect on children's savings but in the LMI model it is not significant. A reason for this may be the small percentage of LMI parents who have school savings for their child, 16%.

Limitations

It should be noted that while both the full and LMI models fit the data well, it does not rule out alternative explanations. One limitation of this study is the uncertainty of omitted variable bias. Young adults who have savings as children 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 this alternative explanation cannot be fully ruled out (see Appendix A). It is also impossible in this study to measure whether children *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.

In the case of mediation, there is not temporal ordering. In order for temporal precedence to occur, assets must precede expectations and expectations must precede college progress. In this study, children's savings and expectations are both measured in 2002. Therefore, it cannot be determined from the findings whether assets cause expectations, for example, or expectations cause assets. It can only be determined that there is an association between the two. However, Elliott et al. (2011) do find evidence that expectations have a stronger effect on expectations than expectations have on children's savings.

Moreover, there is also potential measurement error in the school savings variable. Since there is a fairly large difference in age of children in 2002 (12 to 19), it could be that younger children do not report designating their savings for school at similar rates as older children. If this is true, findings related to children's school savings may be driven by their older counterparts. Younger children may not be able to grasp the relationship between savings and a future opportunity such as attending college. Age 12 is the first year that the CDS asks children if they have savings of their own. Evidence from behavioral economics suggests that children may benefit from saving as early as age 12, and that somewhere between the ages of six and 12, they begin to grasp the relationship between saving and future opportunity (e.g., Elliott et al., 2010; Sonuga-Barke & Webley, 1993). However, we find that savings rates among children below age 16 (23.0%) and children age 16 or older (22.5%)

are roughly equal. Therefore, it is unlikely that findings are being driven by differences in children's age in 2002, the year children's school savings is measured.

Implications for Policy

Using our definition, in order for college-bound identity to be salient it must be a cause of things that matter to children. Things that matter to children are those things that help them solve the kinds of problems they perceive as important. Children face problems in their everyday lives that are related to meeting their consumption needs or short-term and intermediate goals. Very young children lack the cognitive capacity to examine future difficulties in the same manner as adults do, so they do not worry about problems in the distant future like college. This may be why behavioral economists find that very young children (under the age of 12) value saving for short-term goals (consumption goals) over long-term goals (Furnham & Thomas, 1984). Valuing savings for short-term goals may not only be due to age, it also may be based on children's economic context. For example, Xiao and Anderson (1997) build on Maslow's hierarchy of needs theory to identify three categories of financial need based on peoples' tolerance for risk taking: survival needs, security needs, and growth needs. The categories are based on research conducted by Xiao and Noring (1994). Xiao and Noring (1994) find that low-income consumers are more likely to report saving for daily expenses (survival needs), middle-income consumers are more likely to report saving for emergencies (security needs), and high-income consumers are more likely to report saving for growth.

This suggests that savings vehicles designed so that they have the flexibility to allow young children and low-income and middle-income children to save for short-term and intermediate goals (such as buying school clothes, paying fees, buying books, or paying for school lunches) are more likely to be predictive of whether or not children's college-bound identity is salient, i.e. a cause of things that matter to children. Moreover, such day-to-day purchases may help provide everyday cues that bring college-bound identity to the forefront of their minds. While we do not test long-term savings programs in this study, our finding that children's savings programs have a positive influence on whether or not college-bound identity is salient lends support to this proposition. Further, asset researchers consistently find that financial assets are positive predictors of parents' and children's expectations (e.g., Elliott & Beverly, forthcoming-a; Zhan & Sherraden, forthcoming).

Our findings also suggest that group congruence is an important factor in children's college progress and that parents' school savings has a positive influence on group congruence. An implication of this finding is that children's savings programs may help college-bound identity feel more congruent with their group identity by providing their parents (as well as relatives, community members, and state and federal governments) with the opportunity to save money on their behalf. When parents save for their child the meta-message asserts "we save," "we go to college," reinforcing the college-bound identity through its congruence with the actions and goals of the larger group.

Conclusion

We suggest that children's savings programs should be conceptualized as a three-in-one account while acknowledging the potential difficulty that providing children with "discretionary" money may present politically. In particular, we suggest that currently proposed children's savings programs should be designed to include an Education Expense Account (EEA), an Education Development

Account (EDA) as well as an Education Growth Account (EGA) that can be used for short-term, intermediate, and long-term education developmental needs, respectively. The EEA would be non-interest yielding and would be used for such things as buying books, clothes, paying for school and after-school related fees, paying for lessons, paying for tutoring, SAT/ACT prep and so forth. In contrast, the EDA would be a low-yield interest-bearing account that could be used for such things as beginning of the year school clothes or uniforms, buying an instrument, going on a field trip or study abroad, buying a computer, and so forth. The EGA would be a high-yield interest-bearing, tax-sheltered account used for paying for children's postsecondary education much like is currently proposed in the ASPIRE Act.

The concept of EEAs and EDAs is similar to, but not the same as, Singapore's Edusave accounts (Loke & Sherraden, 2009). Edusave accounts were implemented by the Singaporean government in 1993. The accounts are set up for children ages 6 to 16. The main objective of the accounts is to maximize children's educational opportunities during their primary school years (Loke & Sherraden, 2009). According to Loke and Sherraden (2009), these accounts are automatically opened for each child in Singapore, and the government makes annual contributions to each account ranging from \$112 to \$132 in 2007. Singapore funds the Edusave program by interest earned from a \$3.3 billion Edusave Endowment Fund established by the government. Any funds left over in the Edusave account when children reach age 17 are rolled over into Post-Secondary Education Accounts, the equivalent of a children's savings program.

However, unlike Singapore's system, we suggest a one account system. Children and their families would be able to designate a portion of their savings for short-term and intermediate use. The idea of having multiple uses for the same account is logistically possible. PNC's innovative Virtual Wallet is an example of a three-in-one account.⁸ It allows participants to designate savings for short-term, intermediate and long-term goals in the same account. More specifically, there is a spend account for every day expenses, a reserve account for short-term savings, and a growth account for bigger items.

Moreover, in the Singaporean system children earn monetary incentives (between \$33 and \$330) if they perform well in academic or co-curricular activities. We propose that children's savings programs should offer similar incentives to LMI children. Combining incentives with savings is in line with our theoretical framework, which emphasizes the role institutions play in providing children with strategies for overcoming difficulties and power over resources. A difficulty that some children, particularly LMI children, will invariably face is earning enough money to save so that it makes a meaningful difference in their life.

Fryer (2010) describes how incentives can help children develop strategies to succeed in school. He finds that income incentives that are targeted at strategies for doing well in school such as completing homework assignments, reading books, and attending class (inputs) are more effective than incentives for performance on tests (outputs) for example. According to Fryer (2010), this is because children, particularly low- and modest-income children, are unfamiliar with what it takes to do well in school.⁹ Given this, it may make sense to direct incentives at inputs and not outputs. In addition to more strongly linking children's savings programs to strategies related to difficulties

⁸ For more information see

<https://www.pnc.com/webapp/unsec/NCProductsAndService.do?siteArea=/pnccorp/PNC/Home/About+PNC/Media+Room/Press+Kits/PNC+Virtual+Wallet>

⁹ Research on conditional cash transfers linked to savings may also be informative (Zimmerman & Moury, 2011).

associated with school consistent with LMI children's level of need (survival), incentives would have the practical implication of helping children and their households accumulate savings needed to pay for college as well as other human capital investments.

Part of what is being suggested in this paper is that a constant testing of the normative aspirations to attend college takes place by low- and modest-income children that reinforces behavioral adaptations – behaviors continue to be replicated because institutional capabilities have not changed. This is, low- and modest-income children are responding logically to their situations, not just replicating “cultural” behaviors as suggested by Oscar Lewis (1966). So long as low- and modest-income children aspire to mainstream values, they will continue to test the power of their college-bound identity to act as a cause of things that matter to them. This suggests that if children's savings programs combined with incentives can begin to provide real opportunity, LMI children are more likely to change their behaviors to meet their aspirations.

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A PROCESS MODEL OF
CHILDREN'S SAVINGS INDIRECT EFFECTS ON COLLEGE PROGRESS

Appendix A: Estimated standardized path coefficients for a process model of children's savings indirect effects on college progress using the full sample with controls (N=1003).

Items	B
<i>College Progress</i>	
Parents' expectations	.135**
Children's expectations	.351***
Children's school	.131*
Family income	-.005
Net worth	.079
Heads' education level	.139**
Black children	-.046
Children's age in 2002	.022
Academic achievement	.213***
R-square	.55
<i>Parents' expectations</i>	
Parents' school savings for child	.081*
Family income	-.064*
Net worth	.125***
Heads' education level	.187***
Black Children	-.026
Children's age in 2002	.052
Academic achievement	.302***
R-square	.24
<i>Children's Expectations</i>	
Parents' expectations	.215***
Parents' school savings for child	.201**
Children's school savings	.318***
Family income	-.002
Net worth	-.033
Heads' education level	.023
Black children	.119*
Children's age in 2002	-.105*
Academic achievement	.272***
R-square	.42
<i>Children's School Savings</i>	
Parents' expectations	.177***
Parents' school savings for child	.141**
Family income	-.023
Net worth	.126*
Heads' education level	-.022
Black children	-.104*
Children's age in 2002	-.024
Academic achievement	.110*
R-square	.16
Model fit	CFI: 1.00, RMSEA: .00, WRMR: .10

Source: Weighted data from the Panel Study of Income Dynamics and its supplements. Data imputed using Expectation-Maximization imputation.

Notes: College progress identifies children 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 a graduate program.

β = standardized path coefficient.

Significance level: * $p < .05$; ** $p < .01$; *** $p < .001$.