FACTORS ASSOCIATED WITH SAVINGS AND THE ACHIEVEMENT OF SAVINGS GOALS IN INDIVIDUAL DEVELOPMENT ACCOUNTS: EVIDENCE FROM THE AMERICAN DREAM DEMONSTRATION

by

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(Under the Direction of TERESA MAULDIN)

ABSTRACT

Factors related to savings and the achievement of savings goals in individual development account (IDA) programs are explored. Using a multinomial logit analysis, participants with no savings (non-savers), positive savings but no matched withdrawal (unmatched savers), and positive savings with a matched withdrawal (matched savers) are compared. Increased hours of financial education required by IDA programs were associated with a decrease in the probability of being a matched saver (vs. non-saver and unmatched saver). At the same time, hours of financial education that participants took beyond those required of them increased the probability of being an unmatched saver (vs. non-saver) and matched saver (vs. non-saver and unmatched saver). A number of other factors were significant when estimating the probability of being in each group, including match cap, match rate, prior access to a savings account, race/ethnicity, marital status, educational attainment, and intended use of the IDA.

INDEX WORDS: Individual Development Account (IDA), savings, low-income, financial education

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CHAPTER 1

INTRODUCTION

Individual Development Accounts (IDAs) are savings accounts for low-income individuals developed by policymakers to encourage savings. Through IDAs, these individuals are given free access to savings accounts in which they can save for development purposes (such as education, homeownership, or small business). Savings in these accounts are matched by up to four times the amount the participant deposits into the account by private or government agencies. Education is a major component of the IDA program, as financial literacy classes are required for all participants in the IDA program. These programs are run on the local level and vary in match rates, enforcement of program rules, and educational class hour requirements.

The IDA program is part of an asset-based welfare policy that focuses on building the wealth of low-income households (as opposed to supplementing income) to lift these households out of poverty (Sherraden, 1991). IDAs were proposed under the theory that well-being consists not only of income, but of assets as well. In *Assets and the Poor*, Sherraden (1991) argues that building assets has a wide variety of positive social, psychological, and economic effects. IDA programs have proven effective in building assets (Abt Associates, 2004; Schreiner et al., 2000), but more knowledge of the factors related to the achievement of savings goals in these programs is needed. Savings behavior is important to study because it provides insight into complex human conduct (such as thriftiness and the conservation of resources) and also contributes towards solving important problems in our national economy (Warneryd, 1988), such as increasing consumer debt, bankruptcy, and insolvent households. The purpose of this study is to

explore the factors related to savings and the achievement of savings goals in IDA programs, including access to savings institutions, incentives to save, information about savings mechanisms and the benefits of saving, perceived participant benefit from information, and the facilitation of saving.

History of IDAs

The United States has a history of asset-building policies designed to strengthen the economy and build wealth. The Homestead Act of 1862 and G. I. Bill of 1944 helped create an educated workforce and numerous landowners (Edwards & Mason, 2003). However, around 1970, asset-building policy shifted to benefit the middle and upper classes. These new policies included the growth of 401(k)s, 403(b)s, IRAs, Roth IRAs, College Savings Plans, and Medical Saving Accounts. Much of the low-income population do not have access to these savings mechanisms, as more than 90 percent of tax expenditures for retirement and home ownership are distributed to households that earn over $50,000 a year (Sherraden et al., 2000).

In 1991, Michael Sherraden proposed individual development accounts (IDAs) as asset-building vehicles for all U. S. citizens (Edwards & Mason, 2003). Sherraden (2000) presented IDAs as a matched saving program to show that low-income households can accumulate assets if they have opportunities and incentives, like many in the upper and middle classes have opportunities and incentives to save in employer 401(k) and other retirement savings plans.

Working with Robert Freidman from the Corporation for Enterprise Development (CFED) and Ray Boshara, who was then a staff person on the House of Representatives Select Committee on Hunger, Sherraden developed the first federal IDA legislation in 1991. The bill failed, but developed into the Assets for Independence Act (AFIA), which passed in 1998. Former President Bill Clinton and President George W. Bush have supported IDA legislation.

President Bush continues in his support of IDAs by promoting the Savings for Working Families Act (SWFA) under the Charitable Aid, Recovery and Empowerment Act (CARE) (Edwards & Mason, 2003). CARE stalled in 2003, but was reintroduced in 2005 including the SWFA that would provide corporate tax credits for donations of matching funds to create 900,000 new IDAs over the next ten years. The bill was read on September 28, 2005, and referred to the Senate Committee on Finance (RESULTS, 2005).

Iowa became the first state to pass IDA policy in 1993, as part of a comprehensive welfare reform, the State Human Investment Policy (SHIP). Iowa's legislation became an early model, as other states copied the state's IDA policy. State IDA policy development surged in 1997 and most states passed IDA policies between 1997 and 2000. Thirty-four states, the District of Columbia, and Puerto Rico have passed some type of IDA legislation. Many states are continuing to amend IDA legislation as research surfaces from the field (Edwards & Mason, 2003). Currently, there are about 400 IDA programs with more than 20,000 accounts across the country (RESULTS, 2005).

IDA program development and policy advocacy started at the grassroots level. Non-profit partners of state IDA initiatives have completed most of the design, delivery, and evaluation of IDA programs. This is because IDA programs have yet to receive significant state funding. Only eight states (Connecticut, Indiana, Maryland, Minnesota, Pennsylvania, South Carolina, Tennessee, and Vermont) and Puerto Rico appropriate general revenue funds for IDA programs (Center for Social Development, 2004). IDA policies vary greatly between states depending on state legislation. For example, state legislation in Indiana provides a three to one match rate and administrative dollars from state funds. Indiana also gives tax credits to contributors for matching funds and allocates Temporary Aid for Needy Families (TANF) and

Assets for Independence Act (AFIA) funds to IDAs. In contrast, Rhode Island has allocated AFIA funds for IDAs, but no IDA program has been developed nor any state appropriations made (Center for Social Development, 2004). Many community-based charitable organizations (such as the United Way) have partnered with financial institutions to start IDA programs with the belief that states will fund IDAs once they are proven to work (Center for Social Development, 2005; Edwards & Mason, 2003). Financial institutions provide bank accounts at no cost to IDA participants, while organizations administer the program. Individual IDA programs create and enforce differing program rules, including a match cap (the maximum amount a participant can have matched), hours of financial literacy classes, and minimum deposit frequency.

Purpose of Study

The purpose of this study is to explore factors related to savings and the achievement of savings goals in IDA programs, particularly access to savings institutions, incentives to save, information about savings mechanisms and the benefits of saving, participant benefit from information, and the facilitation of saving. The key research question of this study is: Which factors (e.g., access, incentives, response to incentives, information, benefits from information, and facilitation) are related to savings and the achievement of savings goals in IDA programs?

More specifically, the following questions will be explored: Is the presence of an institution that values saving related to savings and the achievement of savings goals by IDA program participants? Is participant access to an institutionalized saving mechanism (such as an IDA or savings account at a financial institution) related to savings and the achievement of savings goals by IDA program participants? Is the facilitation of savings (e.g. direct deposit into a IDA or savings account or program rules that encourage savings) related to savings and the

achievement of savings goals by IDA program participants? Are incentives to save (e.g. match rates and interest rates) related to savings and the achievement of savings goals by IDA program participants? Is information (in the case of IDAs, in the form on financial education) related to savings and the achievement of savings goals by IDA program participants? Are participants' perceptions of this information (education) related to savings and the achievement of savings goals by IDA program participants?

Results from this study will provide program evidence for the improvement of IDA programs. Implications for increasing savings of IDA participants will also be drawn, moving participants closer to their asset purchases to improve their economic condition. These implications may also be applied to low-income households outside of the IDA program. Increasing saving and asset accumulation among low-income households is important, as these households are vulnerable to economic shocks, such as job loss and medical bills (although liquid assets are more useful for these economic shocks than non-liquid assets).

Much research has been done about the factors related with increased savings amounts in IDAs. However, little research has been done about the factors related to the achievement of savings goals in IDA programs. The purpose of the IDA program is for participants to reach their savings goals in order to make a matched withdrawal for an asset purchase. What good are provided matching funds if participants do not reach their savings goal to obtain their matching funds? This study will draw implications for increasing matched withdrawals, as only 32 percent of participants in IDA programs make matched withdrawals in order to obtain their matching funds (Schreiner, Clancy, & Sherraden, 2002).

Commonly Used Terms

American Dream Demonstration (ADD): Also known as the American Dream Policy Demonstration. A four-year demonstration of IDA programs across the nation funded by private contributions. Used as an evaluation tool of IDAs.

Individual Development Accounts (IDAs): Matched savings accounts designed to help low-income individuals buy a home, start a small business, or pay for higher education.

Institutional determinants of saving: Qualities of an institution (in the case of this study, a program) that determine the saving of individuals or participants, such as access, information, incentives, and facilitation.

Average monthly net deposit (AMND): deposits, plus interest, minus unmatched withdrawals, divided by months of participant participation.

CHAPTER 2

REVIEW OF LITERATURE

Individual development accounts (IDAs) were proposed under the theory that well-being consists not only of income, but of assets as well. Cash transfer programs are designed to just barely provide subsistence. This sends the message that resources are to be consumed. Asset limits of welfare programs also discourage savings. Means-tested income transfer programs (including Temporary Assistance of Needy Families) require that recipients have little or no assets (usually less than $1,500 excluding home equity) in order to become and remain eligible for the programs (Sherraden, 1991). However, IDAs communicate the value of asset accumulation on well-being. Through financial education, IDAs work to shift the "consumption" frame of reference to the understanding of the importance of sustainable wealth and assets for long-term well-being (Schreiner et al., 2000).

In *Assets and the Poor*, Sherraden (1991) argues that assets have a wide variety of social, psychological, and economic effects. He states that people think and act differently when they accumulate assets. Assets increase economic stability, connect people with a future, encourage human capital, provide a foundation for risk-taking, and enhance the welfare of children, according to Sherraden (1991). Increasing saving and asset accumulation among low-income households is important, as these households are more vulnerable to economic shocks, such as job loss and medical bills, than higher income groups. Assets provide a base on which these households can draw on during times of economic uncertainty. Sherraden (1991) argues that

assets also create an orientation towards the future. Only when individuals are secure today, can they look forward to the future.

On a larger scale, it is necessary to provide incentives for low-income households to accumulate assets because of market externalities. The benefits of assets reach further than the private benefits received by households. These social benefits include increased civic engagement by those households and increased welfare of their children (Sherraden, 1991). Asset-holding individuals have greater resources and greater incentives to participate in the political process. Wealth leads to a greater effort to protect property and to improve the community in which the property is located. Assets also provide a financial base on which households can invest in the human capital of their children, ultimately increasing the future economic well-being of children. Parents can also leave a bequest to children, providing economic security. These effects of assets lessen the chances that children will be in poverty and need government assistance in the future (Sherraden, 1991). Therefore, providing subsidies to accumulate assets encourage individual households to internalize the social benefits of assets.

Theoretical Literature Review

Many diverse theories exist which aim to explain the savings behaviors of individuals (including absolute, permanent, and life-cycle income hypotheses). The life-cycle income hypothesis is one of the most popular theories used to predict savings (Ando & Modigliani, 1963; Freidman, 1957). The life-cycle hypothesis predicts that individuals and households will save or dissave to smooth consumption through their lifetime (Freidman, 1957). While this theory is useful, the fact it has not been effective in predicting savings behavior of low-income individuals (Lunt & Livingstone, 1991) makes the life-cycle hypothesis less appropriate for investigating the savings behavior of low-income individuals.

Other theories appear more appropriate in predicting savings behavior of the low-income population. Specifically, the neoclassical economic, psychological economics, and institutional theories are useful because they apply to all individuals, regardless of income level.

Neoclassical Economic Theory

Neoclassical economic theory assumes individuals are rational decision makers who react in predictable ways to changes in situations and incentives. Personal preferences and opportunities (or lack of opportunities) are the two main determinants of behavior. According to neoclassical economic theory, individuals save when the price of current consumption is high compared to the price of future consumption. In other words, individuals will save when they receive more utility from future consumption than current consumption (Bryant & Zick, 2006). It is assumed that an increase in the rate of return earned on savings will have two effects: individuals may save more because the price of current consumption increases relative to future consumption (substitution effect); but also, individuals can save less and still have future consumption with higher rates of return (income effect) (Moore et al., 2001).

Psychological Economics Theory: Katona

Psychological economics theory focuses on the effects of intervening variables such as motives, aspirations, and expectations on economic behavior. In this theory, preferences and aspirations are not fixed and those who postpone consumption must choose to do so (Sherraden et al., 2000). Therefore, savings is a function of ability to save and willingness to save (Katona, 1951).

Katona (1975), an economist and psychologist, categorized saving as contractual, discretionary, and residual. Contractual saving is a fixed obligation to save; individuals do not make the conscious decision to save when saving contractually. Examples of contractual saving

and wealth accumulation include payroll deduction into savings accounts and the accumulation of home equity in mortgage payments. Discretionary saving takes place when individuals make a conscious decision to save. Putting money from a paycheck into a savings account would classify as discretionary savings. The third type of saving is residual saving. This occurs when individuals fail to spend all of their money and have money left over (Katona, 1975). "Beyond the fairly common occurrence of contractual and residual saving that do not result from strong motives to save, large additions to savings and reserve funds have been found to be common only among middle-aged families with substantial income and large assets" (Katona, 1980, p. 13). In order to save consciously (discretionary saving), motives (or willingness to save) must be high. These motives to save are especially rare for low-income individuals, as their motives to spend are more immediate; all of their income is needed for basic expenses, so savings is delayed (Katona, 1975). By placing individuals into a structure of savings, IDA programs may create contractual savings for participants by eliminating choices. Participants have to save to stay in the IDA program and some IDA programs offer a direct deposit feature. If money is taken directly from a participant's paycheck and put into an IDA without passing through the participant's hands, the choice to spend that money is eliminated and saving is made easier.

Institutional Theory

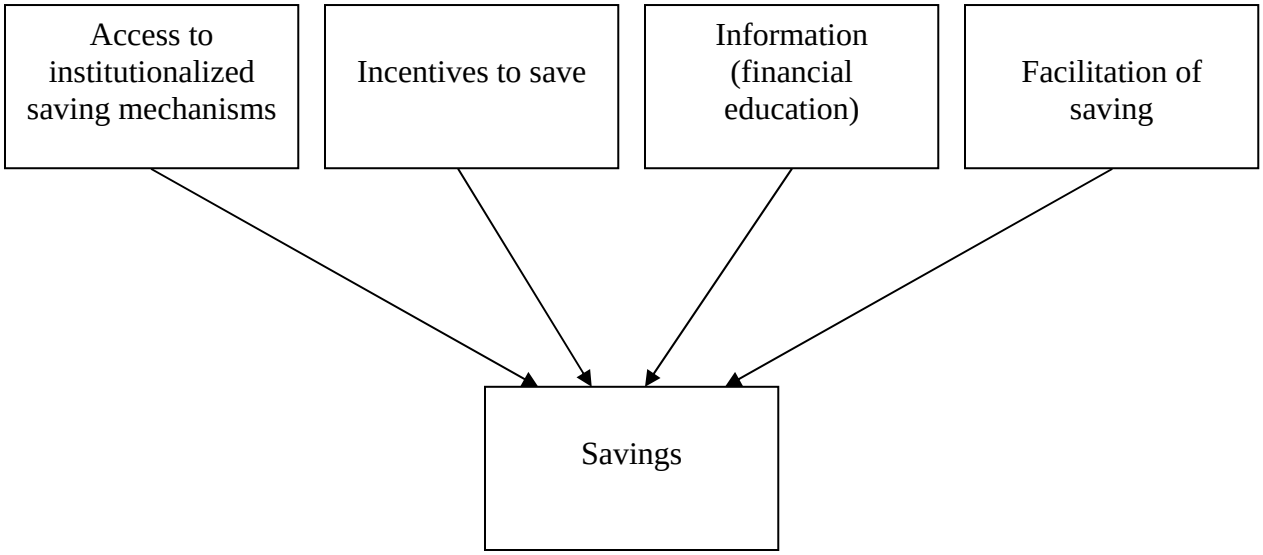
When introducing IDAs, Michael Sherraden suggested that saving and asset accumulation are not only dependent on personal preferences but there is evidence to support the idea that saving is mainly facilitated through institutional factors (Sherraden, 1991). The IDA program is an institution in which participants make decisions. Therefore, the institution influences participant decision-making (institutional theory), yet, participants must choose how much they save (psychological theory). This is a reflection of the institutional economics value

theory (Gordon, 1980). Values held by individuals are shaped by the institutions in which they belong. Therefore, to change individuals' values, the institutions in which individuals belong should adopt the desired values. Institutions that value saving will force participants to in turn value saving. One way to increase saving is to increase programs that value saving.

"An institutional perspective suggests that external factors other than income and preferences may influence saving behavior in IDAs" (Sherraden, Schreiner, & Beverly, 2003, p. 97). The IDA program itself is an institution that imposes rules on participants. Individual actions may be examined, but it is within the bounds of the institution that individuals respond and plan (Neale, 1987). IDAs provide opportunities and limits, as well as rules that define required behavior for participation in the IDA program. IDA programs impose rules upon participants, and participants must abide by these rules in order to participate in the program. When examining individual motives, it is important to remember that actions are chosen depending on the context of the institution (IDA program) (Neale, 1987). Once put into the context of the institution, individual-level behaviors can be examined.

Beverly and Sherraden (1999) found that institutional determinants of savings fell into four categories: (a) access to institutionalized savings mechanisms, (b) incentives to save, (c) information (e.g., financial education), and (d) the facilitation (support) of saving. This model is illustrated in Figure 1.

Figure 1. Institutional Determinants of Savings in IDAs



This model written as a functional formula converts to: S = *F*(A, M, E, F)

When S = savings, A = access to institutionalized saving mechanisms, M = incentives to save, E = information (financial education), and F = facilitation of saving.

Access to Institutionalized Saving Mechanisms

According to Beverly and Sherraden (1999), individuals who have access to institutionalized savings mechanisms are likely to have higher savings rates than those who do not. Institutionalized saving mechanisms promote savings because they are convenient and secure; they also send the message of the need and benefits of saving (Beverly & Sherraden, 1999). Human actions are influenced by frames of reference (Shiller, 2005). If a low-income individual does not have access to an account in which to save money, that individual will most likely internalize the belief that he or she cannot save. In fact, the lack of savings by low-income

individuals may be partially explained by limited opportunities to access financial institutions (Sherraden et al., 2003).

Incentives to Save

Attractive incentives will promote savings. Incentives draw on the neoclassical economic theory that individuals may save more because the price of current consumption increases relative to future consumption (substitution effect). Also, with higher real interest rates, individuals can save less and still have future consumption (income effect). Psychological economic theory predicts that individuals benefit from creating their own behavioral incentives and constraints when saving (Shefrin & Thaler, 1988) (e.g., tricking themselves into saving or rewarding themselves for saving). These incentives and constraints may be externally imposed, but individuals voluntarily place themselves under restrictions by joining the program. For example, individuals voluntarily join IDA programs and submit themselves to the rules of the program. Incentives may also reinforce the importance of savings on a social scale (Beverly & Sherraden, 1999).

Information

Beverly and Sherraden (1999) found that the majority of Americans lack the financial knowledge and information to make basic economic calculations, particularly low-income households as they have less education, in general, than the rest of the population. IDA programs include financial education classes under the assumption that the extent to which a person understands the process and benefit of saving (and asset accumulation) will affect their willingness to save (Moore et al., 2001; Beverly & Sherraden, 1999). Those who understand the fundamentals and probable outcomes of a savings plan are more likely to develop such a plan. Under these assumptions, financial education will increase savings.

Facilitation of Saving

From an institutional view on savings, individuals whose savings is in some way facilitated will have higher savings rates. Facilitation involves techniques that make it difficult to choose current consumption at the expense of future consumption, including mechanics of contractual saving and precommitment constraints. One example of facilitation is payroll deduction into a savings account. When money is automatically deducted from a paycheck, the temptation to spend the money is removed and the individual no longer has to make the conscious choice to save (Beverly & Sherraden, 1999).

Empirical Literature Review

The most well known privately funded IDA program is the American Dream Demonstration (ADD). The ADD was designed and directed by the Corporation for Enterprise Development (CFED). The Center for Social Development planned the ADD evaluation (Schreiner et al., 2000). The ADD was the first systematic attempt to measure the effects of IDAs on savings and asset ownership (Abt Associates, 2004; Schreiner et al., 2001). The ADD started more than 2,400 IDAs at 14 sites across the nation. For this four-year demonstration, CFED raised millions of dollars from 11 national foundations. Although ADD only ran from 1997 to 2001, many of the ADD sites became Assets for Independence Act (AFIA) grant recipients and/or part of state legislated programs (Edwards & Mason, 2003).

Several studies were conducted on the ADD using a variety of research and evaluation methods in order to gather the most accurate picture of the effects of the ADD as possible. Schreiner et al. (2001) used descriptive statistics and simple regressions to describe the characteristics of individuals who participated in the ADD and their saving behaviors. The average monthly deposit for the 2,378 participants of the ADD was $25.42 with an average net

deposit of $353. This average net deposit was 67 percent of participants' pro-rated match caps (the most they were allowed to save for a matched withdrawal). The average participant made a deposit seven months out of twelve and had a savings rate of 2.2 percent of his or her income (Schreiner et al., 2001).

Abt Associates (2004) conducted an experimental study of the ADD with the Community Action Project of Tulsa County (an ADD site) in Tulsa, Oklahoma. IDA program applicants were randomly assigned to treatment (participation in the program, n=412) or control (no participation in the program, n=428) after a baseline survey. Abt Associates (2004) found an increase in homeownership among IDA participants. IDA participants also yielded an increase in retirement savings. However, the total assets of IDA participants were not significantly different than the total assets of control group members (Abt Associates, 2004). This may indicate that participants shifted assets from other resources into their IDAs. The study by Abt Associates (2004) offers high internal validity because it was an experiment in which individuals were randomly assigned to treatment and control groups. In order to be useful, the results of experiments must be generalized to other populations. It is possible that the program in Tulsa may be administered differently than other IDA programs, or that the population that participated in IDAs in Tulsa may be different than populations that participate in IDAs in other areas, which would reduce the ability of this study to be generalized to other populations.

Moore et al. (2001) conducted a cross-sectional survey of 324 ADD participants (the researchers randomly selected six sites at which to administer the survey). Two hundred ninty-eight of these participants were current ADD participants and 26 were former ADD participants. Most of the ADD participants perceived positive effects of their IDA. Ninety-three percent of participants agreed or strongly agreed with the statement that they felt more confident about the

future because they have an IDA. Eighty-four percent of participants agreed or strongly agreed that they felt more economically secure because of their IDA. The overall perceived effect of the IDA program by participants was very positive (60% of participants) or positive (40% of participants). Most of the current and former participants liked the characteristics of the IDA program, such as: the match rate, interest rates, the financial institution, rules regarding withdrawals, and educational classes (Moore et al., 2001).

Interviews with 59 randomly selected ADD participants in Tulsa, Oklahoma, suggested that participants respond positively to a program that places expectations on them (Sherraden et al., 2005). Many respondents differentiated the IDA program from other welfare programs because it is not simply a handout. This suggests that if public policy communicates trust in people and helps them in ways that reflect their own values, participants will respond positively (Sherraden et al., 2005).

Thirty-two percent of all participants in the ADD made matched withdrawals from their IDA at the end of the demonstration on December 31, 2001 (Schreiner et al., 2002). However, some participants (depending on differing program rules) had until June 30, 2006 to make a matched withdrawal. Those who made a matched withdrawal averaged 2.5 withdrawals each for a total of $878 per participant who made a matched withdrawal. Including the value of the matching funds, this total came to $2,586 per participant who made a matched withdrawal. Twenty-eight percent of participants who made a matched withdrawal used their funds for a home purchase. Small business accounted for 23 percent of the participants' uses for matched withdrawals. Post-secondary education accounted for 21 percent and home repair, retirement, and job training accounted for 18, 7, and 2 percent, respectively (Schreiner et al., 2002).

Studies outside of the ADD have shown that low-income individuals can save in IDAs (Shobe & Christy-McMullin, 2005; Petro, 2004; Johnson, 2003; Native Assets Research Center, 2000), but little has been done to explore how participants save in IDAs. Following is the existing evidence of the institutional determinants of saving in IDA programs.

Access to Institutionalized Savings Mechanisms

From in-depth interviews with 59 randomly selected ADD participants in Tulsa, Oklahoma, Sherraden et al. (2005) found that without institutional support, many respondents believed that they could not save money. Sherraden's data suggested that without support from the program, many individuals begin saving, but do not maintain their savings. After joining the IDA program, participants said they were more successful in saving (24% saved regularly prior to IDA, 71% saved regularly in IDA program) (Sherraden et al., 2005). Hogarth and Anguelov (2003) reinforced this finding using the 1998 Survey of Consumer Finances. They found that low-income individuals with a bank account were 1.8 times as likely to save as those without access to a bank account (Hogarth & Anguelov, 2003). Providing access to savings mechanisms may be the first step in increasing saving among low-income individuals.

Incentives to Save

Studying the savings behaviors of all single mothers 18 years and older (n=1,215) in the ADD, Zhan (2003) found that single mothers with higher match rates saved more frequently than those with lower match rates. However, match rates did not have a statistically significant relationship with savings amounts for ADD participants as a whole (Schreiner et al., 2001). This may be because most IDA programs set a maximum savings amount (match cap) for participants to achieve. Therefore, participants are limited to a specific amount they can save in their IDA. Schreiner et al. (2000) found that ADD participants with a higher match rate were less likely to

make an unmatched withdrawal. Also, individuals who participated in programs with a high match cap may be less likely to withdraw money from the account. A higher match cap also made a large statistically significant decrease in the risk of unmatched withdrawals. Higher match rates and match caps were also found to decrease the probability of participants leaving without making a matched withdrawal (Schreiner et al., 2000; 2001). In a Tobit analysis of all ADD participants, Schreiner (2005a) found that higher match rates increased the likelihood of saving in IDAs, but for those who saved in IDAs, higher match rates were associated with a lower level of savings. Perhaps these participants saw less of a need to save greater amounts of money, as this money would be substituted with the matching funds. Although it is unclear if match rates increase amounts saved in IDAs, they do appear to increase program participation. Moore et al. (2001) did not find a statistically significant relationship between participant's response to incentives (believing that the IDA earns enough interest) and savings amounts in a survey of almost 300 ADD participants.

Information and Participant Benefit From Information

Financial literacy classes are the main source of information in IDA programs. These classes appear to have a positive relationship with savings up to a point and then switch to a negative association (curvilinear relationship). Controlling for exit status and length of participation for all participants in the ADD, Schreiner et al. (2000), Schreiner et al. (2001), Sherraden et al. (2003), and Clancy, Grinstein-Weiss, and Schreiner (2000) found that financial education was positively associated with the savings amount of ADD participants for up to 12 hours of classes, negatively associated with savings amount from 13 to 18 hours of class, and positively associated again for more than 18 hours. Clancy, Schreiner, and Sherraden (2002) found similar results with the 514 participants in the United Way of Greater St. Louis IDA pilot

program. Savings amount (controlling for length of participation) increased with up to 6 educational hours, but decreased with 7 to 12 hours of education. This may reflect selection bias as participants were assigned to education hours based on the assessment of IDA staff. Those who were perceived to potentially have difficulty saving may have been assigned to a higher number of educational hours. Therefore, educational classes may not have caused these individuals to save less. Unobservable characteristics of participants that caused the participants to be assigned to higher amounts of educational hours may have also caused them to save less.

In a cross-sectional survey of 298 ADD participants, 85 percent of respondents said that financial literacy classes helped them to save (Moore et al., 2001). However, those who said that classes helped them save actually saved about $9 less per month than those who did not find the classes helpful. This discrepancy may possibly be explained by participant characteristics as well. Perhaps participants who find financial literacy classes most helpful are those with little financial knowledge and, therefore, are less likely to save as much (Moore et al., 2001).

Facilitation of Saving

One source of facilitation in IDAs is direct deposit. Only about 6% of all ADD participants used direct deposit. Contrary to expectations, Sherraden et al. (2003) found that direct deposit was not significantly related to savings amount, when performing an OLS regression on all participants with positive savings in the ADD, in fact it was slightly negatively related. Sherraden et al. (2003) were not able to explain this relationship and can only guess that it is the result of measurement error or selection bias. Perhaps those participants who used direct deposit found that they were depositing more than they could afford into their IDAs and ended up withdrawing significant amounts of money from their IDAs to meet expenses. Other non-IDA studies have linked contractual savings mechanisms with higher savings rates. For

example, Benartzi and Thaler (2004) found that if future pay increases are automatically placed into a savings account, employees do not opt out of the program and savings increase considerably. Program rules also facilitate savings. In a survey of 298 ADD participants, the participants who like the rules of their IDA program saved $8 more per month than the participants who did not like the rules (Moore et al., 2001). One program rule is a match cap (the maximum participants are able to save for a matched withdrawal). For example, IDA programs may only match up to $3,000 of a participant's savings. Sherraden et al. (2003) found a high match cap to be a significant predictor of savings amount among those with positive savings in the ADD.

Summary

Studies of the ADD suggest that institutional determinants (access, incentives, information, and facilitation) influence savings in IDAs. More evidence exists for the influence of incentives and information on savings, as these determinants have been more easily measured than access and facilitation in IDAs. Savings amounts have been explored in previous research, but little research has been conducted assessing the achievement of savings goals in IDAs. This information is key to a successful savings program. This study will determine the differences between participants who are unable to save in an IDA program, those who can save but do not reach their savings goal, and those who successfully save and reach their goal. Determining the factors related to successfully completing the IDA program and making a matched withdrawal is essential for the continued existence of IDA programs. What good are provided matching funds in savings accounts if participants are unable to make a matched withdrawal? These factors need to be further explored in order to inform IDA policy and program characteristics in the future.

CHAPTER 3

METHODS

The American Dream Demonstration

Data collected on IDA participants in the American Dream Demonstration (ADD) will be used in this study. The University of Georgia Institutional Review Board approved the use of this data in project number 2006-10712-0. The ADD was held from 1997 to 2001 at 14 sites across the nation selected through a competitive process (Schreiner et al., 2002). These 14 sites were hosted by 13 organizations (the Community Action Project of Tulsa County (CAPTA) hosted two IDA programs). These sites had differing program designs. See Table 1 for a description of each of the ADD host organizations.

The ADD was funded by 11 private donors/foundations: Ford, Charles Stewart Mott, Joyce, F. B. Heron, John D. and Catherine MacArthur, Citigroup, Fannie Mae, Levi Strauss, Ewing Marion Kauffman, Rockefeller, and the Moriah Fund (Schreiner, 2005b). After the start of the ADD, some of the host organizations were awarded additional contracts through the Assets for Independent Act (AFIA). These funds had different program design requirements than those already in place for the ADD, such as stricter income guidelines, an asset test, and fewer qualified matchable uses (Schreiner et al., 2002). The funds for some participants came from both ADD and AFIA, so records for IDA participants in each program were grouped into sites, depending on program rules at the time the participant enrolled.

Table 1

Host Organization Descriptions

Host Organization	Location	Type of Organization	Targeted Participants for IDAs
ADVOCAP	Fond du Lac, WI	Community action agency	Former AFDC/TANF recipients; the working poor
Alternatives Federal Credit Union	Ithaca, NY	Community development credit union	Single parents; youth
Bay Area IDA Collaborative (formerly EBALDC)	Oakland, CA	Collaborative of 13 community-based organizations	Low-income Asian Americans; African Americans; Hispanics
Capital Area Asset Building Corporation (CAAB)	Washington, D.C.	Collaborative of 8 community-based organizations	TANF recipients; youth; African Americans; Hispanics; Asian Americans
Foundation Communities (formerly Central Texas Mutual Housing)	Austin, TX	Not-for-profit housing organization	Rental property residents; youth
Central Vermont Community Action Council (CVAC)	Barre, VT	Community action agency and community development corporation	TANF recipients; youth
Community Action Project of Tulsa County (CAPTA)	Tulsa, OK	Community-based anti-poverty organization	Small-scale: Working families with children at or below 200% of poverty Large-scale: Working families with children at or below 150% of poverty
Heart of America Family Services	Kansas City, MO	Community-based family-services agency	Hispanics; African Americans

Table 1 (continued)

Host Organization Descriptions

Host Organization	Location	Type of Organization	Targeted Participants for IDAs
Mercy Corps (formerly Human Solutions)	Portland, OR	Social-service organization	Rental property residents
MACED/Owsley County Action Team	Berea, KY	Association of community development organizations	Rental property residents; the working poor
Near Eastside IDA Program	Indianapolis, IN	Social-service organization/ Community development credit union	Neighborhood residents; youth
Shorebank Corporation	Chicago, IL	Community development bank with not-for-profit affiliate	Rental property residents; Shorebank customers
Women's Self-Employment Project (WSEP)	Chicago, IL	Microenterprise development organization	Low-income, self-employed women; public-housing residents

Note. From *Saving performance in the American dream demonstration: A national demonstration of individual development accounts, final report*. By M. Schreiner, M. Clancy, and M. Sherraden, 2002, p. 2. St. Louis, MO: Center for Social Development, Washington University.

Enrollment in the ADD took place between July 1, 1997 and December 31, 1999. However, some participants enrolled after the deadline. The ADD had 2,364 participants as of December 31, 2001. Savings ended and matches were only allowed for deposits made through December 31, 2001 for most participants. Participants at most ADD programs could make matched withdrawals on their accounts through June 30, 2002 (Schreiner et al., 2002).

Participant and account information were maintained with the Management Information Systems for Individual Development Accounts (MIS IDA), created by the Center for Social Development. MIS IDA is computer software designed to act as a standardized tool for monitoring IDA programs and assist organizations with program administration. MIS IDA is divided into two main divisions: program information and participant information. Program information includes: IDA program design characteristics, periodic program budget (including staffing and administrative costs), budget projections, data on funding partners, and match fund uses and account activity. Participant information includes: characteristics of participants, IDA structure (including match rate, maximum annual savings, and allowable IDA uses), actual IDA activity, and matched withdrawals and uses of IDA funds for each participant (Center for Social Development, n.d.).

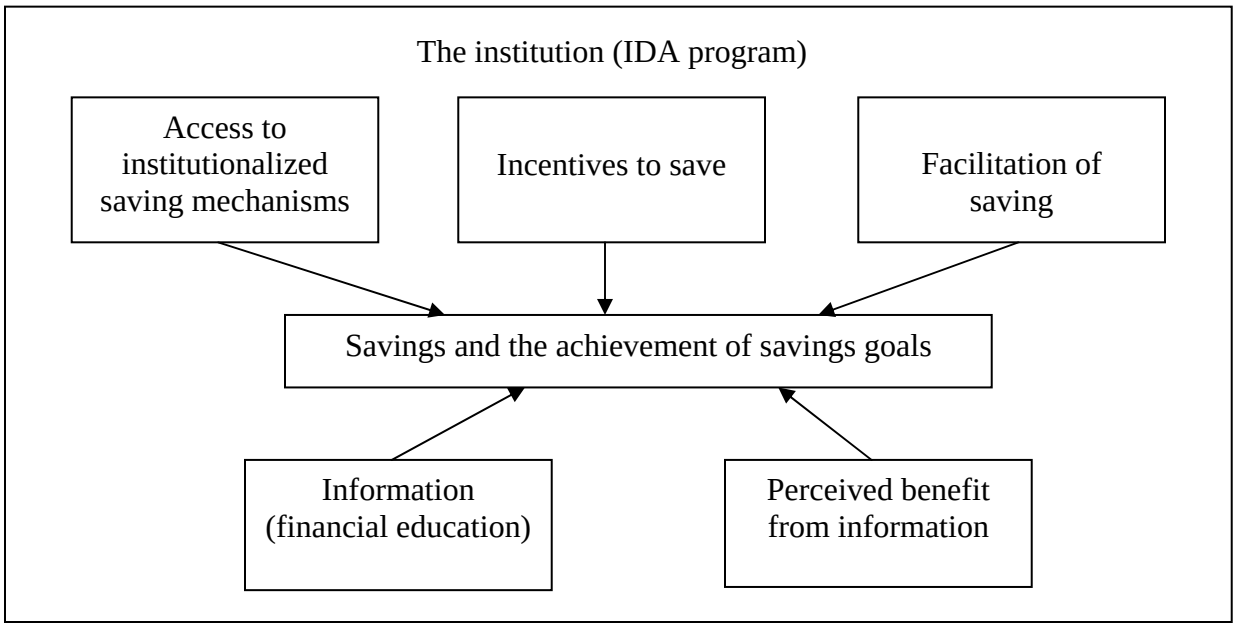
Program characteristics, participant demographics, and monthly account balance information are included in the public-use data for IDAs in ADD. The Center for Social Development also developed MIS IDA QC, a quality-control software program. With MIS IDA QC reports, the Center for Social Development and ADD programs crosschecked data for entry errors, missing values, and account inconsistencies. The Center for Social Development requested that programs correct any inconsistent or missing data (Schreiner et al., 2002). Programs sites occasionally updated or corrected participant information after enrollment.

However, there was no way for the Center for Social Development to determine whether this data was a correction to an error in enrollment data or an update. Therefore, this data was not used to change the original data (Schreiner, 2005b) and the data used in this study are as of the time of enrollment. Public-use MIS IDA data is in two files; one with characteristics of participants at the time of enrollment in the ADD (baseline) and information about their IDA (such as match rate, match cap, and enrollment dates), and the other with descriptions of cash flows in IDAs in each month the IDA was open. Account information as of the last month of enrollment was merged with participant and program information using a participant identifier. This data is limited in that it only includes participant information as of enrollment in the ADD program; there is no indication of whether the characteristics of participants (such as income, number of children, or employment status) changed while in the ADD, influencing savings in their IDA. Also, when participants received their hours of financial education is not known, only the total number of hours of financial education completed (broken down into general financial education and asset-specific financial education).

Theoretical Model

Drawing on institutional, psychological, and neoclassical economic theory, the following model was developed to help explain factors related to savings and the achievement of savings goals in IDA programs. In the model, saving behaviors exist within the context of the institution, which influences behavior that promote savings among participants and imposing values on participants.

Figure 2. Integrated Theoretical Model of Savings



Variables

In order to explore factors related to saving and the achievement of savings goals in IDAs, participants in the ADD who did not save, saved, and achieved savings goals will be distinguished from each other and divided into three categories. These categories are: (a) non-savers, those who did not save and did not complete the IDA program; (b) unmatched savers, those participants who had savings in their accounts at the end of the ADD program, but never made a matched withdrawal for an asset purchase; and (c) matched savers, participants who saved and withdrew their savings for an asset purchase, therefore successfully completing the ADD program. This variable was created from the cumulative net deposits and cumulative matched withdrawals variables in the data set. If a participant had zero cumulative net deposits, they were coded as a non-saver. Participants with positive cumulative net deposits and zero

Table 2

Variable Descriptions

Variable Name	Frequency or Mean (Range)	Description
Dependent Variables		
Non-saver (n=673)	35.41%	Participants with zero cumulative net deposits
Unmatched saver (n=668)	33.19%	Participants with positive cumulative net deposits and zero matched withdrawals
Matched saver (n=656)	31.10%	Participants with positive cumulative net deposits and positive matched withdrawals
Theoretical Model Independent Variables		
Access proxy: previous savings account	47.51%	Participants with balances in savings accounts (other than the IDA) at time of enrollment
Direct deposit	5.87%	Participants who set up automatic transfers to their IDAs
Match cap	$1330.35 ($240 to $6000)	Total match eligibility of the life of participation
Match rate	2.07 (1 to 7)	Match rate participants received upon making a matched withdrawal
Required financial education	10.47 (6 to 16)	Hours of general financial education required of participants by program sites
Perceived benefit of education proxy: Excess financial education	0.05 (-16 to 44)	Hours of general financial education in excess of required general financial education

Table 2 (continued)

Variable Descriptions

Variable Name	Frequency or Mean (Range)	Description
Demographic Variables		
Gender		Gender of participant
Male	20.41%	
Female	79.59%	
Age	35.68 (13 to 72)	Age of participant
Race/ethnicity		Race or ethnicity of participant
African-American	46.57%	
Asian-American	1.87%	
Caucasian	37.32%	
Latino	8.86%	
Native American	2.60%	
Other	2.77%	
Marital status		Marital status of participant
Married	21.82%	
Never married	48.84%	
Divorced or separated	27.28%	
Widowed	2.07%	

Table 2 (continued)

Variable Descriptions

Variable Name	Frequency or Mean (Range)	Description
Household size	3.21 (1 to 12)	Total number of individuals (adults and children) in the participant's household
Educational attainment		Highest educational level attained by participant
Less than high school	15.78%	
High school	23.29%	
Some college, did not graduate	39.16%	
Graduated with a two-year degree	3.58%	
Graduated with an unspecified two-year or four-year degree	10.75%	
Graduated with a four-year degree	7.42%	
Employment status		Employment status of participant at time of enrollment
Full-time	58.81%	Not working includes homemakers, the retired, and the disabled
Part-time	22.94%	Unemployed includes those currently looking for employment and those laid-off and awaiting call-back
Not working	4.35%	
Unemployed	5.37%	Students include students who are not working, work-study includes students who are working
Student	5.71%	
Work-study	2.81%	
Total income	$1,372.94 ($0 to $5,480)	Total monthly income from earned income, unearned income, public assistance, and other sources

Table 2 (continued)

Variable Descriptions

Variable Name	Frequency or Mean (Range)	Description
TANF	10.26%	Participants who received TANF at time of enrollment
Net worth	$3,122.22 ($-106,490 to $294,000)	Total assets minus total liabilities
Life insurance	14.96%	Participants with some type of life insurance
Intended asset use		The single intended use of a matched withdrawal as of enrollment
Home purchase	47.81%	
Home repair	9.16%	
Post-secondary education	16.28%	
Job training	1.96%	
Retirement	5.79%	
Small business	18.88%	
Other	0.13%	

matched withdrawals were coded as unmatched savers and those with positive cumulative net deposits and positive matched withdrawals were coded as matched savers.

Given the limitations of the data (all respondents have access to an IDA), access to an institutional saving mechanism will be proxied by an existing savings account other than the IDA. Individuals with an existing savings account when the program started may have more access to institutionalized saving mechanisms. The presence of direct deposit and the match cap (maximum amount that an individual is allowed to save for a matched withdrawal) will measure facilitation (support) of savings. If a program allows participants to save more, it is expected that participants will be more inclined to save.

Incentives to save will be measured by the match rate that participants receive. Information will be measured by the number of financial education hours that programs required participants to take. The perceived benefit from information will be measured with a proxy of hours of financial education classes a participant took minus the hours of financial education the participant was required to take. Some participants did not take all of the required hours of financial education, so it is possible for this number to be negative. It is expected that a participant who saw greater gains from financial education would take more hours of financial education classes.

Hypotheses

Participants in the ADD will be divided into three categories: (a) non-savers, those who did not save and did not complete the ADD program; (b) unmatched savers, those participants who had savings in their accounts at the end of the ADD program, but never made a matched withdrawal for an asset purchase; and (c) matched savers, participants who saved and withdrew their savings for an asset purchase, therefore successfully completing the ADD program. In

order to explore factors related to savings and the achievement of savings goals, each of these three groups will be compared with one another. When comparing these groups, the following hypotheses drawn from the model will be tested.

Access to institutionalized saving mechanisms (such as savings accounts) is expected to influence savings positively by providing a context in which savings can occur (Beverly & Sherraden 1999; Hogarth & Anguelov, 2003; Sherraden et al., 2003).

H_{1a}: Using a baseline of non-savers, participants with prior access to an institutionalized saving mechanism (savings account) will be more likely to be unmatched savers than participants without prior access to an institutionalized saving mechanism (savings account).

H_{1b}: Using a baseline of unmatched savers, participants with prior access to an institutionalized saving mechanism (savings account) will be more likely to be matched savers than participants without prior access to an institutionalized saving mechanism (savings account).

H_{1c}: Using a baseline of non-savers, participants with prior access to an institutionalized saving mechanism (savings account) will be more likely to be matched savers than participants without prior access to an institutionalized saving mechanism (savings account).

The facilitation of saving happens through the reduction of effort (cost) required to save (direct deposit from a paycheck into a savings account) or increasing the costs of not saving (program rules that require participants to make a deposit into the account every month in order to remain in the program) (Beverly & Sherraden, 1999; Beverly, McBride, & Schreiner, 2003).

H_{2a}: Using a baseline of non-savers, participants who use direct deposit for their IDA will be more likely to be unmatched savers than participants who do not use direct deposit.

H_{2b}: Using a baseline of unmatched savers, participants who use direct deposit for their IDA will be more likely to be matched savers than participants who do not use direct deposit.

H_{2c}: Using a baseline of non-savers, participants who use direct deposit for their IDA will be more likely to be matched savers than participants who do not use direct deposit.

Savings will be facilitated through higher match caps. As higher match caps allow participants to receive more matching funds, creating more incentives to save (Sherraden et al., 2003).

H_{3a}: Using a baseline of non-savers, participants with higher match caps will be more likely to be unmatched savers than participants with lower match caps.

H_{3b}: Using a baseline of unmatched savers, participants with higher match caps will be more likely to be matched savers than participants with lower match caps.

H_{3c}: Using a baseline of non-savers, participants with higher match caps will be more likely to be matched savers than participants with lower match caps.

Incentives to save positively influence saving by making saving more profitable through providing match rates on account balances (Beverly & Sherraden, 1999; Bryant & Zick, 2006).

H_{4a}: Using a baseline of non-savers, participants with higher match rates will be more likely to be unmatched savers than participants with lower match caps.

H_{4b}: Using a baseline of unmatched savers, participants with higher match rates will be more likely to be matched savers than participants with lower match caps.

H_{4c}: Using a baseline of non-savers, participants with higher match rates will be more likely to be matched savers than participants with lower match caps.

Information is also expected to positively impact savings (Beverly & Sherraden, 1999; Moore et al., 2001). The main form of information in IDA programs is financial education. The more financial education participants receive, the more financial management skills they will have to use in maximizing their savings.

H_{5a}: Using non-savers as a baseline, participants with more hours of required financial education classes will be more likely to be unmatched savers than participants with less hours of required financial education classes.

H_{5b}: Using unmatched savers as a baseline, participants with more hours of required financial education classes will be more likely to be matched savers than participants with less hours of required financial education classes.

H_{5c}: Using non-savers as a baseline, participants with more hours of required financial education classes will be more likely to be matched savers than participants with less hours of required financial education classes.

The impact of education is dependent on the benefit of the education to the participant (Moore et al., 2001). If financial education classes are perceived as remedial, the information provided will not have much impact on the savings behaviors of participants. In contrast, if participants perceive information provided as very helpful, this information is expected to influence the savings of participants positively.

H_{6a}: Using non-savers as a baseline, participants who perceive financial education as beneficial will be more likely to be unmatched savers than participants who did not perceive financial education as beneficial.

H_{6b}: Using unmatched savers as a baseline, participants who perceive financial education as beneficial will be more likely to be matched savers than participants who did not perceive financial education as beneficial.

H_{6c}: Using non-savers as a baseline, participants who perceive financial education as beneficial will be more likely to be matched savers than participants who did not perceive financial education as beneficial.

Statistical Analysis

A descriptive analysis of independent variables by the three savings categories will be conducted to provide insight into the data and to check for normal distributions and potential problems. General linear model (GLM) least squares means were performed on continuous independent variables and frequency distributions were performed on categorical independent variables.

The outcome of interest in this study is the placement of participants in three qualitative states (the categories of non-savers, unmatched savers, and matched savers). Therefore, a multinomial logit model (also known as a polytomous logit model) will be used for data analysis. This model compares the probability of belonging to one category compared to another category. When x is the vector of covariates with a length of $k + 1$, the logit models for each group, j (equal to one or two when zero is the comparison group), can be denoted as (Hosmer & Lemeshow, 1989; Quesnel-Vall, 2002):

$$g_j^{(x)} = \ln\left[\frac{P(Y = j|x)}{P(Y = 0|x)}\right] \tag{1}$$

$$= \beta_{j0} + \beta_{j1x1} + \beta_{j2x2} + \ldots + \beta_{jkxk}$$

$$= (1, x')\beta_j$$

The three conditional probabilities of each outcome category given the covariate vector are (Hosmer & Lemeshow, 1989; Quesnel-Vall, 2002):

$$\Pr(Y = 0 \Big| x) = \frac{1}{1 + e^{g_1(x)} + e^{g_2(x)}} \tag{2}$$

$$\Pr(Y = 1 \Big| x) = \frac{e^{g_1(x)}}{1 + e^{g_1(x)} + e^{g_2(x)}}$$

$$\Pr(Y = 2 \Big| x) = \frac{e^{g_2(x)}}{1 + e^{g_1(x)} + e^{g_2(x)}}$$

For *k* covariates, a total of $(k+1)\times(j-1)$ parameters will be estimated. Relative risk ratios are the main parameter of interest and are derived from the equation (Quesnel-Vall, 2002; Zhang & Kai, 1998):

$$\beta_{jk} = \frac{(P_j \Big| x_k = x_{k^0})}{(P_j \Big| x_k = x_{k^0} + 1)} \tag{3}$$

The relative risk ratio is interpreted as the probability of an event with a group compared to the probability of that event in all groups.

Using the Integrated theoretical framework described above, the following vector of covariates for each group (non-saver, unmatched saver, and matched saver) will first be estimated.

$$\begin{aligned} g_j{}^{(x)} &= \beta_{j0} + \beta_{j1} Sav\_acct + \beta_{j2} Dir\_dep + \beta_{j3} Matchcap + \beta_{j4} Matchrate \\ &+ \beta_{j5} Fin\_ed + \beta_{j6} Fin\_ed\_ex \end{aligned} \tag{4}$$

where *Sav_acct*: participant had an existing savings account with a financial institution before the IDA program began,

Dir_dep: usage of direct deposit,

Matchcap: the maximum amount a participant was allowed to save for a matched withdrawal,

Matchrate: match rate of the IDA,

Fin_ed: hours of general financial required of participants by the program site, and

Fin_ed_ex: hours of general education classes attended by participant minus required hours of general financial education classes.

To account for additional variation, the model will be run a second time with the addition of participant demographic and financial variables including gender, age, race/ethnicity, marital status, household size, educational attainment, employment status, total income (earned, unearned, and public assistance), the receipt of Temporary Aid to Needy Families (TANF), net worth, and the intended asset the participant is saving toward (e.g. homeownership, education, small business) in their IDA. There is evidence that about 165 participants changed the intended use of their IDA while in the program. However, it was found that 65 percent of the change of intended use variables were missing. Participants having some form of life insurance was thought to be a good proxy for time preference to use in the model, but the majority of these variables were also missing. These missing observations could create error in estimates; therefore, these variables will be excluded from the model.

A pseudo r-squared value will be reported for each of the multinomial logit models. The pseudo r-squared value is a summary statistic similar to an r-squared value for linear regression, although it does not convey the same information. A pseudo r-squared is the change in terms of log-likelihood from the intercept only model to the current model. Like the r-squared statistic, the higher the pseudo r-squared value, the better (UCLA Academic Technology Services, n.d.).

The underlying assumption of the multinomial logit model is the Independence of Irrelevant Alternatives (IIA). The IIA assumption states that the probabilities between any two categories do not affect one another, they are independent. This assumption will be tested for both models (the model without participant demographics and the model with participant demographics) by eliminating one of the outcomes (*j*) and estimating a restricted model. The difference between the restricted model and full model will be tested. If the IIA is true, the difference will be asymptotically distributed as chi-squared (with degrees of freedom equal to the number of rows) in the restricted model. Significant values (the difference between the models is not zero) indicate that the assumption has been violated and the multinomial logit is not an appropriate model for the data (Quesnel-Vall, 2002).

CHAPTER 4

RESULTS

Descriptive Analysis of the Sample

The descriptive analysis involved the sample of 2,347 participants with IDAs in the ADD. The study used 18 variables to predict the likelihood of participants belonging to one of three categories of savers in the ADD: (a) non-savers, those who did not save and did not complete the ADD program; (b) unmatched savers, those participants who had savings in their accounts at the end of the ADD program, but never made a matched withdrawal for an asset purchase; and (c) matched savers, participants who saved and withdrew their savings for an asset purchase, therefore successfully completing the ADD program.

Table 3 describes the similarities and differences between participants in each of the savings groups (non-saver, unmatched saver, and matched saver) found through chi-square and general linear model (GLM) tests. The categorical variables are described as each predictor variable group's distribution among the three savings groups (rows add up to 100%). Appendix A describes each of the savings groups by predictor variables. Among the participants who had a savings account at the time of enrollment in the IDA program about one-third were in each of the non-savers, unmatched savers, and matched savers groups (31.21%, 34.71%, and 34.08%, respectively). Almost one-half of participants who set up direct deposit into their IDA were matched savers, while 37.69% were unmatched savers and about 16% were non-savers.

Non-savers had an average match cap of $1,081.23, unmatched savers had a higher average match cap of $1,440.18, and matched savers had the highest average match cap—

Table 3

Description of Savings Groups

	Non-saver (n=673)	Unmatched saver (n=668)	Matched saver (n=656)	Chi-Square / GLM
Savings account	31.21%	34.71%	34.08%	19.54****
Direct deposit	16.15%	37.69%	46.15%	21.60****
Match cap	$1,081.23	$1,440.18	$1,499.14	64.56****
Match rate	2.15	2.02	2.02	4.14*
Required financial education (hours)	10.71	10.63	10.05	11.78****
Extra financial education (hours)	-2.5	0.65	2.23	98.22****
Gender				6.44*
Male	36.74%	28.60%	34.66%	
Female	35.44%	34.37%	30.19%	
Age	33.79	36.1	37.41	25.63****
Race/ethnicity				100.05****
African-American	40.81%	37.60%	21.59%	
Asian-American	15.91%	34.09%	50.00%	
Caucasian	31.51%	28.54%	39.95%	
Latino	34.62%	31.25%	34.13%	
Native American	37.70%	31.15%	31.15%	
Other	21.54%	29.23%	49.23%	
Marital status				64.83****
Married	30.77%	27.22%	42.01%	
Never-married	41.15%	34.10%	24.76%	
Divorced or separated	31.55%	34.38%	34.07%	
Widowed	20.83%	50.00%	29.17%	
Household size	3.21	3.25	3.18	0.3
Educational attainment				79.48****
Less than high school	45.95%	35.68%	18.38%	
High school	40.29%	30.04%	29.67%	
Some college, did not graduate	35.29%	32.68%	32.03%	
Graduated with a two-year degree	32.14%	34.52%	33.33%	
Graduated with an unspecified two- year or four-year degree	26.14%	32.54%	41.27%	
Graduated with a four-year degree	16.67%	41.38%	41.95%	

Table 3 (continued)

Description of Savings Groups

	Non-saver	Unmatched saver	Matched saver	Chi-Square / GLM
Employment status				32.59***
Full-time	34.45%	32.63%	32.92%	
Part-time	34.39%	35.32%	30.30%	
Not working	31.37%	26.47%	42.16%	
Unemployed	44.44%	31.75%	23.81%	
Student	50.00%	32.09%	17.91%	
Work-study	34.85%	42.42%	22.73%	
Total income	$1,324.61	$1,358.21	$1,445.69	6.01**
TANF	44.17%	39.58%	16.25%	
Net worth	$249.48	$2,803.63	$6,677.42	20.48****
Intended asset use				287.32****
Home purchase	45.10%	37.25%	17.65%	
Home repair	14.88%	15.81%	69.30%	
Post-secondary education	32.98%	30.10%	36.91%	
Job training	47.83%	26.09%	26.09%	
Retirement	23.53%	31.62%	44.85%	
Small business	26.86%	34.99%	38.15%	
Other	33.33%	66.67%	0.00%	

Note: * p<.05, **p<.01, ***p<.001, ****p<.0001

$1,499.14 (See Table 3). The average match rates for non-savers, unmatched savers, and matched savers were about the same: 2.15, 2.02, and 2.02, respectively. Surprisingly, non-savers had the highest average hours of required financial education (10.71 hours). Unmatched savers averaged 10.63 hours of required financial education, and matched savers averaged 10.05 hours. However, hours of excess financial education beyond what were required (a proxy of the perceived benefit of financial education) were positively related with the move from non-savers

to unmatched savers. Non-savers averaged -2.5 hours, while unmatched savers and matched savers averaged 0.65 hours and 2.23 hours, respectively.

Both males and females were distributed fairly evenly across the three savings groups. Almost 37% of males and 35.44% of females were non-savers, 28.60% of males and 34.37% of females were unmatched savers, and 34.66% of males and 30.19% of females were matched savers. On average, unmatched and matched savers were older than non-savers (36.10 years, 37.41 years, and 33.79 years, respectively).

The largest percentage of African Americans were non-savers (40.81%), while 37.60% and 21.59% were unmatched savers and matched savers, respectively. Half of Asian Americans were matched savers, while almost 16% were non-savers and 34.09% were unmatched savers. Among Caucasians, 31.51% were non-savers, 28.54% were unmatched savers, and almost 40% were matched savers. Latinos were distributed fairly even among the three groups: 34.62% non-savers, 31.25% unmatched savers, and 34.13% matched savers. Almost 38% of Native Americans were non-savers, while 31.15% belonged to each of the unmatched saver and matched saver groups. Almost half (49.23%) of other racial and ethnicity groups were matched savers, 21.54% were non-savers, and 29.23% were unmatched savers.

About 30% of married participants were non-savers, while 27.22% were unmatched savers and a little over 42% were matched savers. Among never married participants, 41.15% were non-savers, 34.10% were unmatched savers, and 24.76% were matched savers. Among divorced or separated participants 31.55% were non-savers, 34.38% were unmatched savers, and 34.07% were matched savers. Half of widowed participants were unmatched savers, while 20.83% and 29.17% were non-savers and matched savers, respectively. Household size

remained consistent among the three groups with each group averaging a household size of about 3.2.

Participants with less than a high school education had the smallest percentage of savers. About 46% of participants with less than a high school education were non-savers, 35.68% were unmatched savers, and 18.38% were matched savers. Among participants with a high school education, 40.29% were non-savers, 30.04% were unmatched savers, and 29.67% were matched savers. Participants with some college and participants with a two-year college degree were divided fairly evenly between the three savings groups. Over 35%, 32.68%, and 32.03% of participants with some college education but did not graduate from college were non-savers, unmatched savers, and matched savers, respectively. About 32% of participants who graduated with a two-year college degree were non-savers, while 34.52% and one-third were unmatched and matched savers, respectively. Among participants who graduated with an unspecified two or four-year degree, 26.14% were non-savers, 32.54% were unmatched savers, and 41.27% were matched savers. Four-year college graduates had the highest percentage of matched savers (41.97%), while almost 17% were non-savers and 41.38% unmatched savers.

Among participants who were working full-time at the time of enrollment, about one-third were in each of the savings groups (34.45% non-savers, 32.63% unmatched savers, and 32.92% matched savers). Over 34% of participants who were working part-time were non-savers, 35.32% were unmatched savers, and 30.30% were matched savers. As for participants who were not working, 31.37% were non-savers, 26.47% were unmatched savers, and 42.16% were matched savers. Over 44%, 31.75%, and 23.81% of unemployed participants were non-savers, unmatched savers, and matched savers, respectively. Half of student participants (not-working) were non-savers, while 32.09% and 17.91% were unmatched savers and matched

savers, respectively. Almost 35% of working student participants were non-savers, 42.42% were unmatched savers, and 22.73% were matched savers.

Total monthly income varied from an average of $1,324.61 for non-savers, to $1,358.21 for unmatched savers, and $1,445.69 for matched savers. Over 44% of participants on TANF were non-savers, almost 40% were unmatched savers, and 16.25% were matched savers. Net worth averaged $249.48 for non-savers, $2,803.63 for unmatched savers, and $6,677.42 for matched savers.

About 45% of participants who intended to use their IDA for home purchase were non-savers, 37.25% were unmatched savers, and 17.65% were matched savers. The majority of participants planning to use their IDA for home repair were matched savers (69.30%), 14.88% were non-savers, and 15.81% were unmatched savers. Almost 33% of participants with the intended use of post-secondary education were non-savers, 30.10% were unmatched savers, and 36.91% were matched savers. Almost half (47.83%) of the participants who planned to use their IDA for job training were non-savers, 26.09% were unmatched savers, and 26.09% were matched savers. For participants who intended to use their IDA for retirement, 23.53%, 31.62%, and 44.85% were non-savers, unmatched savers, and matched savers, respectively. Almost 27% of participants who intended to use their IDA for small business were non-savers, 34.99% were unmatched savers, and 38.15% were matched savers. One-third of participants who planned to use their IDA for other assets were non-savers, the remaining two-thirds were unmatched savers.

Multinomial Logit Analysis

The multinomial logit for Model 1 involved a sample of 1,997 participants (those with missing observations for variables of interest were not included) with IDAs in the ADD. This model used the main variables of interest to predict the probability of being a non-saver,

Table 4

Multinomial Logit Model 1

Model 1 (n=1997)	Unmatched saver (non-saver baseline)		Matched saver (unmatched saver baseline)		Matched saver (non-saver baseline)	
	Relative Risk Ratio	Std	Relative Risk Ratio	Std	Relative Risk Ratio	Std
Savings account	1.2425	(0.1438)	1.2055	(0.1353)	1.4978*	(0.1792)
Direct deposit	1.4061	(0.3925)	1.3011	(0.2811)	1.8296*	(0.4977)
Match cap	1.0004*	(0.0001)	1.0001	(0.0001)	1.0005*	(0.0001)
Match rate	0.9361	(0.0648)	1.1065	(0.0731)	1.0358	(0.0719)
Required financial education	0.9933	(0.0215)	0.9102*	(0.0198)	0.9041*	(0.0211)
Excess financial education	1.1154*	(0.0133)	1.0376*	(0.0086)	1.1574*	(0.0143)
pseudo r^2=0.0760						

Note: *p<.05

unmatched saver, or matched saver. Relative risk ratios and standard errors are reported in Table 4.

Surprisingly, hours of required financial education were associated with a decrease (of about 10%) in the probability of being a matched saver, compared to both non-savers and unmatched savers. This probability is drawn from the relative risk ratio, derived from the equation (Quesnel-Vall, 2002; Zhang & Kai, 1998):

$$\beta_{jk} = \frac{(P_j \left| x_k = x_{k^0} \right.)}{(P_j \left| x_k = x_{k^0} + 1 \right.)}$$

However, hours of financial education beyond what was required were associated with an increased probability of being a matched saver compared to both non-savers and unmatched savers (16% and 4% increase, respectively). Those hours were also associated with an increased probability (12%) of being an unmatched saver compared to a non-saver. A larger match cap had a slight, yet statistically significant, relationship with being an unmatched or matched saver compared to non-savers. Ownership of a savings account at the time of enrollment and setting up direct deposit into an IDA were both positively associated with an increased probability (50% increase and 83% increase, respectively) of being a matched saver (non-saver baseline). Match rate was not found to be related with the probability of being a non-saver, unmatched saver, or matched saver. Model 1 has a pseudo r-squared (summary statistic) value of 0.0760.

Hypothesis Testing

A number of demographic and descriptive variables were added to the multinomial logit model in Model 2 to account for addition variation (Table 5). Participants with missing observations were dropped from the sample for a final sample size of 1,712. This model was used to test hypotheses drawn from the theoretical model. All hypotheses were tested at the

Table 5

Multinomial Logit Model 2

Model 2 (n=1712)	Unmatched saver (non-saver baseline)		Matched saver (unmatched saver baseline)		Matched saver (non-saver baseline)	
	Relative risk ratio	Std	Relative risk ratio	Std	Relative risk ratio	Std
Savings account	1.1595	(0.1524)	1.3413*	(0.1846)	1.5551*	(0.2272)
Direct deposit	1.5033	(0.4546)	1.2076	(0.3193)	1.8159	(0.5787)
Match cap	1.0007*	(0.0001)	0.9999	(0.0001)	1.0006*	(0.0001)
Match rate	0.9548	(0.0866)	1.3197*	(0.1221)	1.2600*	(0.1135)
Required financial education	0.9641	(0.0240)	0.8865*	(0.0252)	0.8546*	(0.0262)
Excess financial education	1.0880*	(0.0144)	1.0563*	(0.0111)	1.1492*	(0.0166)
Age	1.0082	(0.0072)	1.0063	(0.0074)	1.0146	(0.0079)
Household size	1.0638	(0.0459)	0.9254	(0.0431)	0.9845	(0.0496)
Total income	0.9965	(0.0106)	1.0112	(0.0110)	1.0077	(0.0119)
Net worth	1.0009	(0.0005)	0.9996	(0.0003)	1.0005	(0.0005)
Female	1.3737	(0.2357)	1.1018	(0.1993)	1.5136*	(0.2802)
Race/ethnicity (Caucasian is baseline)						
African American	1.1837	(0.1796)	0.4487*	(0.0710)	0.5312*	(0.0901)
Asian American	2.3931	(1.3362)	1.1290	(0.4558)	2.7018	(1.5052)
Latino	0.9806	(0.2490)	1.1162	(0.2894)	1.0946	(0.2861)
Native American	0.7301	(0.2852)	0.6422	(0.2735)	0.4689	(0.2075)
Other	1.9145	(0.9608)	2.6691*	(1.0743)	5.1099*	(2.3690)

Table 5 (continued)

Multinomial Logit Model 2

Model 2 (n=1712)	Unmatched saver (non-saver baseline)		Matched saver (unmatched saver baseline)		Matched saver (non-saver baseline)	
	Relative risk ratio	Std	Relative risk ratio	Std	Relative risk ratio	Std
Marital status (married is baseline)						
Never married	1.0322	(0.2101)	0.5951*	(0.1242)	0.6143*	(0.1345)
Divorced or separated	1.0662	(0.2315)	0.5781*	(0.1250)	0.6164*	(0.1422)
Widowed	0.7957	(0.4143)	0.4728	(0.2506)	0.3762	(0.2152)
Educational attainment (less than high school is baseline)						
High school	0.8941	(0.1818)	1.6267	(0.4085)	1.4545	(0.3700)
Some college	1.0244	(0.1912)	1.8425*	(0.4226)	1.8874*	(0.4435)
Two-year degree	1.1056	(0.4099)	2.5301*	(0.9817)	2.7975*	(1.1462)
Unspecified two or four year degree	1.6149	(0.4401)	1.8326*	(0.5194)	2.9595*	(0.9246)
Four-year degree	2.0807*	(0.6569)	1.9404*	(0.5852)	4.0372*	(1.4155)
TANF	1.1240	(0.2389)	0.5798	(0.1620)	0.6518	(0.1906)
Employment status (full-time is baseline)						
Part-time	1.0528	(0.1746)	1.0003	(0.1723)	1.0531	(0.1932)
Not working	0.7041	(0.2646)	1.1332	(0.4136)	0.7979	(0.2888)
Unemployed	0.7814	(0.2179)	0.8011	(0.2624)	0.6259	(0.2093)
Student	1.4492	(0.4192)	0.4892*	(0.1772)	0.7089	(0.2720)
Work-study	1.5816	(0.5699)	0.5216	(0.2174)	0.8249	(0.3805)

Table 5 (continued)

Multinomial Logit Model 2

Model 2 (n=1712)	Unmatched saver (non-saver baseline)		Matched saver (unmatched saver baseline)		Matched saver (non-saver baseline)	
	Relative risk ratio	Std	Relative risk ratio	Std	Relative risk ratio	Std
Intended use (homeownership is baseline)						
Home repair	0.8196	(0.2656)	11.4498*	(3.0654)	9.3842*	(2.7351)
Post-secondary education	1.3523	(0.2680)	3.5360*	(0.7026)	4.7930*	(1.0222)
Job training	0.7778	(0.3400)	2.8305*	(1.4315)	2.2015	(1.0166)
Retirement	0.7508	(0.2395)	3.2035*	(0.9357)	2.4052*	(0.7843)
Small business	1.5758*	(0.2922)	2.9662*	(0.5737)	4.6741	(0.9754)
Other	3.9514	(4.9664)	--	--	--	--
pseudo r^2=0.1806						

Note: *p<.05

alpha=0.05 level of significance. Participants who owned a savings account were more likely than those without a savings account to be matched savers. That probability increased .56 times with a baseline of non-savers and .34 times with a baseline of unmatched savers. However, ownership of a savings account did not significantly affect the probability of being an unmatched saver (baseline non-saver). Therefore, hypothesis 1a: using a baseline of non-savers, participants with prior access to an institutionalized saving mechanism (savings account) will be more likely to be unmatched savers than participants without prior access to an institutionalized saving mechanism (savings account), is rejected. Hypothesis 1b: using a baseline of unmatched savers, participants with prior access to an institutionalized saving mechanism (savings account) will be more likely to be matched savers than participants without prior access to an institutionalized saving mechanism (savings account), is accepted. Hypothesis 1c: using a baseline of non-savers, participants with prior access to an institutionalized saving mechanism (savings account) will be more likely to be matched savers than participants without prior access to an institutionalized saving mechanism (savings account), is accepted.

Hypotheses 2a: using a baseline of non-savers, participants who use direct deposit for their IDA will be more likely to be unmatched savers than participants who do not use direct deposit, 2b: using a baseline of unmatched savers, participants who use direct deposit for their IDA will be more likely to be matched savers than participants who do not use direct deposit, and 2c: using a baseline of non-savers, participants who use direct deposit for their IDA will be more likely to be matched savers than participants who do not use direct deposit are rejected. Setting up direct deposit into an IDA was not significantly related with the probability of being an unmatched saver or matched saver.

Match cap continued to be associated with an increase in the probability of moving from a non-saver to an unmatched saver and matched saver in the full model. Hypothesis 3a: using a baseline of non-savers, participants with higher match caps will be more likely to be unmatched savers than participants with lower match caps, is accepted. For every $100 increase in match cap, non-savers were 7% more likely to be unmatched savers. Hypothesis 3b: using a baseline of unmatched savers, participants with higher match caps will be more likely to be matched savers than participants with lower match caps, is rejected. Match cap was not significantly related with the likelihood of being a matched saver using unmatched savers as a baseline. Hypothesis 3c: using a baseline of non-savers, participants with higher match caps will be more likely to be matched savers than participants with lower match caps, is accepted. For every $100 increase in match cap, unmatched savers were 6% more likely to be matched savers.

A higher match rate was associated with a 26% and 32% increase in the probability of being a matched saver (baseline non-saver and unmatched saver, respectively). However, match rate did not significantly affect the probability of being an unmatched saver (non-saver baseline). Hypothesis 4a: using a baseline of non-savers, participants with higher match rates will be more likely to be unmatched savers than participants with lower match caps, is rejected. Hypotheses 4b: using a baseline of unmatched savers, participants with higher match rates will be more likely to be matched savers than participants with lower match caps and 4c: using a baseline of non-savers, participants with higher match rates will be more likely to be matched savers than participants with lower match caps, are accepted.

In this model, increased hours of required financial education were associated with a larger decrease in the probability of being a matched saver compared to both non-savers and unmatched savers (15% and 11% decrease, respectively). Hours of required financial education

did not significantly affect the probability of being an unmatched saver (non-saver baseline). Hypothesis 5a: using non-savers as a baseline, participants with more hours of required financial education classes will be more likely to be unmatched savers than participants with less hours of required financial education classes, is rejected. Hypothesis 5b: using unmatched savers as a baseline, participants with more hours of required financial education classes will be more likely to be matched savers than participants with less hours of required financial education classes, is rejected. Hypothesis 5c: using non-savers as a baseline, participants with more hours of required financial education classes will be more likely to be matched savers than participants with less hours of required financial education classes, is rejected.

Financial education hours beyond those required continued to be associated with a 15% and 6% increased in the probability of being a matched saver (baseline non-saver and unmatched saver, respectively) and an 9% increase in the probability of being a unmatched saver (baseline non-saver). Hypotheses 6a: using non-savers as a baseline, participants who perceive financial education as beneficial will be more likely to be unmatched savers than participants who did not perceive financial education as beneficial, 6b: using unmatched savers as a baseline, participants who perceive financial education as beneficial will be more likely to be matched savers than participants who did not perceive financial education as beneficial, and 6c: using non-savers as a baseline, participants who perceive financial education as beneficial will be more likely to be matched savers than participants who did not perceive financial education as beneficial, are accepted.

Demographic Variables

Focusing on demographic variables, females were 51% more likely than men to be matched savers rather than non-savers. African Americans were about 50% less likely to be

matched savers than non-savers or unmatched savers compared to Caucasians. However, participants of other races (not Caucasian, African American, Asian American, Latino, or Native American) were almost three times as likely as Caucasians to be matched savers rather than unmatched savers and five times as likely to be matched savers compared to non-savers.

Never being married or being divorced or separated appeared to have a negative relationship with the probability of being a matched saver (compared to married participants). Both never married and divorced or separated participants were about 40% less likely than married participants to be matched savers than non-savers or unmatched savers. Higher levels of education had a positive relationship with the probability of being a matched saver. This relationship was the strongest for participants with a four-year college degree. These participants were two times as likely as participants with less than a high school education to be unmatched savers (non-saver baseline) and matched savers (unmatched saver baseline) and four times more likely to be a matched saver rather than a non-saver. Participants with some college, two-year college degrees, or unspecified two- or four-year degrees were about two to three times more likely than participants with less than a high school education to be a matched saver (for both non-saver and unmatched saver baselines).

The receipt of TANF, age, household size, total income, net worth, and employment status did not significantly influence the probability of savings groups. Although, compared to participants working full-time, students (non-working) were about 50% less likely to be matched savers (unmatched saver baseline).

However, the intended use of the IDA was significantly related with savings groups. Participants who intended to use their IDA for home repair were about 10 times more likely to be a matched saver than those who intended to use their IDA for home ownership (non-saver and

unmatched saver baseline). Those who intended to use their IDA for post-secondary education were about four times (4.8 and 3.5 times) more likely to be matched savers than those with the intended use of homeownership (non-saver and unmatched saver baseline, respectively). IDA participants saving for job-training were 2.8 times more likely than those saving for a house to be a matched saver (unmatched saver baseline). The probability of being a matched saver was 2.4 and 3.2 times (baseline non-saver and unmatched saver, respectively) larger for participants who were saving towards retirement compared to those saving towards home ownership. Saving for a small business (compared to home ownership) increased the probability of being an unmatched saver (compared to non-savers) by 58% and increased the probability of being a matched saver (compared to unmatched savers) by almost three times. The pseudo r-squared for Model 2 is 0.1806.

The Independence of Irrelevant Alternatives (IIA) Assumption

A restricted model was run to test the IIA Assumptions of the multinomial logit model. The unmatched saver outcome was eliminated from the data and the model was run on the non-savers and matched savers. The differences between the full model and restricted model are displayed in Appendix B. None of the differences were significant with a chi square distribution. Therefore, it is assumed that the multinomial logit is an appropriate model and estimates from the model can be viewed as accurate.

CHAPTER 5

DISCUSSION

This study explored the differences between participants in three defined savings groups: (a) non-savers, those who did not save and did not complete the ADD program; (b) unmatched savers, those participants who had savings in their accounts at the end of the ADD program, but never made a matched withdrawal for an asset purchase; and (c) matched savers, participants who saved and withdrew their savings for an asset purchase, therefore successfully completing the ADD program. Determining the factors related to successfully completing the IDA program and making a matched withdrawal is essential for the continued existence of IDA programs. Previous studies have looked at factors associated with having positive savings in IDAs, but have neglected to infer differences between participants who make a matched withdrawal and those who do not (Schreiner, 2005a; Sherraden et al., 2003). Determining the factors associated with matched withdrawals is important in order for IDA programs to encourage participant to take full advantage of the IDA program and access the matched funds available to them. What good are provided matched funds in savings accounts if participants are unable to make a matched withdrawal? These factors need to be further explored in order to inform IDA policy and program characteristics in the future.

Major Findings

Estimates from the multinomial logit model identified many significant factors related with participants being non-savers, unmatched savers, and matched savers. This discussion will focus on the differences of matched savers, as they are the main group of interest. In general,

matched savers have a higher match cap. They are also in programs that required less hours of financial education, but take more hours of financial education beyond what was required of them. A participant having a savings account at a financial institution at the time of enrollment in the IDA program increased their likelihood of being a matched saver. Being African American and saving towards a home decreased the probability of a participant being a matched saver. However, married participants and participants with higher levels of educational attainment increased the likelihood of being a matched saver.

Theoretical Model Variables

Surprisingly, requiring more hours of financial education did not increase the probability that participants reached their savings goal (were matched savers). In fact, hours of required financial education decreases the probability of being a matched saver, or even saving at all. This trend may be a reflection of IDA programs assigning more hours of financial education to less financially savvy participants who have a harder time saving in IDAs. This explanation is further supported with the findings of Schreiner et al. (2000), Schreiner et al. (2001), Sherraden et al. (2003), and Clancy et al. (2000) who found a negative relationship between hours of financial education and savings amount in IDAs for participants with over 12 hours of financial education.

However, participants who took more hours of financial education beyond the hours required of them had an increased probability of saving and reaching their savings goals. One possible explanation for the positive relationship between financial education hours (beyond hours required) and savings status is that participants who stay in the IDA program for longer periods of time have more time to save towards their goals and also receive more financial education along the way. In order to explore this possibility, the length of participation across

savings groups was examined. The length of participation was only available for 1,387 of the 2,347 IDA participants. Among those participants, non-savers averaged a participation time of 19.4 months, unmatched savers averaged 42.1 months, and matched savers averaged 30.4 months. On average, matched savers took more financial education classes beyond what was required of them and did so in less time than unmatched savers. One explanation is that matched savers are more motivated and committed to the IDA program than non-savers and unmatched savers. Lunt and Livingstone (1991) found that savers tend to value hard work more than non-savers. This reflects the effort made by savers in the ADD to attend financial education classes. They commit to the program, take as many financial education hours as they can, and save in their IDA.

If hours of financial education beyond what was required are a good proxy for perceived benefit from financial education, a participant's view of financial education is a factor in the effect of financial education on savings. To increase the benefit of financial education in IDA programs, more hours of financial education may not need to be required, but the quality of financial education may need to be assessed. Perhaps participants who took more hours of financial education beyond what was required were in higher quality financial education classes. Little has been done to assess the quality of education in IDA programs. This may stem from the fact that IDA programs are so heterogeneous in nature—there is no set IDA curriculum. Therefore, it is up to individual IDA programs to determine the effectiveness of their financial education programs. Is the financial education offered by IDA programs meeting the needs of participants? One cannot answer that question with the data available. More research should be done to assess the quality of financial education in IDA program.

Moore et al. (2001) attempted to assess the quality of financial education in IDAs with a cross-sectional survey of 298 ADD participants. The majority of respondents believed that financial literacy classes helped them to save. However, those who said that classes helped them save actually saved about $9 less per month than those who did not find the classes helpful. This finding may indicate that participants who find financial literacy classes most helpful are those with little financial knowledge and, therefore, are less likely to save as much (Moore et al., 2001). Therefore, quality of financial education should be measured with caution.

Although the relative risk ratio for match cap was small, the effects of a higher match cap are significant. By increasing a non-saver's lifetime match cap by $1,000, the probability of that non-saver becoming a matched saver would increase by 60%. Schreiner et al. (2000, 2001) also found positive effects of higher match caps on IDA participation. Those with higher match caps were less likely to drop out of the IDA program or to make unmatched withdrawals (Schreiner et al., 2000, 2001). Match caps are often viewed as savings goals in IDA programs. By placing higher expectations on participants, high match caps may motivate participants to save and reach savings goals.

Although non-savers averaged a higher match rate than unmatched and matched savers, a higher match rate increased the probability of being a matched saver in the full model (model 2). However, match rate was not significantly related to savings groups in model one. This discrepancy may indicate a low reliability of the match rate variable. The finding from model 2 is reinforced by a Tobit analysis by Schreiner (2005a) that found that higher match rates increased the likelihood of saving in an IDA. But, Schreiner (2005a) also found that for those who saved in IDAs, higher match rates were associated with lower levels of saving (controlling for a number of factors including educational attainment, race/ethnicity, marital status,

employment status, and receipt of public assistance). Schreiner et al. (2001) also found that match rates did not have a significant relationship with savings amounts for ADD participants as a whole. However, match rate does appear to provide incentives for participants to save some amount and make matched withdrawals. This extra matching money helps participants to reach their savings goals by providing more financial resources to participants and by providing economic incentive to save. With higher match rates, participants can save less in order to reach their financial goal.

Participants who owned a savings account at the time of enrollment in the IDA program were more likely to be a matched saver. This coincides with Hogarth and Anguelov's (2003) finding that low-income individuals with a bank account are 1.8 times as likely to save as those without access to a bank account. Participants who have access to a financial institution may be more likely to reach their savings goals through the relationship with a savings institution and the facilitation of savings by the savings institution. These participants with savings accounts may also be more financially savvy than other participants reflected by their previous use of financial institutions or perhaps have more liquid assets available to shift into an IDA, increasing their likelihood of becoming matched savers. Participants with an existing bank account may also have more trust and experience handling bank accounts.

Setting up direct deposit in an IDA did not have an effect on the probability of being an unmatched or matched saver in the full model (model two), but did increase the likelihood of being a matched saver (non-saver baseline) in model one. Sherraden et al. (2003) also failed to detect a relationship between direct deposit and savings amount in IDAs. Only about 6% of all IDA participants set up direct deposit into their IDA and in general, low-income individuals less likely to use direct deposit than middle and upper income individuals (Mester, 2003). With such

a small percentage of participants partaking in direct deposit, this finding may be a result of undetectable effects.

Demographic Variables

African Americans were about half as likely to be matched savers as Caucasians. Schreiner et al. (2001) also found that African Americans also have a lower average monthly net deposit (AMND) (about $20 per month, along with Native Americans) than other races/ethnicity. Caucasians, Hispanics, and other races deposited about $30 per month, and Asian Americans deposited about $40 per month. This decreased likelihood of African Americans to deposit money into an IDA and make a matched withdrawal may be a reflection of a cultural differences (such as materialism) or discrimination and hardships (such as types of jobs held) faced by this group.

Married participants were about twice as likely to be matched savers than non-married participants. Grinstein-Weiss, Zhan, and Sherraden (2006) found that married participants in the ADD were more likely to be Caucasian, have higher incomes, and more assets than non-married participants. However, when these demographic characteristics were controlled for, the savings amounts (AMND) for married and non-married participants were not significantly different. This current study controlled for race/ethnicity, income, and net worth, but did not have a specific measure for assets. Perhaps married participants have more asset holdings (and more debt capacity) that make them more likely to reach their savings goals.

Higher levels of educational attainment were associated with a higher likelihood of being a matched saver. Education may increase future orientation and financial sophistication. Education may also serve as a proxy for those unobservable characteristics. However, no link

has been found between educational attainment and savings amount (AMND) (Schreiner et al., 2001).

Participants saving toward home ownership were less likely to reach their savings goal than participants saving for other uses. This may be a reflection of the amount of the savings goal that participants set for them. Participant saving toward home ownership would have to save more than participants saving towards home repair, post-secondary education, or job training. This higher savings goal makes it more difficult for participants to accumulate all the savings needed to achieve their savings goal, especially in the limited time frame of four years provided by the ADD (or less if participants did not join at the beginning of the program). Another explanation for the low likelihood of those saving for homeownership to reach their savings goal is that there are a number of other programs available for low-income individuals to assist them in saving for a home. IDA participants saving towards home ownership may not have felt as committed to their savings goals in the IDA program as other participants because they knew that they had other programs that they could fall back on.

It was expected that there might be a difference in saving and the achievement of savings goals between tangible (e.g., home ownership, home repair, small business) and intangible (e.g., job training, education, retirement) in that it would be easier for participants to save towards items that they can actually see. Although this idea is not strongly supported with this research, participants saving towards home repair were about ten times more likely to be matched savers (baseline non-saver and unmatched saver) than those saving towards home ownership. This may indicate that having a financial need that you see regularly in your home may increase savings towards that need. The tangibility of assets and savings is worth exploring in future research.

Surprisingly, basic economic measures, such as income and net worth, did not significantly affect the probability of having positive savings and achieving savings goals. This may reflect a selection bias in ADD participants, only those who knew they could save selected into participating in the IDA. Or, perhaps the conditions created by IDA programs level the playing field for all participants to save. Sherraden et al. (2003) found that among participants with positive savings in IDAs, savings amounts did not increase with income. For ADD participants as a whole, AMND increased with income, but the increase in savings did not keep up with the increase in income (Schreiner et al., 2001). Those with lower amounts of economic resources may set smaller savings goals for themselves, allowing them to be just as likely as participants with more economic resources to reach their savings goals.

Limitations

Missing data restricted the use of variables that may have given more insight into participants' probability of having positive saving and achieving savings goals (such as change of intended use of IDA, hours of asset specific education, and life insurance—a proxy for time preference). Also, information about participants was only collected at the time of enrollment in the ADD. Intermittent events could influence savings in IDAs (such as job loss, medical bills, the birth of a child, and pay raises). Repeat observations of participant information would be best to capture these events. However, these possible events are unobservable in this study, as the data only provides participant information at the time of enrollment in the ADD. Some IDA programs did report changes in participant information to the researchers. However, it was not possible to tell if the additional data were corrections to previous information or changes to the data. Therefore, this new data was disregarded.

Also, psychological factors that may affect savings were not measured in this study. Little research has been done to link savings behaviors to psychological factors. Psychological factors such as self-control, perfectionism, impulsivity, and materialism may be important factors in savings behaviors, as they have been found to predict other consumer behaviors. For example, Vohs and Faber (2002) found that participants with depleted self-control resources (had previously used self-control) were more likely to pay more for goods and to make impulsive purchases. This finding may be especially important in describing the savings behaviors of low-income individuals as they are also having to budget and use self-control in order to make ends meet. Impulsivity may affect savings in that impulsive individuals tend to be less future oriented and seek instant gratification. These individuals make compulsive purchases, spend more, and find it more difficult to save. Perfectionism is also a characteristic of compulsive buyers (Faber, 2000) and may also be related to failure to save. When a perfectionist set too high of a savings goal and is unable to meet it, they give up or compulsively spend the money in an attempt to make himself or herself feel better. Locus of control may also be an important factor in savings behavior. Locus of control refers to the extent people feel responsible of undertaking behaviors that influence their lives, such as saving. Lunt and Livingstone (1991) found that savers tend to have an internal locus of control, while non-savers see themselves as a victim of circumstance. It is possible that a number of these psychological factors that are unmeasured in this study are influencing the savings behaviors of participants in the ADD, biasing the results.

This study did not include a control group of participants who did not participant in the ADD. There is no way to know how successful participants would have been in saving and reaching savings goals without the support of IDA programs. Also, these participants were not randomly assigned to participate in the ADD, they self-selected into the program. Therefore,

participants in the ADD may not accurately represent the low-income populations in their cities. Participants who select to enroll in an IDA can be expected to be more motivated to save than individuals who do not participate in IDA programs and may also be more oriented towards the future. Estimates generated from IDA participants may not be accurately generalized to other low-income populations.

Future Research

The main weakness of this study is the inability to account for intermitted events in the data. Economic shocks may play a major role in a participant's ability (or inability) to save and reach savings goals. Future research should focus on longitudinal data on participants in order to detect the effects of intermittent events. Psychological factors, such as self-control, perfectionism, impulsivity, and materialism, should also be included in future studies of IDA and savings in low-income households. Limited research has been done to link psychological factors to savings behaviors. These factors could significantly impact the savings behaviors of IDA participants, as they may face limited self-control resources, perfectionism, impulsivity, and materialism while trying to save in IDAs.

Quality of financial education in IDA programs should also be explored. As Schreiner et al. (2001) suggested, financial education classes may not need to be long in order to be effective, but they need to serve the needs to IDA participants. Enhancing the quality of financial education classes may also increase savings and the achievement of savings goals in IDA. Financial education should be explored to make sure it is meeting the needs of the IDA program target audience. Asset-specific education should also be more accurately measured in order to explore the effectiveness of this form of education.

ADD participants saved while in the program, but did the financial education and savings values of the ADD have lasting effects on the savings behaviors of participants? It is unknown whether or not participants of the ADD continued to save or changed their savings behaviors after the ADD ended. This may be the true test of IDA programs, to see if they truly changed the attitudes and behaviors of participants after their programs end. Follow-up surveys of IDA participants should be conducted to estimate any lasting effects of IDA programs on savings behaviors.

Conclusions

IDA programs need to focus on helping participants reach savings goals in order to take advantage of matching funds. Matching funds are one of the defining features of IDA programs. If programs are to be as effective as possible, they need to strive to help participants take advantage of those matching funds—including offering high match rates and match caps to participants.

In order to better explore savings behaviors in IDA programs, intermittent events and psychological factors need to be explored. IDA programs should also examine financial education, another defining feature of IDAs. Is the financial education offered of high quality? Is it meeting the needs of participants? Low-income individuals have limited resources, including time. Requiring more hours of financial education may not actually benefit participants. Instead, programs need to deliver information to participants as effectively as possible and in a short amount of time, respecting the needs of participants. This way, financial education will be more likely to be perceived as beneficial by participants.

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APPENDICES

APPENDIX A

Savings Groups by Predictor Variables

	Non-saver	Unmatched saver	Matched saver	Chi-Square
Savings account	41.53%	49.68%	52.05%	19.54***
Direct deposit	2.80%	6.51%	8.40%	21.60***
Gender				6.44*
Male	21.00%	17.59%	22.74%	
Female	79.00%	82.41%	77.26%	
Race/ethnicity				100.05***
African-American	53.22%	52.76%	32.33%	
Asian-American	0.84%	1.93%	3.01%	
Caucasian	32.94%	32.09%	47.95%	
Latino	8.59%	8.34%	9.73%	
Native American	2.74%	2.44%	2.60%	
Other	1.67%	2.44%	4.38%	
Marital status				64.83***
Married	18.73%	17.99%	29.42%	
Never-married	56.06%	50.46%	38.81%	
Divorced or separated	24.01%	28.42%	29.83%	
Widowed	1.20%	3.13%	1.93%	
Educational attainment				79.48***
Less than high school	20.33%	16.94%	9.33%	
High school	26.32%	21.05%	22.22%	
Some college, did not graduate	38.76%	38.51%	40.33%	
Graduated with a two-year degree	3.23%	3.72%	3.84%	
Graduated with an unspecified two-year or four-year degree	7.89%	10.53%	14.27%	
Graduated with a four-year degree	3.47%	9.24%	10.01%	
Employment status				32.59**
Full-time	56.68%	57.84%	62.28%	
Part-time	22.08%	24.42%	22.36%	
Not working	3.82%	3.47%	5.90%	
Unemployed	6.68%	5.14%	4.12%	
Student	8.00%	5.53%	3.29%	
Work-study	2.74%	3.60%	2.06%	
TANF	12.69%	12.23%	5.36%	27.56***

	Non-saver	Unmatched saver	Matched saver	Chi-Square
Intended asset use				287.32***
Home purchase	60.38%	53.66%	27.12%	
Home repair	3.82%	4.36%	20.41%	
Post-secondary education	15.04%	14.76%	19.32%	
Job training	2.63%	1.54%	1.64%	
Retirement	3.82%	5.52%	8.36%	
Small business	14.20%	19.90%	23.15%	
Other	0.12%	0.26%	0.00%	

Note: *p<.05, **p<.001, ***p<.0001

APPENDIX B

Differences Between Full and Restricted Multinomial Logit Models

	Model 1	Model 2
Matched saver (non-saver baseline)		
Savings account	0.0802	0.1399
Direct deposit	0.0304	0.3131
Match cap	0.0005	0.0006
Match rate	0.0302	0.0680
Financial education	0.0001	0.0034
Financial education--extra	0.0164	0.0290
Age		0.0074
Household size		0.0225
Total income		0.0053
Net worth		0.0005
Female		0.0296
Race/ethnicity (Caucasian is baseline)		
African American		0.0012
Asian American		2.0452
Latino		0.0334
Native American		0.0691
Other		0.3371
Marital status (married is baseline)		
Never married		0.0383
Divorced or separated		0.0654
Widowed		0.0048
Educational attainment (less than high school is baseline)		
High school		0.0645
Some college		0.1986
Two-year degree		0.2595
Unspecifed two or four year degree		0.2335
Four-year degree		0.3568
TANF		0.3958

	Model 1	Model 2
Employment status (full-time is baseline)		
Part-time		0.0539
Not working		0.1631
Unemployed		0.0151
Student		0.1801
Work-study		0.1769
Intended use (baseline is homeownership)		
Home repair		0.0568
Post-secondary education		0.0237
Job training		0.1445
Retirement		0.2988
Small business		0.5151
Other		--

Note: *p<.05

APPENDIX C

Letter of Permission from the Center for Social Development

Washington University in St. Louis
GEORGE WARREN BROWN SCHOOL OF SOCIAL WORK

Center for Social Development

June 5, 2006

Mary Linnenbrink
137 Sterling Drive
Athens, GA 30605

Dear Ms. Linnenbrink,

This letter is to confirm permission for you, as a graduate assistant at the Department of Housing and Consumer Economics, University of Georgia, to use the Center for Social Development's final MIS IDA dataset from the American Dream Policy Demonstration. The dataset includes data collected during the demonstration period beginning September 1997 to December 31, 2001.

In your publication, we ask that you please include in your acknowledgements the following statement:

> The MIS IDA data from the "American Dream Demonstration" (ADD) used in this research was collected and prepared for analysis by the Center for Social Development at Washington University in Saint Louis with support from twelve foundations that funded ADD. They are the Ford Foundation, Charles Stewart Mott Foundation, Joyce Foundation, F.B. Heron Foundation, John Dr. and Catherine T. MacArthur Foundation, Citigroup Foundation, Fannie Mae Foundation, Levi Strauss Foundation, Ewing Marion Kauffman Foundation, Rockefeller Foundation, Metropolitan Life Foundation, and Moriah Fund.

When it is complete, we would also appreciate a copy. Thank you and best of luck in your continued academic endeavors.

Sincerely,

Lissa Johnson
CSD Project Director

Washington University in St. Louis, Campus Box 1196, One Brookings Drive, St. Louis, Missouri 63130-4899
(314) 935-7433, *Fax:* (314) 935-8661

APPENDIX D

University of Georgia Human Subjects Approval Form

The University of Georgia

Office of The Vice President for Research
DHHS Assurance ID No. : FWA00003901

Institutional Review Board
Human Subjects Office
612 Boyd GSRC
Athens, Georgia 30602-7411
(706) 542-3199
Fax: (706) 542-5638
www.ovpr.uga.edu/hso

APPROVAL FORM

Date Proposal Received: 2006-04-07 **Project Number:** 2006-10712-0

Name	Title	Dept/Phone	Address	Email
Ms. Mary Linnenbrink	PI	Housing and Consumer Economics 212B Dawson 542-4874	515-290-4278	mlinnen@uga.edu
Dr. Teresa A. Mauldin	CO	Housing and Consumer Economics 203B Dawson Hall +2622 706-542-4854		tmauldin@fcs.uga.edu

Title of Study: Determinants of savings in American Dream Demonstration (ADD) Individual Development Accounts (IDA)

45 CFR 46 Category: Administrative 4
Parameters: ;
None;

Change(s) Required for Approval and Date Completed:
Revised Application;

Approved : 2006-04-25 **Begin date : 2006-04-25** **Expiration date : 2011-04-24**

NOTE: Any research conducted before the approval date or after the end data collection date shown above is not covered by IRB approval, and cannot be retroactively approved.

Number Assigned by Sponsored Programs:

Funding Agency:

Form 310 Provided: No

Your human subjects study has been approved.

Please be aware that it is your responsibility to inform the IRB:
. . . of any adverse events or unanticipated risks to the subjects or others within 24 to 72 hours;
. . . of any significant changes or additions to your study and obtain approval of them before they are put into effect;
. . . that you need to extend the approval period beyond the expiration date shown above;
. . . that you have completed your data collection as approved, within the approval period shown above, so that your file may be closed.

For additional information regarding your responsibilities as an investigtor refer to the IRB Guidelines.
Use the attached Researcher Request Form for requesting renewals, changes, or closures.
Keep this original approval form for your records.

Chairperson, Institutional Review Board