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Do Institutions Really Matter for Saving among Low-income Households?

A Comparative Approach

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Do Institutions Really Matter for Saving among Low-Income Households?

A Comparative Approach

This study aims to examine the extent to which competing theories explain saving of low-income households in Individual Development Accounts (IDAs). Competing theories include individual-oriented perspective, social stratification perspective, and institutional saving theory. This study uses American Dream Demonstration (ADD) data collected at the Tulsa IDA program. Compared with the individual perspective and the social stratification perspective, institutional features explain a significant part of the variance in saving outcomes measured by average monthly net deposit (AMND) and deposit frequency ratio (DFR). Findings suggest that an inclusive asset-based policy should be designed with institutional structures encouraging low-income households to save.

Key words: *saving; comparative perspective; Individual Development Accounts; low-income households*

Introduction

Among the most persistent social inequality issues in America is the concentration of wealth. During the period between 1962 and 1995, while there was an increase in mean net worth from \$143,000 to \$215,000, median net worth increased from \$35,200 to \$45,600 (Mishel, Bernstein, and Schmitt, 1999). The disparity between mean and median values of household wealth attests to the considerable inequality in the wealth distribution (Spilerman, 2000). The richest one percent of households owns about one-third of the total wealth (measured as net worth) in the economy, and those in the top five percent hold more than half. At the other extreme, a significant fraction of households have zero or negative net worth (Caner and Wolff, 2004).

Wealth ownership and accumulation matter for everyone. Wealth can buffer economic crises, break the cycle of intergenerational poverty, and build capabilities of individuals and communities to live better in the long term. However, the less affluent have few structured supports and incentives for asset accumulation. Existing asset-based policies are regressive in that they mostly benefit middle or higher income households. Low-income households have been largely excluded from opportunities to accumulate assets (Sherraden, 1991).

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Inclusion should be a primary goal of asset-based policy. By inclusion, we mean that asset-based policy should broaden access to the disadvantaged and provide mechanisms to support asset accumulation. Given institutional opportunities to save, low-income households may be able to save despite economic insufficiency. The classic example of an inclusive asset-based policy is Individual Development Accounts (IDAs), which was proposed by Sherraden (1991). Funded from public and/or private sectors, IDAs provide subsidies through matching deposits. IDA program participants withdraw matched savings for home purchase, post-secondary education, microenterprise, and sometimes other uses (Schreiner, Clancy, and Sherraden, 2002). In total there may be about 500 IDA programs and 20,000 accounts nationwide (Sherraden, 2005).

The expansion of inclusive asset-based policy is based on institutional saving theory suggesting that institutional features influence saving (Sherraden, 1991). Institutional saving theory has strengths in explaining asset accumulation of low-income households and in being applied to policy development targeted to low-income households (Beverly and Sherraden, 1999). Empirical evidence from IDAs generally supports institutional saving theory (Curley, Ssewamala, and Sherraden, 2005; Grinstein-Weiss, Wagner, and Ssewamala, 2005; Schreiner et al., 2001, 2002; Ssewamala and Sherraden, 2004; Sherraden et al., 2003; Sherraden and Barr, 2005). At least two results are noteworthy. First, the poor in IDA programs can save. Contrary to the stereotyped opinion that the poor cannot save, they have saved in IDA programs. Second, institutional factors explain a significant part of saving outcomes. Controlling for individual socioeconomic demographics, institutional factors are significantly and meaningfully related to saving performance.

Building on previous research, this study makes contributions to knowledge in two key ways. First, the study explores more thoroughly diverse theories of saving. While there is a substantial literature quantifying the extent to which individual preferences, socioeconomic background, or institutional features explain saving, there is little research examining these competing theories in a single model with a comparative approach. Not only institutional saving theory but also economical, psychological, and social stratification theories will be examined in this study. In addition, the study assesses the degree to which institutional theory explains savings outcomes in IDAs, taking account of the other theories. Second, we use longitudinal data which enables us to examine how changes in the economic situation of participants influence asset accumulation. In particular, this study examines how changes in employment status affect saving. With a longitudinal survey designed to evaluate an IDA program in Tulsa, Oklahoma, this study aims to expand our knowledge of asset accumulation among low-income households.

Theory and Evidence

Theories have been developed to examine how individuals accumulate assets or wealth. Economists initiated the issue by addressing saving motives and economic models, such as life-cycle model, permanent income hypothesis, and so on. Sociologists have been interested in how social stratification and socialization influence assets accumulation. Racial stratification, for example, is one of social contexts related to asset ownership and accumulation. In a comparative study, it is critical to summarize key assumptions and propositions of each theory. This section classifies existing theories into three perspectives: 1) individual perspective; 2) social stratification perspective; and 3) institutional perspective.

Individual Perspective

The individual-oriented perspective in this study consists of neoclassical economics, economic psychology, and behavioral economics. Despite diversity these, are common in key ways. First, individuals are considered rational or at least bounded rational agents optimizing resource allocation. Second, these theories prioritize individual decision-making rules of saving rather than social contexts or environments. Third, from the individual perspective, the primary purpose of saving is to secure future consumption (Beverly and Sherraden, 1999).

Neoclassical economic views of asset accumulation can be viewed in two categories: the life-cycle hypothesis (LCH) and the permanent income hypothesis (PIH). LCH posits that individuals save to allocate available life resources to lifetime consumption (Browning and Crossley, 2001). An individual's stage in the life cycle is considered as a primary factor influencing saving and asset accumulation. In PIH, since consumption depends on changes in permanent but not transitory income, increase in transitory income will be saved (Meghir, 2001). Commonly, neoclassical economic theories view savings primarily as a function of income. Savings are considered rational allocations of current income for future consumption. Empirical evidence tends to reject LCH, since the elderly do not generally dissave after retirement (Engen et al., 1999; Hildebrand, 2001; Hubbard et al., 1994). However, LCH still provides an important cornerstone for understanding saving patterns through the life course (Browning and Crossley, 2001). In case of PIH, results are mixed. While models using aggregate data tend to reject PIH (Mankiw and Shapiro, 1985; Galí, 1991; Pistaferri, 1998), some empirical findings tested on micro data provide evidence in favor of PIH (DeJuan and Seater, 1999).

In contrast to neoclassical economics, economic psychology emphasizes psychological factors such as personal expectations, perceptions, and attitudes (Katona, 1975). An assumption of economic psychology is 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. Two key concepts, ability to save and willingness to save, come from Katona (1975). Ability to save is related to who can save. Generally, Katona expects that frequent savers would be younger married couples in the middle-income groups. Ability to save does not guarantee high savings. Rather, saving depends on an individual's willingness to save. Willingness to save is related to consumer sentiment, which is a function of the evaluation and expectation of economic conditions. Empirical research tends to reject this theory in that psychological predictors have very low explanatory power in research (Furnham, 1985; Linnquist, 1981; Lunt and Livingstone, 1991).

Based on the expectation that psychological underpinnings will improve explanatory power of economics, behavioral economists explain asset accumulation by introducing concepts such as self-control, mental accounting, and rules-of-thumb (Shefrin and Thaler, 1988; Thaler, 1994). The individual is viewed as a "farsighted planner and a myopic doer (Thaler and Shefrin, 1981:394)." The individual as a myopic doer can constrain consumption and save by adopting rules-of-thumb or self-control. Empirical research testing behavioral economics and asset accumulation suggests that psychological factors such as self-control, inertia, and rules-of-thumb are significantly related to saving patterns and outcomes (Choi et al., 2003; Graham and Isaac, 1998; Madrian and Shea, 2001; Thaler and Benartzi, 2004).

Social Stratification Perspective

Social stratification theory views social class as a set of life conditions that are a powerful determinant of many kinds of outcomes (Sorensen, 2000). Social stratification theory has strengths in explaining why poverty persists from generation to generation. Through similar life chances from generation to generation, low-income households may have limited opportunities to move out of the cycle of intergenerational poverty. Likewise, social stratification theory explains intergenerational wealth inequality. From this perspective, wealth is viewed as a vehicle maintaining and transmitting social and economic status (Bowles and Gintis, 2000).

Intergenerational persistence of wealth inequality is not explained simply by bequests but also reflects parent-offspring similarities in traits influencing wealth accumulation (Bowles and Gintis, 2000; Charles and Hurst, 2003; Chiteji and Stafford, 1999). Different classes are believed to have different socialization processes. Research on socialization supports the argument that class is associated with important socialization differences (Sorensen, 2000). For example, children can have different perception of savings depending on how they are socialized in their families, schools, or communities (Webley, Levine, and Lewis, 1991). Different perceptions can lead to different outcomes in asset accumulation in adulthood. According to Charles and Hurst (2003), children's saving propensities are determined by mimicking their parents' behavior. These results suggest that experiences in low social class may affect the socialization process of children and result in asset poverty in adulthood.

A social stratification perspective suggests that wealth can be a key dimension of racial inequality. "Conceptualizing racial inequality through wealth revolutionizes our conception of its nature and magnitude and our assessment of whether it is declining or increasing (Shapiro, 2001: 12)." Research has examined the relationship between race and wealth (Oliver and Shapiro, 1995; Shapiro, 2001). One common finding is that minority groups, especially African Americans, are likely to own far fewer assets than Caucasians (Oliver & Shapiro, 1995).

First, since access to institutionalized savings plans is convenient and decreases transaction costs, individuals with access to saving institutions are more likely to save (Beverly & Sherraden, 1999). Second, information and knowledge of how to save influence saving behaviors (Lusardi, 2003). In IDA programs, all participants are required to take financial education, which has positive effects on savings (Schreiner et al., 2002). Third, performance in saving programs may depend on incentives. Matching grants, tax-free earnings, and rebates can be types of incentives (Clancy et al., 2006). In particular, matching was found to have positive effects on saving outcomes in pensions (Munnell et al., 2001/2002) and in 529 college saving plans (Clancy et al., 2006). Fourth, facilitation—assistance with participation and savings—appears to be a key feature of most contractual saving programs (Schreiner & Sherraden, 2007). Automatic enrollment and automatic deposit, for example, are significantly associated with participation levels and contribution levels in 401(k)s (Madrian & Shea, 2001) and 529 plans (Clancy et al., 2006). Fifth, institutionalization of expectations encourages savings achievement. In IDAs, for example, the match cap is regarded as a target savings amount, and often becomes a goal for participants (Schreiner et al., 2002). Sixth, restrictions limit certain types of actions so that savings goals can be achieved. Restrictions can be measured by match caps or by limits on the use of matched withdrawals (Ssewamala & Sherraden, 2004). Last, whether saving

plans are secure influences participation and saving outcomes (Mason et al., 2006; Schreiner & Sherraden, 2007).

Institutional Perspective

Institutional saving theory can increase our knowledge of how individuals, especially the poor, can save (Sherraden, 1991). Institutional saving theory may help us understand how individuals and institutions interact for asset accumulation. Given that low savings by the poor can be explained in part by limited institutional opportunities, the theory suggests that institutional factors other than income and preferences may influence saving behaviors of low-income families (Beverly and Sherraden, 1999). Seven institutional factors have been proposed (Schreiner and Sherraden, 2007; Sherraden and Barr, 2005). They include information, incentives, facilitation, expectation, access, restrictions, and security. This study focuses on the first four institutional factors because measures of the four factors have variations in the CAPTC IDA program.

First, people with knowledge of how to save are inclined to behave differently from those without (Bernheim and Garrett, 2003; Lusardi, 2003). In IDA programs, all participants are required to take financial education. It is assumed that the poor have more to learn about how and why they save and that financial education will have positive effects on saving (Sherraden, Schreiner, and Beverly, 2003). Second, performance in saving programs may depend on incentives. Matching grants, tax-free earnings, and rebates can be types of incentives (Clancy et al., 2006). Munnell, Sunden, and Taylor (2001/2002) find a positive relationship between employer's match and pension outcomes of employees, such as participation rates and contribution rates. Types of matching grants received are found to be significantly associated with contribution amount and deposit frequency in 529 college savings plans (Clancy et al., 2006). Third, facilitation means assistance with participation and savings. Sherraden et al. (2003) regard facilitation as a key feature of most contractual saving programs. Automatic enrollment or automatic deposit are significantly associated with participation levels and contribution levels in 401ks (Choi et al., 2004; Madrian and Shea, 2001) and 529 college savings plans (Clancy et al., 2006). Last, achievement of expectations is also institutionalized. In IDAs, the match cap is regarded as a target savings amount, which often becomes a goal for participants (Sherraden et al., 2003).

Methodology

Data and Sample

This paper studies participants in an IDA program at the Community Action Project of Tulsa County (CAPTC). CAPTC is a multi-service community agency whose target population is working poor households at the Tulsa metropolitan area. The Tulsa IDA program was one of a series of local programs initiated under American Dream Demonstration (ADD), which is the first large-scale test of IDAs. Overall, CAPTC was a typical IDA program. Eligibility was limited to employed people with household income at or below 150 percent of the poverty line. CAPTC offered a match rate of 2:1 for matched withdrawals for home purchase and a match rate of 1:1 for all other uses. The time cap was 36 months from the date of account opening. Saving purposes were home purchase, post-secondary education, small business, home repair, and retirement.

Within ADD, the Tulsa IDA program employed an experimental design where a total sample of 1,103 eligible participants was assigned to treatment ($n=537$) and control ($n=566$) group. Participants in only the treatment group were allowed to open IDA accounts during the demonstration period. Therefore, this study used only the sample ($N=537$) in the treatment group. In addition, the Tulsa IDA program has a longitudinal design where the baseline interview was conducted just before the assignment, followed by 18 month and 48 month follow-up survey. The data are useful in testing the extent to which competing theories explain savings outcomes among low-income households, since the data have many measures related to saving theories. In addition, monitoring data have institutional features and account information. We have merged the survey of participants in CAPTC with the monitoring data for this study.

This study suffered a large reduction in the sample because of attrition, non-participation in the experiment, and missing cases in the analysis. The sample had an attrition rate of about 23 percent ($n=125$). The sample ($N=537$) in the treatment group at the baseline were reduced to 412 respondents at wave 3. In addition, of 537 participants at the baseline, it was found that about 12 percent ($n=66$) of the sample did not open IDA accounts over the course of the demonstration period (Han, Schreiner, and Sherraden, 2007). In particular, 43 of 412 respondents at wave 3 had not opened IDA accounts, reducing the sample to 369. In addition, it was found that there are 39 missing observations in the variables used in the analyses. These processes results in only 61 percent ($n=330$) of the sample remained for the study.

Given that there was a large reduction in the sample from the original sample of 537 to 330, this study compared the socioeconomic demographic characteristics at the baseline of the 330 respondents with the 207 non-respondents that were eliminated. There were no significant differences in most socioeconomic characteristics such as age, gender, marital status, employment status, education attainment, household size between the two groups. They were also similar in income, poverty status, total financial assets and other assets at the baseline. They differed significantly, however, in terms of race/ethnicity, real assets, and total liabilities. African Americans and “the other racial groups” are more likely to be non-respondents ($\chi^2 = 7.17$, $df = 2$; $p=.028$). Although the significance levels are marginal, the respondents owned more real assets (\$13,778 vs. \$9,998; $t=-1.85$; $p=.066$) and total liabilities (\$14,381 vs. \$11,505; $t=-1.74$; $p=.083$) than the non-respondents.

Measurement

Dependent variables. Similar to previous studies of IDAs, two measures are created to examine saving performance in IDAs. First, average monthly net deposit (AMND) is defined as net deposit per month and is calculated by dividing net deposits by the number of participation months (Curley et al., 2005; Grinstein-Weiss and Wagner, 2006; Schreiner et al., 2001, 2002). Net deposit is defined as deposits plus earned interest minus unmatched withdrawals. Another measure of saving outcome in IDA is deposit frequency ratio (DFR). DFR is created to measure how regularly participants save. It is defined by dividing the number of deposit months by the participation months. It is theoretically greater than zero and equal to or less than one (Grinstein-Weiss and Wagner, 2006; Grinstein-Weiss, Zhan, and Sherraden, 2004; Schreiner et al., 2001).

Table 1. Operationalization and Descriptive Statistics (N=330)

Variables	Operationalization	Mean or Percentage
<u>Saving outcomes</u>		
AMND	(Deposits + matching)/months of participation	23.28
DFR	Number of deposits / months of participation	0.59
<u>Individual-oriented perspective</u>		
Age	Age when a participant opened an IDA account	40.64
Regular income/100	Sum of wages, government benefits, pensions, and investment income	11.98
Irregular income/100	Sum of self-employment, child support, gifts, and other sources	2.83
Optimistic expectations of economic conditions	Current economic situation	35.50
	Future economic conditions	34.15
Rules-of-thumb related to Saving	Written budget or spending plan (always=1; sometimes or never =0)	38.75
	Regular saving each month	36.31
<u>Sociological Stratification Perspective</u>		
Race/ethnicity	Whites	46.34
	Blacks	41.73
	Others (Asian Americans, Latinos, and others)	8.40
Education attainment	High school graduation or less	29.54
	Some college	42.00
	College graduation or more	28.45
Parents' saving	Did your parents save in your childhood? (yes=1)	49.05
Saving in childhood	Did you save in your childhood? (yes=1)	42.00
<u>Institutional perspective</u>		
Matching rate	1:1 (coded as 0); 1:2 (coded as 1)	51.22
Annual match cap	\$2,250 (coded as 1); \$1,500 and \$750 (0)	89.70
Financial education hours		10.82
Direct deposit	Participants using direct deposit are coded as 1	10.30
<u>Other variables</u>		
Gender	0= male, 1= female	77.78
Marital status	Married	24.12
	Single never married	35.77
	Divorced, separated, or widowed	40.11
Number of adults	18 years of age or older	2.37
Number of children	17 years or younger	1.73
Unemployment	Participants experiencing unemployment at wave 2 or wave 3 are coded as 1	21.68
Public assistance	Participants receiving public assistance	40.92
Liquid assets /1,000	Sum of amounts in checking, saving, money market account and certificates of deposits	.79
Other financial assets /1,000	Sum of saving bonds, education account, stocks, bonds, mutual funds, savings at home or friends, and Christmas club or vacation account	.54
Real assets /1,000	Sum of values of business, car, property, and home	
	Sum of home mortgage, education loans, credit card debt, and other debts	15.46
Total liabilities /1,000		15.16

Note: Except unemployment, the variables in this study are measured at the baseline. AMND stands for Average Monthly Net Deposits and DFR stands for Deposit Frequency Ratio.

Independent variables. This study uses key constructs of the saving theories discussed above. First, age and regular and irregular income are key measures of neoclassical economics. Second, two measures of perception of current and future economic conditions are constructed to examine how psychological perceptions are related to saving in IDA. Third, two variables, written budget plan and regular saving, are included to measure rules-of-thumb, which are hypothesized to influence saving. Fourth, the study uses two measures of social stratification, education and race. Fifth, parents' saving and saving as a child are used to examine how socialization influences saving. Sixth, since only an IDA program is used in this study, institutional features with variations among participants are used. Therefore, incentives (matching rate), information (hours of financial education), expectation (annual match cap), and facilitation (direct deposit use) are employed to test the effects of institutional features on saving. Last, other socioeconomic demographics and changes in employment status, in particular, unemployment at wave 2 or wave 3, are included in the models. Except unemployment at wave 2 or 3, the other predictors are measured at baseline. Operationalization and descriptive statistics of variables used in this study are presented in Table 1.

Data Analysis Plan

After descriptive statistics of variables, ordinary least squares (OLS) regression models are conducted to estimate relationships between predictors and saving outcomes. Hierarchical regression models are employed to test the extent to which individual-oriented perspective, social stratification perspective, and institutional theory matter for saving in IDAs, respectively. In the hierarchical models, a full model with all perspectives of saving theory is compared to models without each block of perspectives.

Results

Descriptive Statistics

Table 1 presents descriptive statistics for the variables in the analysis. The average AMND is \$23.28, and the average DFR is .59, suggesting that participants in CAPTC IDA program made deposits approximately 7 months during a year, on average. The saving outcomes are better than those of participants in ADD (e.g., AMND = \$14.94, DFR = .44). However, like the total sample in ADD, the sample in this study is more likely to be female, non-married, African Americans, and working poor.

The average age of participants in CAPTC IDA program is about 41. The study divided total income into two categories, regular and irregular income, to examine the permanent income hypothesis that transitory income will be saved (Meghir, 2001). Recurrent monthly income (wages, government benefits, pensions, and investments) was about 82 percent of total income with a mean value of \$1,465. Intermittent income (self-employment, child support, gifts, and other sources) for participants in CAPTC IDA was about 18 percent of total income and had a mean monthly value of \$283. About 35 percent and 34 percent of participants have optimistic expectations of current and future economic situations, respectively. Regarding rules-of-thumb related to saving, about 39 percent of participants have a written budget or saving plan. In addition, about 36 percent saved regularly.

Like the ADD sample, a high percentage (about 42 percent) of the CAPTC IDA program is African American. In addition, the sample in this study has high education status, Forty-two percent have some college and 28 percent have college graduation or higher education. Two measures of saving experience are included to examine how saving socialization is associated with saving in IDA. About 49 percent of the sample said that their parents saved in their childhood, and 42 percent of the sample said they saved in their childhood.

About 51 percent of participants have a 2:1 matching rate, which suggests that this same percentage of participants save for buying a house. A majority of participants (90%) have a high match cap of \$2,250. Participants took about 11 hours of general financial education and only 10 percent of participants used a direct deposit service.

Table 2. R^2 Changes in Hierarchical Regression Analyses of AMND and DFR

		<u>Model of AMND</u>		<u>Model of DFR</u>	
		Model 1	Full Model	Model 2	Full Model
Individual-oriented Perspective	R^2	.404	.415	.416	.427
as a last block	R^2		.011		.011
	p-value of R^2		.559		.552
Social Stratification Perspective	R^2	.360	.415	.400	.427
as a last block	R^2		.055		.027
	p-value of R^2		p<.001		.028
Institutional Perspective	R^2	.272	.415	.204	.427
as a last block	R^2		.143		.223
	p-value of R^2		p<.001		p<.001

Note: AMND stands for average monthly net deposits and DFR stands for deposit frequency ratio.

Multivariate Regression Results

To examine the degree to which each perspective contributes to explaining the variance in saving outcomes, a set of hierarchical regression analyses have been run. Changes in R^2 and its significance level are presented in Table 2. First, controlling for the social stratification perspective and the institutional perspective, the individual perspective offers no additional explanation of the saving outcomes, AMND and DFR. Second, small but significant additional variance in AMND and DFR is explained by the social stratification perspective, controlling for the individual perspective and the institutional perspective. Last, a block of institutional perspective significantly adds variance to both AMND and DFR. Controlling for the key measures of other theories, measures of institutional saving theory added 14.3 percentage of the variance in the AMND and 22.3 percentage of the variance in the DFR.

Table 3. Multivariate Regression Analyses of AMND and DFR (N=330)

Variables	AMND		DFR	
	Model 1	Model 2	Model 3	Model 4
Constant	9.62	-5.09	.32**	.05
<u>Individual-oriented perspective</u>				
Age	.26†	.09	.00*	.00
Income				
Regular income	-.14	.05	-.00	-.00
Irregular income	.75*	.59*	.00	.00
Expectations of economic conditions				
Current situation	-3.23	-2.95	-.01	-.01
Future situation	1.89	1.61	.05	.05†
Rules-of-thumb related to saving				
Written budget or spending plan	-1.14	-1.53	-.02	-.02
Regular saving each month	2.47	.70	.04	.00
<u>Social Stratification Perspective</u>				
Race (Whites: reference)				
Blacks	-12.02***	-11.23***	-.09**	-.08**
Others	.23	.37	-.06	-.07
Education(H.S. graduation: reference)				
Some college	4.31*	6.21*	.03†	.06*
College graduation or more	8.47	7.60*	.08	.06
Parents' saving in your childhood	-1.64	-2.45	-.01	-.01
Saving in your childhood	.23	1.43	.01	.01
<u>Institutional perspective</u>				
2:1 Matching rate		-12.86***		-.09**
\$2,250 Annual match cap		14.63***		.08†
Hours of financial education		1.33***		.03***
Direct deposit use		-2.19		.16***
<u>Other variables</u>				
Female	-3.38	-1.10	-.02	-.01
Marital status (single: reference)				
Married	-2.61	-.57	-.08	-.07
Divorced, separated, or widowed	5.59†	4.11	.09	.06†
No of adults	6.08†	4.37	.11**	.08*
No of children	-1.25†	-.43	-.00	.01
Unemployment at wave 2 or wave 3	-7.12*	-7.47**	-.05	-.07*
Public assistance receipt	-4.63†	-3.23	-.06†	-.06*
Liquid assets / 1,000	1.43*	1.13*	.01	.01
Other assets / 1,000	.20	-.02	-.00	-.00
Real value assets / 1,000	.08	.00	.00*	.00
Total liabilities / 1,000	.03	-.01	.00	-.00
F value	5.030***	8.08***	3.452***	8.49***
Adjusted R ²	.218	.363	.145	.377

Note: AMND stands for average monthly net deposits and DFR stands for deposit frequency ratio. While Models 1 and 3 include variables of individual perspective and social stratification perspective, Models 2 and 4 add institutional features into Models 1 and 3, respectively.

† p<.10; * p<.05; ** p<.01; ***p<.001

Since the institutional perspective appears to be a much more influential theory affecting saving outcomes, Table 3 presents the results of OLS regression models where institutional features are included as a last block. As expected, key measures of the individual perspective have weak power in explaining saving among low-income households in the IDA program. Age, expectation of current economic situations, and rules-of-thumb related to saving are not significantly associated with saving outcomes in the full models. In particular, while age is significantly associated with both AMND and DFR in models without institutional features, in the models with institutional features age is no longer significant. This study finds that, while regular income is not significantly associated with AMND or DFR, irregular income is positively associated with AMND, thus supporting permanent income hypothesis. However, irregular income is not a significant predictor of DFR. Marginally but significantly, participants with an optimistic view of future conditions are likely to save more frequently. This finding is contrary to economic psychology suggesting that people with pessimistic views of future economic conditions save more (Katona, 1975). Separately, this study examines the association between total income and saving outcomes, but finds no significant relationships between them.

Two measures of social stratification have strong influence on saving in IDAs. First, consistent with previous research examining relationship between race and saving outcomes in IDAs (Curley et al., 2005; Grinstein-Weiss and Wagner, 2006; Schreiner et al., 2001, 2002), this study finds that saving is more difficult for African Americans. While other race has no significant differences in AMND and DFR compared with Caucasians, African Americans save \$11.23 less and make less frequent deposits compared with Caucasians. Second, education is positively associated with saving in IDAs. While participants with some college save \$6.21 more than the reference group (participants with high school graduation or less education), those with college graduation or higher education make \$7.60 more in net deposits than the reference group. Regarding DFR, while participants with some college education save more frequently than the reference, those with the highest education status have no difference in deposit frequency in a model that includes institutional features. However, this study finds no significant associations for two measures of socialization, parents' saving and saving as a child.

Institutional features are significantly associated with saving in IDAs. First, participants with higher saving expectations measured by annual match cap saved more and more frequently since they opened IDA accounts. Participants with a match cap of \$2,250 save \$14.63 more per month than those with a \$1,500 or less match cap. This finding suggests that participants may mentally convert match caps into goals or expectations (Schreiner et al., 2001) and they attempt to achieve the goals of saving in an IDA. Second, information as measured by the hours of financial education is positively associated with saving outcomes in IDAs, which is consistent with earlier research on financial education in ADD (Curley et al., 2005; Schreiner et al., 2001, 2002; Ssewamala and Sherraden, 2004). A one hour increase in financial education is associated with \$1.33 increase in AMND. In addition, financial education is associated with regular saving by IDA participants. Third, automatic deposit is hypothesized to facilitate saving. While direct deposit is not a significant predictor of AMND, participants using direct deposit make more frequent deposits than those not using direct deposit. It could be that participants who sign up for direct deposit elect to contribute smaller but regular amounts to eliminate the risk of being short of necessary cash or creating an overdraft in IDA accounts (Schreiner et al., 2002). Last, while matching rate is a central feature of IDAs, unexpectedly, higher matching rate appears to lead to less saving in this study. Participants with 2:1 match rate saved \$12.86 in AMND less than participants

with 1:1 match rate. Furthermore, a higher matching rate is negatively associated with DFR, which suggests that participants with higher matching rate save less frequently. These findings differ with previous studies where matching rates do not have significant associations with saving (Curley et al., 2005; Schreiner et al., 2001, 2002). It could be that higher match rates create a “goal effect” in which IDA participants can save less and still reach their asset goal (Schreiner and Sherraden, 2007). Regarding the other institutional features, participants with a 2:1 matching rate are likely to take less hours of financial education and to have a \$1,500 or less matching cap. There was no significant difference in direct deposit use between the two groups (See Table 4).

Table 4. Key Differences of Participants with Different Matching Rate

	Participants with 1:1 matching rate (n=157)	Participants with 2:1 matching rate (n=173)	<i>t test or Chi-Square</i>	<i>p-value</i>
Female (%)	71.11	84.13	9.04	.003
Age	43.53	37.86	5.40	p<.001
Single and not married (%)	27.22	43.91	11.18	.001
Number of adults	1.45	1.30	2.47	.014
Number of children	1.51	1.94	-3.04	.003
African Americans (%)	34.44	48.68	7.68	.006
Irregular income	3.46	2.23	2.43	.016
Liquid assets/1,000	1.05	.54	2.34	.020
Real value assets/1,000	26.41	5.02	8.43	p<.001
Direct deposit use (%)	11.11	9.52	.25	.616
Annual match cap (%)	92.78	86.77	3.60	.058
Hours of financial education	11.86	9.83	5.77	p<.001

Several findings of relationships between socioeconomic characteristics and the saving outcomes are noteworthy. First, participants with more adults in household saved more frequently suggesting that the number of adults in household might be related to accessibility to saving programs. Second, participants receiving public assistance saved less frequently in CAPTC IDA program. However, it is interesting that there is no difference in AMND. Third, while total liabilities may hinder saving in IDA, owning certain forms of assets may predict positive effects on savings in IDA (Curley et al., 2005). The results of regression analyses indicate that only liquid assets are significantly related to AMND. Although we cannot confirm, this finding suggests that participants with more liquid assets might transfer some part of liquid assets to IDA accounts. Last, as discussed before, the CAPTC IDA program has strict eligibility in that participants should be employed to open an IDA account. Although unemployment may negatively influence saving in IDAs, there is little research on this question. This study finds that 22 percent of participants experienced unemployment at wave 2 or wave 3. No participants experienced unemployment at both waves. Although unemployment was transitory, the effects of unemployment on saving outcomes were not negligible. The unemployed at wave 2 or 3 saved \$7.47 less per month than those who were employed through the demonstration period. As expected, the unemployed also saved less frequently than the employed.

Discussion

Several limitations of this study are noteworthy. First, the findings of this study may be affected by the large sample attrition. Therefore, care should be exercised in interpreting the results of this study. In addition, participants in IDAs are not a representative sample of the overall low-income population. Most IDA programs have program-selected targeting groups. Also, individuals select themselves into the program. Second, since this study examined savings only in the IDA program, we cannot say whether this is new savings. Third, although we used key measures of each theory, this study is not to confirm the validity of each theory. Results may be an artifact of weak measures of key constructs of the saving theories. Future studies are required for tighter theoretical specification and empirical examination of the different perspectives. Fourth, this study used only the time varying factor of unemployment. Future studies should examine changes of other socioeconomic demographics that may be associated with saving in IDAs.

Despite limitations, several findings are worth highlighting. First, consistent with previous research on IDAs, this study finds that low-income households can save in an IDA program. This suggests that inclusion in asset-based policy should be a priority to help low-income households save. Furthermore, taking account for other theoretical background, institutional saving theory has independent and significant explanatory power in saving outcomes. This strongly suggests that institutional structures of saving plans matter for saving among low-income households, and that institutional features should be designed to encourage greater saving.

Second, the finding of a negative association of match rate and AMND calls for further investigation. Although the CAPTC program is designed to help the more disadvantaged (Table 4) save for a home, the disparity between saving in an IDA program and the real cost to buy a home might influence the negative association between higher matching rate and saving outcomes. As this study of an IDA program implies, future studies are necessary to examine how participants save in each program level to understand dynamic mechanisms in different situations and environments. In addition, more attention should be paid to institutional structure targeting the more disadvantaged to help them save greater. A special education program or counseling might be introduced for this purpose.

Finally, this study suggests that unemployment might be a barrier to saving in IDAs. Since low-income households have high job instability (Marcotte, 1995), unemployment through the demonstration period might prevent participants from saving more in IDAs. Given that unemployment is significantly associated with saving in IDAs, policy makers and practitioners should consider how to design IDA programs encouraging participants experiencing unemployment to save. One way might be to extend the time cap period of IDA participants who experience unemployment for as long as they are unemployed.

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