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Assets Beyond Saving in Individual Development Accounts

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This study examines whether participation in Individual Development Accounts (IDAs) leads to a significant growth in assets beyond saving in the IDA accounts. Using a longitudinal experimental research design for low-income IDA participants, we test for impacts on five measures of assets: liquid assets, other financial assets, total financial assets, real assets, and total assets. Results show that, while there are no large differences in liquid and financial assets between the treatment group and the control group, IDA participants in the take-up group have more real assets and total assets than members of the control group. Results suggest that additional research to examine long-term effects of IDAs on asset growth may be fruitful.

Key words: *asset growth, saving, Individual Development Accounts, experiment*

The most striking feature of U.S. wealth distribution is the degree to which wealth is concentrated in the top 5 percent of the population. Current estimates indicate that the richest 1 percent of U.S. households owns nearly one-third of the total wealth (measured as net worth) in the economy, and those in the top 5 percent hold more than half of the total wealth. At the other extreme, at least 15 percent of households have zero or negative net worth or no assets at all (Caner and Wolff 2004).

Over the last decade, increasing attention has been paid to asset building or asset ownership in response to the mounting evidence showing both short- and long-term positive effects of holding assets. In addition to obvious effects such as being able to meet future consumption needs, these *asset effects* may include a capacity for buffering economic crises, breaking the cycle of intergenerational poverty, and building capacity of family and community in the long term (Boshara 2001; Sherraden 1991). However, low-income households not only lack assets but also lack access to institutional mechanisms that promote asset accumulation. Furthermore, existing asset-based policies are regressive in that they benefit primarily those who already hold considerable assets (Sherraden 1991, 2005*a*).

Thus, given that existing asset-building policies, such as tax benefits for 401(k)s, tend to exclude low-income households, inclusive asset-based policies could be developed and specifically targeted toward low-income households. These inclusive policy initiatives would be defined by their expansion of access for low-income households to institutionalized structures that support asset

accumulation. Inclusive asset-based policy also encompasses progressive measures to stimulate savings among low-income households, including incentives such as matching funds and tax exemptions. Another characteristic of inclusive asset-based policy is voluntary **participation that allows an individual participant to decide whether to open an account or how much to contribute** (Sherraden 2005*b*).

A prime example of inclusive asset-based policy is found in Individual Development Accounts (IDAs). IDAs are progressive saving accounts wherein savings of eligible low-income participants are matched at various ratios determined by the sponsoring organization. Low-income households voluntarily participate in IDAs and their deposits are matched at the time of withdrawal if the savings are used for approved uses such as home purchase, postsecondary education, or microenterprise. Match rates are usually 1:1 or 2:1, but sometimes range higher to attract people to the program. In addition, IDA programs typically require that participants attend financial education classes to learn the basics of how to save money, establish or repair their credit history, as well as how to work with agents related to asset accumulation (Schreiner, Clancy, and Sherraden 2002). IDA programs also provide social support for asset accumulation by offering services such as peer group meetings, individual case management, and counseling.

Within the United States, more than 40 states have established IDA demonstration programs with perhaps 50,000 IDA accounts in total. A considerable body of evidence has found that when given the support of an IDA program, some of the poor are able to save. Most notably, participants in the American Dream Demonstration (ADD), which was the first large-scale demonstration of IDAs in the United States, saved an average of $16.60 net per month, and used 42% of matching dollars available (Schreiner and Sherraden 2007). In ADD, empirical evidence has shown that institutional features, controlling for individual socioeconomic characteristics, are significantly and meaningfully associated with explaining saving in IDAs (Curley, Ssewamala, and Sherraden 2005; Grinstein-Weiss, Wagner, and Ssewamala 2005; Schreiner et al. 2001, 2002; Schreiner and Sherraden 2007; Sherraden et al. 2003; Ssewamala and Sherraden 2004;).

Although this study builds upon the previous research, we ask a different question: How do IDAs influence accumulation of assets other than savings in IDAs? IDAs are designed not only to help participants accumulate initial savings, but also to transform savings held in IDAs into other types of assets that might produce an increase in wealth ownership in the long run. Specifically, this study examines specific types of assets such as liquid assets, financial assets, real assets, and total assets. IDAs were introduced to help participants save money for future investment such as home, car, secondary education, or small business. Therefore, while this study hypothesizes that there will be no large differences in liquid and financial assets between experiment and control groups, it is hypothesized that, compared to the control group, participants in IDAs will have significant growth in real assets and thereafter in total assets.

An IDA program operated by the Community Action Project of Tulsa County (CAPTC) in Tulsa, Oklahoma, employed an experimental design which makes it possible to examine how IDA programs influence accumulation of other assets beyond the savings held in IDAs. The randomized experimental design was chosen to provide estimates of the impact of IDA program participation, and in particular, the differences in the types of assets accumulated with the IDA program and the types of assets accumulated in the absence of the IDA program.

Theory and Evidence

To provide a context for better understanding inclusive asset-based policy, this section briefly reviews key propositions and empirical evidence of theories of saving.

Traditional Theories of Saving

The literature on saving and saving behaviors has been and continues to be dominated by economics. First, neoclassical economics posits that rational individuals save to allocate available life sources to lifetime consumption. Neoclassical economic theories commonly view savings as primarily related to income level (DeJuan and Seater 1999). Age as an individual's stage in the life cycle and income as a resource for saving are considered as primary factors of saving and asset accumulation (Browning and Crossley 2001). Second, based on the expectation that psychological underpinnings will improve exploratory power of saving, behavioral economists explain asset accumulation using concepts such as self-control, mental accounting, and rule-of-thumb (Shefrin and Thaler 1988; Thaler 1994). These theorists posit that individuals can constrain consumption and save by adopting rule-of-thumb or self-control. Empirical research testing behavioral economics of asset accumulation has suggested that psychological factors such as self-control, inertia, and rule-of-thumb are significantly related to saving patterns and savings (Graham and Isaac 1998; Madrian and Shea 2001; Thaler and Benartzi 2004).

Psychologists and sociologists have also examined factors influencing saving and asset accumulation. Economic psychology emphasizes psychological factors such as personal expectations, perceptions, and attitudes (Katona 1975). Furthermore, economic psychology assumes that perceptions of individuals mediate the relationship between economic conditions and economic behavior. Put simply, if economic conditions are expected to be pessimistic, savings will increase. However, contrary to this hypothesis of economic psychology, empirical research has found that psychological predictors have very low explanatory power of saving (Furnham 1985; Linqvist 1981; Lunt and Livingstone 1991).

In general, social stratification theory considers social class as a set of life conditions that act as a powerful determinant for many outcomes (Sorensen 2000). In this perspective, wealth is regarded as a vehicle for maintaining and transmitting social and economic status (Bowles and Gintis 2000). Intergenerational persistence of wealth inequality reflects parent-offspring similarities in traits influencing wealth accumulation (Bowles and Gintis 2000; Charles and Hurst 2003; Chiteji and Stafford 1999). According to Kerwin Charles and Erik Hurst (2003), children's propensities for saving are determined by mimicking their parents' saving behaviors. These findings suggest that experiences in low social strata may affect the socialization process of children's saving, which results in asset poverty in their adulthood. In addition, race or ethnicity as a measure of social stratification is a fundamental basis of asset inequality. One finding common to several studies was that minority groups, particularly African Americans, were likely to own fewer assets than whites (Oliver and Shapiro 1995; Shapiro 2001).

Despite the diverse theories described above, they share a common weakness in explaining how low-income households can accumulate assets given that the theories specialized in explaining saving of individuals who are young, middle class, and employed full-time (Katona 1975). In other words,

these theories might be better suited to explain why low-income households cannot save because of low income, job instability, low social stratification, or racial minority.

Institutional Saving Theory

Each of the theories regarding saving, economical, psychological, and sociological, that were presented above, introduces some individual characteristics (i.e. income, age, self control, mental accounting, expectations, perceptions and attitudes) that are likely to influence saving and assets accumulation. The institutional perspective suggests that institutional characteristics, in addition to individual characteristics and the role of lifetime resources, have an important role in shaping saving behavior and may explain a significant part of the variance in personal saving among different segments of the population. According to this perspective, asset accumulation mainly results from institutional arrangements that involve explicit connections, rules, incentives, and subsidies (Sherraden 1991). These institutional arrangements lead to different levels of access and incentives to accumulate assets for different segments of the population. For example, a larger number people in the middle and upper classes are participating in retirement accounts not because they made a priori decision to save but rather, because their retirement pension systems make it easy and attractive to do so. Another way to look at this is that this a priori choice was partially made by social policy (Sherraden 1991).

According to the institutional perspective, a portion of the different levels of saving among the poor and low income households can be explained by different institutional arrangements for the poor and the nonpoor. The nonpoor benefit from this institutional arrangement from all the major sources of financial support--employment, government, family, and existing assets. But tThe poorreceive little support from any of theses sources and, as a result, typically accumulate only a few assets over the long run. The current study can be viewed broadly as a test of IDAs as an institutional saving mechanism for the poor (Beverly and Sherraden 1999; Sherraden et al. 2003; Schreiner and Sherraden 2007).

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American Dream Demonstration

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Based on a development perspective, Michael Sherraden (1991) proposed IDAs as a savings instrument for low-income households. A critical premise of IDAs is that the disadvantaged can save when given access to institutional support. IDA programs are an attempt to enable low-income families to accumulate assets by providing these families with institutional supports. Funded by both the public and nonprofit sectors, IDA programs provide matching grants as incentives to encourage savings. The matched funds are contributed when IDA program participants withdraw their savings for use toward approved purchases such as home purchase, postsecondary education, or microenterprise. Because IDAs are a relatively new policy development, multifaceted research including an experiment site was implemented within the American Dream Demonstration (ADD). ADD was the first large-scale test of IDAs and was developed by the Corporation for Enterprise Development and the Center for Social Development at Washington University in St. Louis. ADD involved 14 IDA program sites, which were selected through a competitive process. The 14 program sites established more than 2,000 IDA accounts in low-income communities (Schreiner et al. 2002). The key purpose of the demonstration research was to build knowledge of the mechanisms of IDAs, and to identify how IDAs function to help the poor save and accumulate assets (Schreiner et al. 2001, 2002).

A typical example of a community site selected for inclusion in ADD was CAPTC, a multi-service community agency whose target population is working poor households in the Tulsa metropolitan area. Compared with the other IDA programs in ADD, CAPTC is the only program which employs longitudinal and experimental design. CAPTC's IDA program eligibility was limited to employed people with household income at or below 150 percent of the federal poverty line. Approved uses (i.e., those qualified to receive matched funds) included home purchase, postsecondary education, small business investment, home repair, and retirement. CAPTC offered a match rate of 2:1 for withdrawals used for home purchase, and a match rate of 1:1 for all other approved uses. The time cap for program participation was 36 months from the date of establishing an account. CAPTC required participants to complete 12 hours of general financial education, of which 4 hours had to be completed prior to opening their IDA account. Asset-specific education (e.g., information on the home buying process) was also required prior to making a matched withdrawal.

Methods

Data and Sample

This study uses the ADD experimental data collected at the IDA program operated by CAPTC in Tulsa, Oklahoma. The Tulsa IDA program employed an experimental design with a total sample of 1,103 eligible participants who self-selected to participate in the IDA program. Participants were randomly assigned to either the treatment (n = 537) or control (n = 566) group. Those in the treatment group participated in the IDA program; control group participants received usual services but were not enrolled in the IDA program. After random assignment of the sample, the control group was not supposed to open IDA accounts nor to participate in any other housing assistance program offered by CAPTC during the 4-year demonstration period (1999–2003).

Data were collected through a baseline detailed survey and two subsequent surveys with each participant. The baseline interview (Wave 1) was conducted just before the random assignment, followed by surveys administered at 18 months of program participation (Wave 2) and at the 48th month (Wave 3) follow-up survey. Because the program had a time cap of 36 months and participants have different starting dates, it is important to note that participants have different durations in the program at the 48 month follow up – but all participants had finished the program at that time. The survey instrument collected data such as individual socioeconomic demographics, income, assets, and features/characteristics related to saving behaviors.

As a result of sample attrition in the longitudinal survey, sample size decreased to 933 (85 percent of the total sample) at Wave 2, and 840 (76 percent of the total sample) at Wave 3. Of the final sample of 840 participants, the treatment group was comprised of 412 participants and the control group had 428 participants. This study examined whether and to what degree "leavers" differ from "stayers" on the set of socioeconomic demographic variables, expectations of current and future financial situation (financial satisfaction in the present and financial hope in the future), saving behavior (saving extra money, having budget or plan, and saving regularly), saving experience as a kid (parents' saving and saving as a kid), and assets and liabilities (all measured at Wave 1). As presented in table 1, results indicated that gender, marital status, race or ethnicity, and educational attainment status are significantly different between "leavers" and "stayers." Males are more likely to leave the study ($\chi^2 = 4.43$, $p<.05$). Married individuals are more likely to leave the study ($\chi^2 = 6.92$, $p<.05$). Compared to Caucasians, African Americans and individuals with other race or ethnicity are

more likely to leave the study (χ^2 = 15.56, p<.001). Individuals with lower education status are more likely to be "leavers" (χ^2 = 10.19, p<.01). Although marginally significant, "leavers" are likely to have higher monthly household income than "stayers" (t = -1.78, p<.10).

Table 1. Bivariate Analysis of Attrition

Variables	Leavers (n = 263)	Stayers (n = 840)	Bivariate Statistics
Number of adults in household	2.31	2.18	1.27
Number of children in household	1.67	1.57	1.51
Gender (Female) (%)	73.76	79.88	4.43 *
Age	42.75	39.78	.50
Monthly household income ($)	1,518.67	1,406.16	-1.78 †
Household below the poverty line (%)	36.34	37.32	.08
Education (%)			10.19 **
High school graduation or less	41.82	31.19	
Some college	36.89	42.38	
College graduation or more	21.29	26.31	
Marital status (%)			6.92 *
Married	33.08	26.19	
Single and never married	40.68	40.12	
Divorced or widowed	26.24	33.69	
Race (%)			15.56 ***
Caucasians	34.60	47.02	
African Americans	46.39	40.96	
Others	19.01	12.02	
Financial satisfaction in the present (satisfied; %)	37.40	39.21	.27
Financial hope in the future (hopeful; %)	31.18	34.01	.72
Saving extra money (%)	73.38	70.66	.73
Having budget or plan (%)	33.84	37.26	1.01
Saving regularly (%)	32.06	33.57	2.05
Parents' saving as a kid (%)	47.97	51.75	1.07
Saving as a kid (%)	39.69	42.70	.74

Note: All variables were measured at the baseline.

    For bivariate statistics, while t-tests were used for continuous variables (number of adults, number of children, age, and monthly household income), chi-square was used for categorical variables.

    †<.10

    *<.05

    **<.01

    ***<.001

Another issue confronted in an experimental research design is the possibility that not all of those assigned to the treatment group would participate in the experiment. Of the 520 qualified applicants in the treatment group, approximately 13 percent (n = 66) did not open an IDA account over the

course of the demonstration period. It was found that older people, single households, and those with checking accounts are more likely to participate in the CAPTC IDA program, respectively (Han, Schreiner, and Sherraden 2007). The nonparticipants were identified by matching the experimental survey and account information of all participants in ADD using software specifically designed for IDA programs (matching accomplished using Management Information System for Individual Development Accounts [MIS IDA]). To examine net impacts of experimentation, nonparticipants can be distinguished from the actual take-up of experimentation. Thus, the assessment of experimentation based on the allocated group rather than the actual take-up group is known as *intent-to-treat* analysis, and such analysis is accepted as providing reliable estimates of experimentation (Lachin 2000; Orr 1999). However, if information regarding nonparticipants is available, scholars have recommended *efficacy subset* analysis, which is an evaluation of the experiment based on the actual take-up to accurately interpret estimates of net impact (Orr 1999). Based on this argument, the treatment group was reduced from 412 qualified participants to a final group of 369 verified participants. This study provides results for these two types of groups in evaluating IDA program effects on asset growth.

Table 2. Measurement of Assets

Types of Assets	Measurement
Liquid assets	Checking account + Savings account + Money market account + Certificates of deposit (CD)
Other financial assets	Saving bonds + Education account + Stocks, bonds, or mutual funds + Savings by friends or family members + Saving at home + Christmas club or vacation account + Other kinds of savings
Total financial assets	Liquid assets + Other financial assets + Savings for retirement (IRA type account , 401(k)s, 403(b)s, or other pension accounts)
Value of real assets	Value of business + Value of car + Value of property + Value of home
Total assets	Total financial assets + Value of real assets

Measures

To examine IDA program effects on asset accumulation, five types of assets are assessed or calculated (see Table 2). First, liquid assets—such as amounts in a checking account, savings account, money market account, and certificates of deposit (CD)—are recorded. The second measure of wealth is other financial assets, calculated by summing amounts of saving bonds, education account, stocks, bonds, mutual funds, Christmas club, and vacation accounts. The third measure is total financial assets, calculated by adding the value of the first two measures and the value of retirement savings, which include values of IRA accounts and 401(k)s, 403(b)s, or other pension accounts. Real estate and non-financial assets comprise the fourth measure of wealth called real assets, and include the value of a home, car, or land. The fifth measure, total assets, is calculated

as the sum of the previous four types of assets. To analyze the patterns of wealth growth, three waves of each of these measures of wealth are included in the study.

Different growth patterns are hypothesized. First, since IDA participants might transfer their liquid and/or financial assets into IDA accounts, the control group may have more liquid and financial assets than the treatment group. Second, IDAs are intended for investment in long-term asset accumulation, such as buying home or starting a small business; thereafter the treatment group is hypothesized to have more real assets. Third, growth in real assets is expected to lead to growth in total assets. Reshuffling from liquid and/or financial assets to IDA accounts may cancel out growth in real assets and cause no significant growths in total assets, however, we hypothesize that real assets outgrow the changes in liquid and/or financial assets. As a result, IDA participants are expected to have more growth in total assets than the control group.

Socioeconomic demographic characteristics considered in this study include age, gender, household composition (i.e., number of children and number of adults), race/ethnicity, marital status, educational attainment, monthly household income, and poverty level. Age of survey participants, number of children and adults in the households are continuous variables. Gender is a dichotomous variable with males as a reference group. Race/ethnicity is categorized into three groups: Caucasians (reference group), African Americans, and other race or ethnicities. Marital status is collapsed into three groups: married (reference group), single and never married, and divorced and widowed. Educational attainment is categorized into three groups: high school graduation or less (reference group), some college, and college graduation or higher education. If a household has an income-to-needs ratio below 1, then it is coded as 1 indicating poverty status. Socioeconomic variables are measured at baseline.

To control for competing factors influencing saving and asset accumulation, we include several sets of variables. The first set of variables is the expectations of current and future economic situations, which are key factors influencing saving in economic psychology. Participants' responses to queries regarding their current economic condition are collapsed into two groups: satisfied and not satisfied (reference group). Expectations of future economic conditions are also categorized into two groups: hopeful and not hopeful (reference group). In addition, three measures of saving behaviors ask whether participants have saved extra money, written a budget or spending plan, and saved regularly. All three of the measures are dichotomous (*yes* or *no*). Last, to control for socialization effects of asset accumulation, we include two measures related to socialization of asset accumulation. One measure asks whether the participant's parents saved when the participant was a child (parents' saving as a kid). The second measure asks whether the participant saved during their childhood (saving as a kid). Both of these measures are also dichotomous. Similar to the socioeconomic characteristics, the variables of expectations of economic conditions, saving behaviors, and socialization are measured at baseline.

Analysis Plan

After univariate statistics are run to examine descriptive results of the sample, bivariate analyses are used to examine whether IDA participants differed from the control group in socioeconomic demographics, variables related to saving, and asset measures. Initial analysis employs *t*-tests to examine differences between the continuous variables (i.e., number of children and adults, age, monthly household income, and assets outcome measures) for the treatment and control groups.

For categorical measures, we use chi-square statistics. Using a series of multivariate regression models, we investigate IDA program effects on the five outcome measures: liquid assets, other financial assets, total financial assets, real assets, and total assets. Because all asset measures are continuous variables, ordinary least square (OLS) regression is used for the estimation of IDA program effects. We present both the intent-to-treat analysis and efficacy subset analysis to compare participant results with or without those who were offered to participate in IDA program but did not open an IDA account.

Table 3. Descriptive and Bivariate Statistics of Individual Characteristics

Variables	Total Sample (N= 840)	Treatment (n = 412)	Control (n = 428)	Bivariate Statistics
Number of adults in household	2.57	2.55	2.58	.47
Number of children in household	1.68	1.75	1.61	-1.52
Gender (Female) (%)	79.88	78.88	80.84	.50
Age	40.67	40.71	40.63	-.09
Monthly household income ($)	1,447.94	1,495.35	1,411.25	-1.42
Household below the poverty line (%)	36.90	36.57	37.19	.11
Education (%)				.20
High school graduation or less	31.23	31.31	31.15	
Some college	42.43	41.75	43.09	
College graduation or more	26.34	26.94	25.76	
Marital status (%)				5.94†
Married	26.19	28.15	24.30	
Single and never married	40.12	35.92	44.16	
Divorced or widowed	33.69	35.92	31.54	
Race (%)				1.58
Caucasians	47.02	44.90	49.06	
African Americans	40.95	42.96	39.02	
Others	12.02	12.13	11.91	
Financial satisfaction in the present (satisfied; %)	39.21	36.89	41.45	1.83
Financial hope in the future (hopeful; %)	34.01	34.22	33.80	.02
Saving extra money (%)	70.66	68.95	72.30	1.13
Having budget or plan (%)	37.26	37.86	36.68	.12
Saving regularly (%)	33.57	37.38	29.91	5.26*
Parents' saving as a kid (%)	51.75	52.60	50.90	.22
Saving as a kid (%)	42.70	41.60	43.76	.40

Note: All variables were measured at the baseline.

    For bivariate statistics, while *t*-tests were used for continuous variables (number of adults, number of children, age, and monthly household income), chi-square was used for categorical variables.

    †<.10

    *<.05

Results

Univariate and Bivariate Statistics

Based on the descriptive statistics of the study sample presented in Table 3, the sample appears to have been disadvantaged both socially and economically. Females represent nearly 80 percent of the sample. Although the average household monthly income was approximately $1,448, nearly 37 percent of the sample lived below the federal poverty line. In addition, when considering marital status, nonmarried households were also oversampled. Only 26 percent of sample was married, nearly 40 percent was single or never married, and approximately 34 percent was separated, divorced, or widowed. Racial minorities were also oversampled. Caucasians comprised nearly 47 percent of the sample, African Americans constituted about 41 percent, and other race or ethnicity represented about 12 percent. However, because IDA programs are targeted to the working poor, educational attainment status of the sample was higher than would be found in the general population of low-income households. Approximately 42 percent of the sample had some college, and nearly 26 percent of the sample had attained college graduation or higher.

As might be expected with low-income households, only 39 percent of the sample evaluated their current economic situation as satisfied, but nearly 34 percent of the sample expected that future economic conditions would improve. Analysis of saving behaviors produced four noteworthy findings. First, 71 percent of the sample indicated they would prefer to save extra money rather than spend it. Second, 37 percent reported they always had a written budget or spending plan, and 34 percent said they tried to save a regular amount each month. Third, regarding socialization of saving, about 52 percent recalled from their childhood that their parents had some type of a savings account. In addition, nearly 43 percent of participants reported having had a savings account during their own childhood years.

Table 3 presents bivariate statistics, comparing treatment and control group on socioeconomic demographics, expectations of current and future economic conditions, saving behaviors, and saving experience as a child. Overall, we find no significant differences in the variables between the treatment and control groups. However, two characteristics are noteworthy. First, control group participants are more likely to be single or never married, and they are less likely to be married than those in the treatment group ($\chi^2 = 5.94$, $p<.10$). Second, regarding saving behaviors, participants in the treatment group are likely to save more regularly than the treatment group ($\chi^2 = 5.26$, $p<.05$). This study also examined bivariate analyses of the efficacy subset data. While there are generally no significant differences in the characteristics between the treatment and control groups with the efficacy subset data, three characteristics are marginally different. First monthly household income of participants in the treatment is slightly higher than that of the control group ($t=1.78$, $p<.10$). Second, participants in the control group are more likely to be single and never married than the counterpart ($\chi^2 = 4.90$, $p<.10$). Last, the control group is likely to save more regularly than the treatment group ($\chi^2 = 3.39$, $p<.10$).

Table 4. Descriptive and Bivariate Statistics of Assets

Asset Measures	Intent-To-Treat Analysis (N = 840)			Efficacy Subset Analysis (N=797)		
	Treatment (n = 412, A)	Control (n = 428, B)	Δ(A-B)	Treatment (n = 369, C)	Control (n = 428, D)	Δ(C-D)
LA (w1)	747	1,024	-277	789	1,024	-235
LA (w2)	1,714	1,503	211	1,838	1,503	335
LA (w3)	1,840	1,807	33	1,912	1,807	105
OFA (w1)	498	379	119	550	379	171
OFA (w2)	695	688	7	752	688	64
OFA (w3)	778	916	-138	835	916	-81
TFA (w1)	2,191	1,940	251	2,337	1,940	397
TFA (w2)	3,600	3,278	322	3,826	3,278	548
TFA (w3)	4,886	4,208	678	5,082	4,208	874
RA (w1)	13,909	15,464	-1,555	14,817	15,464	-647
RA (w2)	27,226	26,632	594	28,817	26,632	2,185
RA (w3)	40,586	36,303	4,283	43,419	36,303	7,116*
TA (w1)	16,100	17,404	-1,304	17,154	17,404	-250
TA (w2)	30,826	29,910	916	32,643	29,910	2,733
TA (w3)	45,470	40,511	4,959	48,499	40,511	7,988*

Note: LA denotes liquid assets; OFA denotes other financial assets; TFA denotes total financial assets; RA denotes real assets; and TA denotes total assets
*<.05

Descriptive and bivariate statistics of different types of wealth, our outcome measures, are presented in Table 4. Because the three data waves collected measures of different types of wealth, we are able to analyze trends of asset accumulation as well as compare growth patterns between IDA participants and the control group. Average growth trends are presented to facilitate understanding how assets changed through the three data waves. Two growth curves in efficacy subset analysis - of real assets and total assets - are presented because there are significant differences in those assets between IDA participants and the control group (see Figures 1 and 2). Each graph consists of two lines, the solid line represents the treatment group and the broken line (dashes) represents the control group.

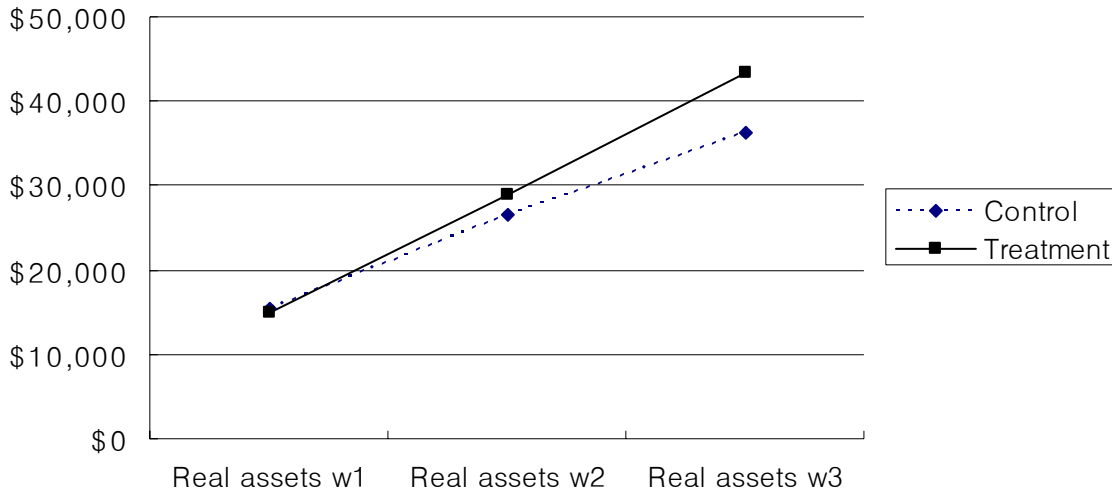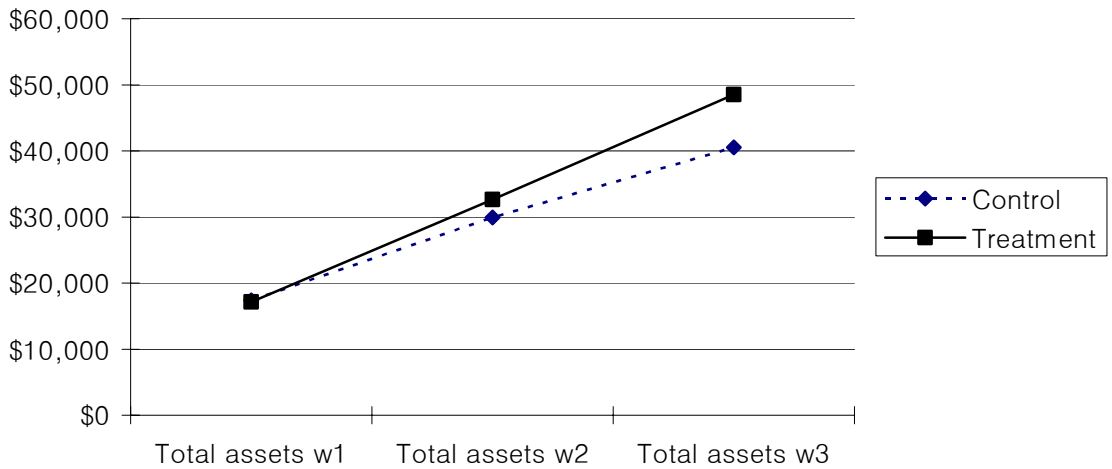Figure 1. Average Growth Trends of Real Assets

Figure 2. Average Growth Trends of Total Assets

Our analyses on assets changes yield several noteworthy findings in both intent-to-treat analysis and efficacy subset analysis. First, while the control group has more liquid assets than the treatment group at baseline, interestingly the treatment group has more liquid assets than the control group at waves 2 and 3. Second, results for other financial assets follow a different pattern in that, while the treatment group has more other financial assets than the control group at waves 1 and 2, the control group has more other financial assets than the treatment group at wave 3. Third, in terms of total financial assets summing up all liquid and financial assets, the treatment group has more total financial assets throughout the 3 waves and the gap between the treatment group and the control group grows steadily although it is not statistically significant. Fourth, growth patterns indicate that participants in the IDA program had greater growth in real assets and total assets than the control group. Intent-to-treat analysis and efficacy subset analysis show similar growth patterns of these

assets. However, while the differences in real assets and total assets are not statistically significant in intent-to-treat analysis, they are statistically significant in efficacy subset analysis (see Table 4).

Table 5. OLS Regression Results of Intent-to-Treat Analysis

Variables	Model 1 on Real assets	Model 2 on Total assets
Constant	37,786.05 ***	36,173.23 ***
IDA participation (Treatment group)	4,049.63	4,488.95
Number of adults in household	-1,204.29	-510.91
Number of children in household	-315.74	92.24
Gender (Female)	-3,537.63	-3,877.49
Age	-529.96 **	-568.14 **
Monthly household income ($)	9.09†	8.43
Household below the poverty line	3,145.74	2,867.59
Education		
High school graduation or less (reference)		
Some college	3,060.77	3,178.19
College graduation or more	11,523.08 **	12,557.22 **
Marital status		
Married (reference)		
Single and never married	-11,863.79 **	-11,621.08 *
Divorced or widowed	-4,580.34	-2,968.83
Race		
Caucasians (reference)		
African Americans	-12,598.63 ***	-12,592.95 ***
Others	-8,275.61 †	-9,013.33 †
Financial satisfaction in the present (satisfied)	3,020.08	3,533.77
Financial hope in the future (hopeful)	3,639.64	3,372.16
Saving extra money	9,384.82 **	10,826.09 **
Having budget or plan	-905.44	-1,458.28
Saving regularly	845.69	1,479.57
Parents' saving as a kid	3,794.48	3,264.24
Saving as a kid	3,469.25	3,769.31
Total financial assets ($)	.23	.93 **
Real assets ($)	.70 ***	.74 ***
Total liabilities ($)	-.07	-.07
Adjusted R^2	.266	.288
F value (df)	15.22*** (23)	16.88*** (23)
N	826	826

Note: All independent variables are measured at wave 1.
   †<.10
   *<.05
   **<.01
   ***<.001

Table 6. OLS Regression Results of Efficacy Subset Analysis

Variables	Model 1 on Real assets	Model 2 on Total assets
Constant	38,730.31 ***	39,885.03 ***
IDA participation (Treatment group)	5,891.93 †	6,181.40 *
Number of adults in household	-2,299.25	-2,285.44
Number of children in household	-1,523.00	-1,879.25
Gender (Female)	-3,165.08	-3,522.58
Age	-573.82 **	-605.52 ***
Monthly household income ($)	11.68 ***	12.60 ***
Household below the poverty line	4,250.11	3,131.66
Education		
High school graduation or less (reference)		
Some college	1,573.58	1,366.21
College graduation or more	10,312.77 *	11,172.27 *
Marital status		
Married (reference)		
Single and never married	-12,747.31 **	-12,469.59 *
Divorced or widowed	-5,186.61	-3,530.19
Race		
Caucasians (reference)		
African Americans	-12,763.73 ***	-12,713.26 **
Others	-8,986.09	-10,038.14 †
Financial satisfaction (satisfied)	3,545.19	4,076.35
Financial hope (hopeful)	4,060.01	3,769.59
Saving some extra money	9,830.79 **	11,346.90 ***
Having written budget or spending plan	-1,180.42	-1,698.14
Saving regularly	922.93	1,979.05
Your parents saved when you were a child	4,691.92	3,595.53
You saved when you were a child	3,920.46	4,035.59
Total financial assets ($)	.17	.85 **
Real assets ($)	.71 ***	.75 ***
Total liabilities ($)	-.08	-.08
Adjusted R^2	.264	.284
F value (df)	13.21*** (23)	14.48*** (23)
N	781	781

Note: All independent variables are measured at wave 1.

  †<.10
  *<.05
  **<.01
  ***<.001

Multivariate Regression Results

A series of multivariate regression models illuminate the effects of IDA program participation on accumulation of assets other than saving in IDAs. There are 14 missing observations in the regression models so that the total sample is reduced to 826 in the intent-to-treat analysis and 781 in the efficacy subset analysis. As expected from the analysis using bivariate statistics, multivariate regression models also show no significant differences between the treatment group and the control group on measures of liquid assets, other financial assets, and total financial assets. In addition, no significant differences in real assets and total assets are found between the treatment group and control group in the intent-to-treat analysis (see Table 5). In the efficacy subset analysis, we find that the treatment group participating in the IDA program had marginal but significant growth in real assets, and significant growth in total assets as compared with the control group (see Table 6). Other things being equal, IDA participants have $5,892 in real assets and $6,181 in total assets more than the control group. Although the significance level is small, the differences in the values of real assets and total assets are meaningful, especially for a low-income population.

Although secondary to the research questions, several findings are also worthy of notice. First, in contrast to much of the evidence that age is positively associated with wealth, in this study age is negatively associated with growth of either real assets or total assets. This finding suggests that, when controlling for wealth at baseline, older participants have smaller growth in real assets and total assets than younger participants. Second, while monthly household income is positively associated with both real assets and total assets in intent-to-treat analysis, the significant association weakens to marginally significant (on real assets) or becomes non –significant (on total assets) in efficacy subset analysis. Third, although there are no significant differences in growth of wealth between participants with high school graduation and those with some college, participants with college graduation or higher educational attainment were likely to accumulate more real assets and total assets compared to those in the reference group. Fourth, single and never married low-income households have much less wealth measured by real assets and total assets compared to the married, low-income households. Fifth, consistent with previous research, African Americans are likely to have less real assets and total assets than Caucasians. Sixth, a measure of saving behavior is significantly associated with both real assets and total assets. Participants who report an inclination to save, rather than spend, any extra income are likely to have higher growth in real assets and total assets.

Wealth measured at the baseline is partially associated with growth of real assets and total assets. Although total financial assets at baseline are significantly associated with an increase in total assets at wave 3, total financial assets at baseline are not significantly associated with the increase in real assets at wave 3. Real assets at baseline are significantly associated with both real assets and total assets at wave 3. However, total liabilities at the baseline are not significantly associated with growth of wealth such as real assets and total assets.

Discussion and Conclusion

This study is the first thorough quantitative examination of the effects of participation in IDAs on accumulation of assets other than savings in IDAs. Because IDA programs are designed to help participants save for investments in wealth-building assets such as a home, starting a new business,

or saving for sustainable life after retirement, a primary and critical issue of IDA policy should be whether participants in IDA program have significant growth in assets beyond savings in IDAs.

In this study, we use a data set from a randomized longitudinal experimental design where low-income participants were assigned into a treatment or control group. Although this random assignment did not result in systematic differences between the treatment group and the control group at baseline, only the treatment group participated in the IDA program and received the required financial education classes. Accordingly, any subsequent differences in outcomes between the two groups can be reliably attributed to effects of experimentation (Orr 1999; Stafford, Greenberg, and Davis 2002).

In this study, participation in an IDA program and growth in assets are the key factors considered to measure the effects of experimentation. Using an experimental and longitudinal research design, we employ multivariate regression models and find that participants in IDAs compared to the control group have no significant differences in liquid assets, other financial assets, and total financial assets compared to the control group. Participants in IDA programs can be expected to transfer liquid assets into IDA accounts, which would explain why the treatment group might have relatively smaller values in the two types of assets than the control group. However, we find that participants in the IDA program have more value in the two types of assets than the control group, although the differences are not statistically significant.

While the IDA program had no significant association with real assets and total assets in intent-to-treat analysis, IDA participants were likely to have more real assets and total assets than the control group in efficacy subset analysis. These findings suggest that IDA effects on assets in the four-year measurement period are tentative. Significant increases in real assets (in efficacy subset analysis) might be explained by the institutional structure of IDA programs where saving in IDAs is intended for investment in long-term asset accumulation in homeownership or starting a small business. In particular, studies using the same randomized experiment report that participants in IDA are more likely to buy a new house at 48 months than the control group (Mills et al. 2006; Grinstein-Weiss et al. 2007). The increase in real assets might lead to the increase in total assets among participants in the treatment group.

Four limitations of this study are noteworthy. First, it is difficult to generalize the findings because we examine one specific IDA program among the 14 IDA programs in ADD. In addition, participants in IDAs are both self-selected and program-selected, and therefore participants in an IDA program may not represent the general population of low-income households (Schreiner et al. 2001). Future studies should examine whether the findings in this study can be replicated in other IDA programs. Second, 24 percent of the sample attrition rate is not negligible in that the "leavers" are significantly different with the "stayers" in gender, marital status, race or ethnicity, and education attainment status. Therefore, the attrition may bias the findings of this study, which require careful interpretation. Third, the timeline of this study might have been too short to obtain sufficient data to analyze the long-term process of asset accumulation. It is possible that, for low-income households, asset accumulation might be more difficult and require more time. The relatively short term of the demonstration (1999-2003) might help explain the weak associations between IDA participation and growth in other assets. Indeed, at the last point of data collection at wave 3, not all participants had taken a matched withdrawal. Therefore, full evaluation of the long-term effect of participation in the CAPTC IDA program on asset accumulation will likely require a follow-up wave 4 survey. Wave 4

could provide an examination of the long-term impacts of IDA program participation on individuals' wealth, earnings, attitudes, and other social-psychological outcomes. Another limitation is that this study focuses on assets, although debt or liability is another aspect of asset accumulation.

Despite limitations, the empirical results of this study may have implications for public policy. IDAs may increase certain types of assets, and this may have positive long-term effects. If this proves to be the case, inclusion should be a priority of asset-based policy. Increasing numbers and varieties of inclusive asset-based policies, such as IDAs, should be developed or expanded to serve low-income households. Although the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 gave states the option to use block grant funds for matched saving accounts for the poor, a significant portion of low-income households are untouched by these programs.

Because we find differences in growth of real value assets and total assets between intent-to-treat analysis and efficacy subset analysis, non-participation in IDAs has implications for the development of inclusive asset-based policy. All low-income households should be ensured access to savings plans such as IDAs, and participation encouraged through campaigns to increase public awareness of the program availability, and perhaps pre-commitments and automatic enrollment and that have proven to be effective in 401(k) plans.

In addition, although IDAs have been shown as effective methods to help generally low-income households accumulate assets, the more disadvantaged may not benefit as much. For example, African Americans, the unmarried, and participants with lower education and lower income show significantly lower growth in assets accumulation (Grinstein-Weiss, Zhan, and Sherraden 2006; Schreiner, Clancy, and Sherraden 2002; Ssewamala and Sherraden. 2004; Zhan and Grinstein-Weiss 2007). Policy makers and proponents of IDAs should develop strategies targeting these more disadvantaged populations, and provide opportunities tailored for them to become actively involved in asset accumulation.

Another implication of the study is that asset-building initiatives may have the potential to reshape a range of social and economic policy discussions (Boshara and Sherraden 2004). Asset building appears to be emerging as a new social and economic development strategy. Asset-based policies may have the potential to transform passive welfare states into active social investment states (Midgley 1999; Organization for Economic Co-operation and Development 2003). An asset-based policy that includes the poor would be a complement to income support. Each policy would have a different purpose: income support to sustain daily living, and asset building for future development.

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