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# IDAs, Saving Taste, and Household Wealth: Evidence from the American Dream Demonstration

*This study uses the longitudinal survey data from the American Dream Demonstration (ADD) involving experimental design (treatment group=537, control group=566) to examine the effects of Individual Development Accounts (IDAs) on household wealth of low-income participants. Results of quantile regression analysis show that program participation significantly increased household financial assets, controlling for household saving taste and other demographic variables. Program participants did not reshuffle existing assets into IDAs, and IDA savings represented new household wealth. Low-wealth participants benefited more from the program than those with relatively more wealth. In addition, program participation changed participants' saving behaviors and improved household saving taste.*

**Key words:** IDAs, household wealth, saving taste, low-income families

Introduced in the 1990s, Individual Development Accounts (IDAs) are matched saving programs with specific asset-building purposes—such as home purchase and renovation, post-secondary education, and microenterprise—for low-income populations (Grinstein-Weiss & Irish, 2007; Sherraden, 1991). In order to facilitate asset accumulation among low-income households, participants of IDAs are offered financial education services and a 1:1, 2:1, or even higher match rate for their savings. By 2008, there were about 1,100 IDA programs run by community-based organizations across the country with more than 80,000 participants. The program has resulted in more than 10,400 new homeowners, 7,400 educational purchases, and 6,300 small business start-ups (CFED, 2008). IDA policy has been adopted by more than 40 US states (Edwards & Mason, 2003). Two pieces of federal legislation—the Assets for Independent Act (AFIA) and the Temporary Assistance for Needy Families (TANF) program—support IDAs as a policy tool to assist low-income families to acquire assets.

The American Dream Policy Demonstration (ADD), the first large-scale test of IDAs in the US, showed that the poor can save and accumulate assets in these matched savings accounts (Schreiner, Clancy, & Sherraden, 2002; Schreiner & Sherraden, 2007). Including match funds, participants saved about \$1,600 on average in their IDAs at the end of the program, which ran between 1997 and 2001 at 14 program sites. However, it is less clear whether having an IDA caused ADD participants to save more than they would have otherwise, and whether their total household wealth increased (Schreiner, et al., 2005). Because low-income families may finance contributions to their IDAs by shifting existing assets or increasing their borrowing, the question of whether IDAs create new wealth is salient. Few studies have attempted to evaluate the impacts of IDAs on the total savings of

low-income households (for example, Han, Grinstein-Weiss, & Sherraden, 2007; Stegman & Faris, 2005).

In addition, few studies (Han, Grinstein-Weiss, & Sherraden, 2007) have examined the role of saving taste in saving in an IDA. Household saving taste refers to a household's preference for savings. Households with a high preference for savings are more likely to participate in matched savings programs, and to accumulate assets in these programs (Duflo et al., 2005; Gale, 2005; Pence, 2001). Because the effects of household saving taste on asset accumulation can be confounded with program effects (Gale, 2005), it is important to examine the role of saving taste in any impact assessment of IDAs.

Using the three-wave longitudinal survey data from an IDA program site in ADD, the current study explores the effects of IDAs on household wealth of program participants. More specifically, the current study examines three research questions: (1) Did participating in this IDA program increase household wealth, and to what extent? (2) Can these effects, if any, be explained by household saving taste? (3) Do these effects vary by type of household wealth (i.e., financial assets, real assets, and net worth)? The answers to these questions will have important implications for the development of asset-building interventions for low-income populations.

## Background

ADD had 2,350 participants in 14 IDA programs hosted by 13 community organizations around the country. Most participants were females in their thirties with household incomes of less than 130% of the poverty threshold. Nearly half of participants were African American. The IDA program operated by the Community Action Project of Tulsa County (CAPTC) in Tulsa, Oklahoma was an experimental design that included 1,103 self-selected qualified applicants. They were required to be employed at the time of enrollment, and to have a household income of less than 150% of the federal poverty line. About half of the qualified applicants ( $n=537$ ) were randomly assigned to the treatment group, and were allowed to open IDAs. All qualified applicants were interviewed three times in a 48-month period. The current study analyzes this survey data to address the above research questions.

Previous research on ADD has focused on IDA savings and its determinants, including program characteristics and participants' socioeconomic characteristics (Schreiner & Sherraden, 2006). Several studies (Curley & Grinstein-Weiss, 2003; Grinstein-Weiss & Sherraden, 2004; Grinstein-Weiss, Wagner, & Ssewamala, 2006; Grinstein-Weiss, Zhan, & Sherraden, 2004; Ssewamala, 2003; Zhan, 2003) found that institutional factors in IDA design—match rates and match caps, automatic transfer mechanisms, financial education, and restrictions on unmatched withdrawals—were highly related to saving outcomes. Participants' saving willingness and performance were also correlated with participants' characteristics, including gender, marital status, race, age, education, and pre-owned assets (See Schreiner and Sherraden, 2007 for a detailed discussion).

However, only two studies (Han, Grinstein-Weiss, & Sherraden, 2007; Stegman & Faris, 2005) investigate the possible effects of IDA participation on total household wealth. Stegman and Faris (2005) constructed a matched sample for ADD participants from the 1998 *Survey of Consumer Finances* (SCF). They calculated the savings effects of IDA programs as the difference between IDA balances of ADD participants and the savings of the matched sample. By using this strategy, they found that ADD participants on average saved \$117 more, excluding matching funds, than they would have if they had not been enrolled in the IDA program. When inactive ADD participants (with total deposit equal to \$0 in the IDAs) are excluded, the estimated program effects increase to \$236. Even if it is assumed that 50% of IDA assets were transferred from existing savings, active ADD participants still saved \$125 more.

In contrast to Stegman and Faris (2005), Han et al. (2007) found that IDA participation did not increase participants' financial assets, but did increase household real assets and total assets by about \$6,000. This study compared different types of assets—liquid assets, total financial assets, real assets, and total assets—between IDA participants and nonparticipants 48 months after program enrollment. The IDA savings were not counted in any of these asset types. Han et al. (2007) also found that total liability was not significant (2007).

The findings of both studies together suggest that, on average, IDA participants in the CAPTC should borrow several thousands of dollars for their increased real assets, since the average IDA assets for participants was \$1,600 including match fund. Han et al.'s finding on total liability, however, call for further evaluation of the effects of IDA participation on household wealth, and suggests that household liability should be taken into account.

Previous research on IDAs has not examined the role of saving taste. Research on 401(k)s (another type of matched savings account), however, suggests that heterogeneity in household saving taste should be controlled for in analysis. Literature on 401(k)s also suggests that household net worth should be examined in order to evaluate the “net” program effects (Gale, 2005). Household net worth may be a better outcome measure of program effects because net worth will not be affected by the transfer of existing assets between different accounts.

The current study uses three-wave longitudinal survey data from the CAPTC IDA to further investigate IDA effects on household wealth. More specifically, by controlling for household saving taste, we examine the program effects on different types of assets, including liability and net worth. This allows us to investigate program effects on “net” wealth (such as net worth) and the changes in asset portfolios of low-income participants, which may be important due to the transferability of assets.

## Methods

### Data and sample

The treatment group (n=537) and the control group (n=566) of the CAPTC IDA were interviewed three times from October 1998 through September 2003. The baseline survey was conducted at enrollment, while the two subsequent surveys were implemented at 18 months and 48 months after enrollment. Since the CAPTC IDA program had a time cap of 36 months, all the participants in the treatment program had already closed their accounts at the time of the third survey. Due to sample attrition over time, only 764 participants (69% of the entire sample) finished all three surveys. A logistic regression with whether respondents have incomplete data as the dependent variable shows that female, white, and homeowners are less likely to drop out from the study.

### Measures

Total household liability and four types of household assets are the dependent variables in this study. *Total household liability* is the sum of 23 types of debts and loans, including home loans, car loans, credit-card debt, student debt, business debt, and so on. *Household financial assets* combine liquid assets and 13 other types of assets. While the amount of IDA savings is included in household financial assets, match funds are excluded. Excluding match funds provides a more precise comparison of the saving performance of the two groups, given that the control cases did not have any match funds for their savings. To better understand the impacts of IDA savings on household financial assets, a measure of *household financial assets minus IDA savings* is also created. The *household real assets* measure includes the values of the home, business, cars, and other property. Finally, *net worth* is the sum of financial assets and real assets net of total liability. Table 1 provides definitions of these measures.

Table 1. Definitions of Asset Variables

Variable Name	Definition
Financial assets	Financial assets include checking accounts and cash at home, assets in interest-bearing checking accounts, passbook accounts, money market accounts, savings bonds, IRAs, 529s, CDs, Christmas clubs or vacation accounts, assets held by friends or family members, IDA assets, long-term assets, other subsidized assets, values in stocks, bonds, or mutual funds, and other kinds of savings
Real assets	Total values of home, other real estate, business, and vehicles
Total liability	Total amount of household debts, including home loan, home-improvement debt, car loans, credit-card debt, installment loans, student debt, business debts, property loans, personal loans, medical bills, overdue utility bills, regular monthly bills, and any other liabilities
Household net worth	The sum of financial assets and real assets net of total liability

*IDA participation* is measured by a dichotomous variable indicating whether the respondent ever opened an IDA at CAPTC (yes=1, no=0). This question was asked in each of the three surveys. All participants had negative responses at the baseline and those in the control group had negative responses across the three surveys. Those in the treatment group had varied responses to this question in the subsequent two surveys, depending on when and whether they opened an IDA. *Saving taste*, an indicator of the participant’s preference for savings, is measured by an index constructed of five subjective questions about financial habits and attitudes, such as “what would you do with \$200 of extra money?,” and “I try to save a regular amount each month.” The measure of saving taste ranges from 0 to 11, with higher values indicating greater preference for savings, and greater likelihood of being a saver in the IDA program. In addition to saving taste, *savings goal*, a subjective measure of how much participants would like to save, is also included in the model for analysis. This measure could be a reflection of expectation of future economic situations of participants. The savings goal is top-coded at \$100,000 and log-transformed in order to adjust for high skewness.

Control variables in this study include household head’s characteristics (age, gender, race, marital status, education, and weekly working hours) and household characteristics (household size, number of children, home ownership, and monthly income). Gender is measured by a dummy variable with male as the reference group (male=0). Race is categorized into three groups—black, white, and other, with the black group as the reference group. Marital status is collapsed into two groups: married and other (the reference group). Education is categorized into two groups with 1 for having a four-year college education or more and 0 otherwise. A dichotomous variable is used to measure homeownership with 1 indicating owning a home and 0 otherwise. Weekly working hours is top-coded at the level of 100. Monthly household income is log-transformed in analysis.

### Analysis plan

The primary specification of the study is:

$$Y = \alpha + \lambda_2 * survey_2 + \lambda_3 * survey_3 + \delta_1 * IDA + \delta_2 * survey_2 * IDA_2 + \delta_3 * survey_3 * IDA_3 + X\beta + \varepsilon \quad (1)$$

where (1) Y is a measure of household assets or liability, (2) *survey*<sub>2</sub> and *survey*<sub>3</sub> are dummy variables, respectively, for the second and third time periods, (3) *IDA* is a dummy variable with 1 for the treatment group and 0 for the control group, (4) *IDA*<sub>2</sub> and *IDA*<sub>3</sub> are dummy variables indicating the participation status of the respondent at the second and third time periods, and (5) X is a matrix of the other control variables. This specification is similar to a general setting of difference-in-difference estimation and has been used in previous studies about tax-deferred programs (e.g., Pence, 2001). In this specification,  $\delta_2$  and  $\delta_3$  are of central interest since they show the effects of program participation on the dependent variables at the second and third time periods. If IDA participation had positive effects on household financial assets and total assets,  $\delta_2$  and/or  $\delta_3$  should be statistically greater than 0. However, if program participants transferred savings from other

accounts to IDAs,  $\delta_2$  and/or  $\delta_3$  should be less than 0 in the models for non-IDA financial assets. Similarly, if program participants borrowed for IDAs, these two coefficients should be greater than 0 in the model of liability. The time trend or macro changes common to both the treatment and control groups are also controlled for by including the dummy terms of *survey*<sub>2</sub> and *survey*<sub>3</sub>. In addition, this specification can handle unbalanced data regardless of the fact that some participants were missing in the second and/or third surveys.

Household assets are usually highly skewed with heavy tails. In line with previous literature (Engen & Glae, 2000; Pence, 2001; Poterba, et al., 1995), quantile regression is used to model the conditional median of household assets in order to test the primary specification discussed in equation (1). The impacts of IDA participation on the first and third quartiles of household asset distributions are also examined in the study. The bootstrapping standard errors are reported due to the potential downward bias of the regular standard error caused by the heteroskedasticity of wealth data.

As discussed in the background section, IDA participants' saving taste may be affected by financial education provided by the IDA program. Saving taste could be a mediator between IDA participation and household wealth. Therefore, the effects of IDA participation on saving taste and savings goal are also tested using an OLS regression model. Finally, two different samples are used to test the robustness of results: one sample includes only participants who completed all three surveys ( $n=764$ ), and the other one removes participants in the treatment group who never opened an IDA ( $n=88$ ).

## Results and Discussion

### Descriptive statistics

Table 2 displays the demographic statistics of the study sample. Since most of the control variables stayed relatively stable over the three surveys, only the baseline information for control variables is reported in Table 2. Most respondents were in their thirties (mean=36 years), female (78%), unmarried (72%), and had at least some college education (66%). Blacks were oversampled, and the proportions of white and black were almost the same (above 40%).

For IDA participation, about 77% of the treatment group had opened their accounts by the second survey, and 84% by the third survey. Eighty-eight participants in the treatment group never opened IDAs. The mean and median of IDA savings in the second time period were \$310 and \$96, respectively. However, both statistics decreased in the third time period (mean=\$180, median=\$0) due to the fact that, with the time cap (36 months), many IDA participants had already closed their program accounts and withdrawn their IDA savings by the time of the third survey. The number of homeowners increased over time, and the rate of increase was faster among IDA participants than controls.

Table 2. Demographic Statistics

		Full Sample	Treatment Group	Control Group
<b>Demographic Characteristics</b>				
Age (mean)		35.82	35.62	36.02
Female (%)		78.42	78.03	78.80
Marital status (married, %)		27.83	27.75	27.92
Education (%)				
Less than high school		33.82	33.52	34.10
Some college		54.40	54.38	54.42
College graduate (4yrs)		11.79	12.10	11.48
Race (%)				
Black		42.25	43.39	41.17
White		44.06	43.02	45.05
Other		13.69	13.69	13.78
Household size (mean)		3.21	3.25	3.18
Number of children (mean)		1.69	1.74	1.65
Monthly income (mean) ***		1451.76	1506.66	1399.86
Weekly working hours (mean)		37.67	37.82	37.53
Savings goals (mean) <sup>‡</sup>		15050.86	16725.51	13511.72
<b>IDA Participation</b>	Wave 2 (freq, %)	416 (37.72)	77.47	NA
	Wave 3 (freq, %)	449 (40.71)	83.61	NA
<b>IDA Savings</b>	Wave 2 (mean, median)		309.83 (95.52)	NA
	Wave 3 (mean, median)		179.50 (0.00)	NA
<b>Home Ownership</b>	Wave 1 (freq, %)*	239 (21.69)	102 (19.03)	137 (24.20)
	Wave 2 (freq, %)	304 (27.56)	133 (24.76)	171 (30.21)
	Wave 3 (freq, %)	371 (33.64)	180 (33.52)	191 (33.75)

\*\*\* group difference significant at .001; \*\* group difference significant at .01; \* group difference significant at .05; <sup>‡</sup> group difference significant at .1.

As shown in Table 3, household assets of participants in both groups increased over time. For all measures of household assets and liability, a clear pattern is that, compared with the control group, the treatment group had a lower mean and median at the baseline, but much higher values on both statistics at the end of the program. This seems to suggest that the treatment group saved more during the period of IDA participation, even though their liability also increased faster than that of the control group. However, most bivariate tests comparing the mean differences on these asset variables between the two groups are not statistically significant at any time point, except for the



total assets and real assets at the baseline (the control group had more assets at the baseline). Finally, both groups had similar levels of saving taste at the baseline. The saving taste of the control group reached the lowest level in the second time period, and then bounced back slightly at the end of the program. The treatment group, however, had the highest level of saving taste in the second time period.

Table 3. Liability, Asset Variables, and Saving Taste

Variables by Waves		Full Sample		Treatment Group		Control Group	
		Mean	Median	Mean	Median	Mean	Median
Total financial assets	(wave 1)	2748.08	450.00	2605.64	400.00	2883.22	500.00
	(wave 2)	4885.79	1033.90	5030.52	1517.34	4769.33	700.00
	(wave 3)	8875.49	1000.00	8027.94	1700.00	9565.62	900.00
Total financial assets minus IDA assets	(wave 1)	2748.08	450.00	2605.64	400.00	2883.22	500.00
	(wave 2)	4743.58	933.29	4720.70	1169.90	4769.33	700.00
	(wave 3)	8794.93	1000.00	7848.44	1433.00	9565.62	900.00
Real assets	(wave 1)	13515.31	3000.00	11391.58**	2500.00	15530.21	3000.00
	(wave 2)	26641.66	6000.00	25269.63	5000.00	27981.72	6000.00
	(wave 3)	38361.63	8850.00	40378.08	11500.00	36420.56	8000.00
Total liability	(wave 1)	13157.15	5250.00	12093.10	4960.00	14166.67	5305.00
	(wave 2)	21309.34	9600.00	22517.49	8583.00	20337.20	10000.00
	(wave 3)	31756.78	10950.00	34305.91	14500.00	29681.14	8900.00
Total net worth	(wave 1)	3491.83	78.00	2430.57	0.00	4498.71	217.00
	(wave 2)	10872.46	1045.00	9932.97	1121.17	11628.40	1000.00
	(wave 3)	17028.61	2445.27	17938.40	2800.00	16287.81	2000.00
Saving taste	(wave 1)	6.73	7.00	6.84	7.00	6.63	7.00
	(wave 2)	6.46	7.00	6.87***	7.00	6.13	7.00
	(wave 3)	6.30	6.00	6.33	7.00	6.27	7.00

### IDAs and household assets

Table 4 reports the results of two median regressions for each dependent variable, with and without controlling for saving taste and savings goal (Models I & II). The first and third quartile positions are also examined using the same specifications of Model II (see Table 5). The estimated regression coefficients for most of the control variables in median regression have expected directions and are consistent across different models.

Table 4. Quantile Regression Models on the Conditional Median <sup>a</sup>

Variables	Financial Assets		Financial Assets minus IDA assets		Real Assets		Liability		Net worth		Saving taste	Savings goal
	Model I	Model II	Model I	Model II	Model I	Model II	Model I	Model II	Model I	Model II		
Intercept	-1415.36***	-3090.12***	-1277.21***	-2773.74***	-2401.42	-4601.45*	3583.79 $\psi$	1898.66	-4501.78*	-13106.08***	6.28***	8.19***
Survey2	314.05***	334.12***	293.94***	325.61***	1443.35***	1306.85***	1813.32*	1848.42	64.46	-70.91	-0.48***	0.53***
Survey3	333.05***	302.03*	346.36***	304.63**	2072.39***	1820.58*	3057.19**	3292.12**	-717.64	-227.70	-0.37**	0.43***
IDA (treatment)	-77.46	-140.97*	-80.27	-134.90**	-237.42	-262.41	-967.48 $\psi$	-544.06	-636.59	-634.93		
Survey2*IDA2	637.75***	474.30*	395.64**	280.28*	130.83	-329.52	1599.10	492.41	906.38	1562.61	0.49**	-0.24*
Survey3*IDA3	598.88*	459.02*	326.72 $\psi$	331.97*	872.30	742.22	4032.05*	2843.14 $\psi$	1376.71 $\psi$	1313.17	-0.25	-0.05
Age of head	-.12	-2.64	-1.65	-3.47	-73.04***	-78.32***	-213.28***	-200.84***	81.84***	82.36**		
Female	-109.84	-130.77	-124.20	-112.48	23.25	341.07	354.30	684.25	-1513.55*	-827.13		
Marital status	115.45	92.40	121.17	48.98	2214.29***	1980.49***	1857.66*	2535.87**	20.30	-505.42	0.01	0.12
College graduate	1207.30***	873.33***	1173.79***	823.65***	3064.56***	3065.71***	13778.51***	15742.44***	-4965.78***	-5445.06**		
Race (white)	284.29**	267.01***	251.84***	267.55***	690.43*	672.29 $\psi$	2035.35***	2609.51***	-470.62	-952.97 $\psi$		
Race (other)	39.22	40.81	56.03	114.68	80.58	568.18	-284.15	503.14	-211.67	-257.85		
Household size	78.86	87.71*	63.09 $\psi$	68.38	12.14	-81.06	-399.70	-358.31	455.30*	515.78	-0.02	-0.02
Number of children	-79.34	-103.52*	-66.22 $\psi$	-87.62 $\psi$	-234.41	-115.38	740.39	487.38	-612.60*	-616.68	0.12	0.06
Monthly income	171.12***	158.14***	167.03***	137.78***	738.71*	562.06**	804.63**	561.62*	188.40	240.24	0.03	0.02
Weekly working hours	10.74***	10.79***	10.48***	9.92***	24.65***	25.90***	18.58	26.23	23.78 $\psi$	38.70***	0.00	0.00
Home owners	837.65***	715.03***	838.82***	687.46***	60700.81***	60988.98***	29909.46***	31513.18***	28928.96***	27844.59***	0.03	0.02
Saving taste		115.00***		110.12***		144.30**		-347.43**		534.91***		0.00
Savings goal		149.48***		141.53***		327.23***		583.25**		400.08**		0.01
Observations	2730	2274	2730	2274	2730	2274	2730	2274	2730	2274	2276	2276
Pseudo R-squared/R-squared	.03	.04	.03	.04	.48	.48	.17	.19	.15	.15	0.04	0.06

a. Standard errors are not reported due to limited space. \*\*\* p<.001 \*\* p<.01 \* p<.05  $\psi$  p<.1

Table 5. Quantile Regression Models on the First and Third Quartile Positions

Dependent Variables	The first quartile position (25%)		The third quartile position (75%)	
	Survey2*IDA 2	Survey3*IDA3	Survey2*IDA 2	Survey3*IDA3
Financial Assets	257.57*** (64.92)	106.74* (42.91)	629.71 (506.72)	1267.36 (1489.42)
Financial Assets minus IDA assets	195.00*** (37.46)	98.94 (74.67)	437.60 (337.90)	873.91 (1544.48)
Real Assets	430.57 (272.83)	747.19* (331.97)	111.16 (771.05)	2203.67 (1652.77)
Liability	571.45 (468.51)	951.19 (1004.94)	556.51 (1553.49)	1311.89 (3089.71)
Net worth	-158.35 (2444.05)	795.57 (2052.40)	1232.36 (1062.01)	2485.17 (1839.87)

\*\*\* p<.001 \*\* p<.01 \* p<.05 † p<.1. Standard errors are in parenthesis.

*Household financial assets.* With or without controlling for saving taste and savings goal, IDA participation significantly increased household financial assets (including IDA assets) at both time periods (see Table 4). However, the magnitude of program effects decreased by nearly 25% in Model II. Controlling for the other variables in the model, the treatment group saved about \$450 more than the control group at both time periods, and the conditional median of financial assets for the treatment group is \$333 (the sum of  $\delta_1$  and  $\delta_2$ ) and \$318 (the sum of  $\delta_1$  and  $\delta_3$ ) higher than that of the control group at two time periods. IDA participation had similar effects for those in the first and third quartiles: the magnitude of regression coefficients increased along with the order of quartile positions, and the significance of IDA participation was shown only at the first quartile position for both time periods (see Table 5). This suggests that the program increased household financial assets, especially for those with low wealth (the first quartile).

To exclude IDA savings from financial assets does not change the results significantly. Program participation still had positive impacts on financial assets outside IDAs at all three quartiles for both time periods; overall, IDA participants saved \$280 and \$332 (Table 4) more in the second and third time periods, respectively than the control group saved in non-IDA accounts. The increase of non-IDA financial assets implies that program participants did not transfer existing assets into IDAs, and that their saving behaviors may have been changed by IDA saving incentives, financial education, and the experience of IDA program participation.

*Household real assets, liability, and net worth.* In terms of household real assets, no significant impact of program participation was observed in median regression. By the end of the program, IDA participants had accumulated real assets of \$750 more than the control group. This estimation is

substantially smaller than that (\$6,000) provided by Han et al. (2007), and may be caused by the difference between the mean and median of the real assets distribution. However, it should be noted that IDA participants had significantly more real assets in the third time period in the model of first quartile position (low-wealth participants). Similarly, the positive relationship between IDA participation and household net worth was not statistically significant in the model. The median regression for net worth controlling for saving taste in Model 2 showed that  $\delta_2$  equals \$1,562.61, and  $\delta_3$  equals \$1,313.17 (Table 4).

For household liability, the median regression for the third time period in Model 1 showed that IDA participants borrowed significantly more money (\$2,800) than the control group although the regression coefficient of IDA participation for this period was significant only at the .1 level when saving taste and savings goal were controlled for. Although this increase in liability among IDA participants does not match the increase of real assets reported above (\$750), it is consistent with the indirect finding of Han et al. (2007) that IDA participants might have borrowed a couple of thousand at the end of the program.

The finding regarding liability needs to be interpreted carefully. The increase of liability, if related to developmental purposes, such as postsecondary education, business, or home equity, may generate positive life opportunities for low-income households. The increase of homeownership in the treatment group (see Table 2) suggests that liability may have been linked to the acquisition of assets. Because of the developmental goal of IDAs, secure liability could be a positive outcome, especially for low-wealth participants with limited credit access. The potential impacts of IDAs on accessing credit, therefore, should be further evaluated in the future.

Several noteworthy findings reveal how the asset portfolio of low-income households changed over the course of the program. First, in addition to their accumulated IDA assets, IDA participants had greater amounts of financial assets than nonparticipants. That is, program participants had better performance than control cases on overall financial assets. For those with less wealth in this low-income sample, program participation increased their real assets. Given the current time cap of program participation, IDAs seem to have had no significant effect on real assets and net worth. A longer period of program participation might be required for significant program effects on real assets and net worth to emerge. Second, there is no evidence that IDA participants transferred assets into IDAs or borrowed to save in IDAs. Third, the impacts of IDA participation vary by asset type, quartile position, and time point. For median regression, program participation had substantial effects on total liability at the third time point. Participants at the lower quartile gained more financial assets at the second time point, and more real assets at the third time point. There seems to be a persistent increase in the magnitude of regression coefficients of IDA participation along the order of quartile positions. The findings of the lower quartile imply that low-wealth households respond to saving incentives better than those with relatively more wealth. Fourth, in order to closely evaluate IDAs, saving taste and savings goal have been controlled for in quantile regression models. Saving taste and savings goal are positively related to all asset types. For example, holding

the other variables constant in the model, a one unit increase in household saving taste resulted in a \$115 increase in household financial assets. Similarly, an increase in the savings goal from \$1,000 to \$2,500 led to an increase in household financial assets of nearly \$150. These two variables do not appear to fully explain the effects of program participation; controlling for these two variables reduces the program effects by between 15% and 40%.

### **IDAs, saving taste, and household assets**

In contrast to 401(k)s, IDAs intend to improve participants' financial skills and raise their saving taste by providing financial education. Therefore, we also test the impacts of program participation on household saving taste and savings goal using a fixed-effect model (see the last two columns of Table 4). During the same period of time, saving taste in the sample decreased, while the amount of the savings goal increased. Demographic variables were not significant in the model. More importantly, in the second time period, IDA participation had statistically positive impacts on saving taste, and negative impacts on savings goal. Given the importance of program participation in shaping saving taste, the program effects on asset accumulation might be underestimated in the above where the focus is on  $\delta_2$  and  $\delta_3$  only. What is puzzling, however, is that IDA participation reduced the total amount of the savings goal. This perhaps can be explained by a number of factors. For example, after enrolling in the program and receiving financial education, participants may have become more realistic about their savings goals. The savings goal may also have been influenced by the IDA program's match cap (Schreiner & Sherraden, 2006).

### **Robustness tests**

The quantile regression and fixed-effect models were also implemented with a smaller sample who completed all three surveys ( $N=764$ ) and with another smaller sample that excluded those assigned to the treatment group who did not open an IDA ( $n=88$ ). The results of the first sample are consistent with those of the full sample; additionally, there seem to be observed program effects comparable to previous analyses. However, the impacts of IDA participation for the second sample are smaller and less significant. This inconsistency needs to be further investigated in the future.

## **Conclusion**

Several limitations of this study should be discussed. First, due to sample attrition, we do not have complete data for a proportion of survey respondents ( $n=263$ ). Even though there is no statistical difference between the treatment and control group among those who completed the program, the attrition might not have been random (Han et al., 2007). Second, the third survey was conducted when most of the IDA participants had already closed their accounts. This adds difficulty to differentiating IDA assets from other assets in the third time period. Thus, the estimation of  $\delta_3$  in the model for financial assets outside IDAs could be biased upward. Another related issue is that, statistically, IDA participants did not have more real assets by the end of the program, even though most had already withdrawn their IDA savings for matched purposes, mainly for home purchase or

business startup. A possible explanation is that the number of homebuyers in the control group is almost the same as that in the treatment group. Between 1999 and 2003, there were 96 participants buying real assets in the control group, and the number for the treatment group was 105. A similar increase in real assets in both groups makes the group difference less obvious.

Regardless of these limitations, this study produces some interesting findings. First, IDA participation apparently had positive effects on household financial assets, whether the measure included or excluded IDA savings. Given the fact that match funds for IDA savings are not included in the measures of household assets in this study, program effects on household wealth are underestimated. Since there is no evidence to show that program participants transferred existing assets into IDAs, the IDA savings is likely to be new wealth. However, in the current program setting with a 36-month time cap, there did not seem to be any program effects on household net worth, a “net” measure of household wealth. The 401(k) literature suggests that the net measure of household wealth should be the focus of the evaluation of program effects. The question with regard to which measure of household wealth fits IDAs warrants further assessments given that IDAs have different goals from 401(k)s.

Second, low-wealth participants in this low-income sample responded faster to the saving incentives than others. IDA participation had statistically significant effects at the first quantile positions on financial assets and real assets. Previous studies also found that participants with lower incomes actually saved more (Schreiner & Sherraden, 2006). That is, even the very poor can save when provided with appropriate saving incentives and institutional settings, and in addition, IDAs provide a favorable program environment for low-income households to save.

Third, the increase in financial assets for program participants suggests that the IDA program can facilitate a culture of saving and shape desired saving behaviors by providing an appropriate institutional setting for low-income people to save. This is also supported by the findings that IDA participation increased household saving taste. All of this justifies and supports the institutional theory of savings, which argues that proper institutional characteristics, in addition to individual characteristics, are as important or perhaps more important in shaping saving behaviors and encouraging individuals to accumulate assets (Beverly & Sherraden, 1999).

In summary, this study finds that IDAs provide a valuable policy tool to encourage low-income and low-wealth populations to accumulate assets. Saving incentives and institutional characteristics associated with IDAs appear to be effective among program participants. In addition to increasing financial assets, IDA participation also changed saving behaviors.

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