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Introduction

This paper supplements the growing body of research on the national Individual Development Account (IDA) pilot known as the Downpayment on the American Dream Demonstration (ADD). Its subject is the financial impact of ADD on the net savings and assets of program participants, and it attempts to answer the question, what would ADD participants have saved had they not joined an IDA program? Because this is a hypothetical question, we cannot answer it exclusively from program data and participant interviews; we must rely on statistical analysis until results of an ongoing random assignment IDA pilot in Tulsa, Okla., become available.

The research strategy we employ has three steps. First, we use the national Survey of Consumer Finances (SCF), which contains a rich array of data on the savings and assets of American families, to create a pool of households closely resembling ADD enrollees. This we call the "national IDA population," or NIP. Next, we estimate a statistical model of the savings behavior of NIP and apply the model to each ADD participant. Controlling for the duration of each participant's enrollment period, we then generate a "predicted savings trajectory" for each. This is an estimate of the amount each participant would have saved if she had not enrolled in an IDA program. Finally, we subtract individual savings trajectories from actual ADD balances to determine "the savings effects of ADD."

The paper has eight sections. The first addresses the conceptual question of whether bank balances are an adequate proxy for household savings. Section 2 discusses how we re-weight the 1998 SCF to conform to the asset profile of the ADD population. This is the first step in modeling the savings behavior of the national IDA population. We discuss the development of our econometric model of family savings in Section 3.

In Section 4 we use our model to estimate the savings and asset effects of ADD on different types of families, and in Section 5 we employ a fixed effects regression model to quantify the influence of family and program characteristics on participant savings. Section 6 addresses the issue of fungibility and the impact that substituting IDA savings for non-IDA savings might have on the net savings and assets of ADD enrollees. Section 7 assesses the impact of IDAs on unbanked participants. We present our conclusions in Section 8.

1. A Model of Savings or Bank Account Balances?

The dependent variable in our savings model—which we use to estimate the financial impacts of ADD—is the combined balance of all bank accounts owned by an individual household. Given the low returns on such accounts and the proliferation of higher-yield investment opportunities that span the risk-reward spectrum, some might question our decision to base our savings model on such a restrictive concept of household savings.

We decided to use combined account balances for our analysis for two reasons. First, with matching funds provided by program sponsors, IDA programs encourage participants to make periodic deposits into special-purpose, low-interest savings accounts. The fact is, ADD is a bank account-driven program designed to encourage and reward low-income households for establishing a culture of saving; it is not an initiative in portfolio diversification. Secondly, and

more importantly, this is the way most American households who resemble ADD participants actually save. Nearly two-thirds of the national IDA population either hold all of their financial assets[1] in savings and checking accounts (40%) or have no financial assets at all (22%). While 38 percent hold financial assets beyond their bank accounts, for most of them the value of their assets is less than $2,000. The same pattern is true for ADD participants: 53 percent hold all of their financial assets in bank accounts, 18 percent have no financial assets, while just 29 percent own financial assets beyond their account balances. Moreover, the majority of these own less than $2,500 in nonbank financial assets.

The national IDA population and ADD participants are also closely matched on their ownership of nonfinancial assets.[2] Within the IDA population, 43 percent do not own nonfinancial assets of any kind for another 37 percent, their car is their only nonfinancial asset. Among ADD participants, 31 percent have no nonfinancial assets, while 45 percent have only a car. In short, because bank account balances reflect the vast majority of household savings for both the national IDA population and ADD participants, we base our model of household savings on combined savings and checking account balances.

2. Developing a National Counterpart to the ADD Population

Because our impact analysis relies heavily on our estimates of the savings behavior of the national IDA population, it is important that this population closely conform to the profile of ADD participants. This is because we use the actual behavior of the former in our statistical procedures to estimate the impacts of ADD on participants' savings and assets.[3] Specifically, our estimating procedure assumes that, in the absence of ADD, IDA holders would save amounts similar to the non-ADD participants who comprise our national IDA population, controlling for socioeconomic and other characteristics. As indicated earlier, we re-weighted the SCF using the distribution of assets owned by the ADD population, resulting in a weighted subsample of SCF households with a nearly identical distribution of assets. Inasmuch as ADD is a program targeted to lower-income, low-wealth individuals with little savings, we could have weighted our national IDA population using either the actual distribution of household income and/or asset-ownership of the ADD population. We chose weights based on assets because, when applied to the SCF sample, weights based on income did not perform well.[4]

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[1] Financial assets include stocks, bonds, mutual funds, brokerage accounts, bank accounts, pensions and other retirement funds, and cash life insurance.

[2] Nonfinancial assets include houses, other residential and nonresidential property, businesses, vehicles, and other miscellaneous assets including collections and precious metals.

[3] Initially, we used an income and asset cutoff to define an ADD-like population using the 1998 SCF from the Federal Reserve. Since about 90 percent of all ADD households have incomes of less than 200 percent of poverty and an equal percentage have assets under $80,000, we included in our sample IDA population all families who fell within these two parameters. It turned out that the distribution of total assets held by this national sample differed substantially from that characterizing ADD participants—the sample median of $6,750 was over twice that held by ADD households ($2,600)—which required us to redesign our sampling plan.

[4] When we weighted the SCF data according to the distribution of income in ADD, the mean of assets was over $95,000 (compared to the ADD mean of $17,000). This is because while virtually all ADD households had both low income and low assets, many SCF households have low income and high assets (and would be given undue influence using an income-based weight), and as such, do not fit the IDA profile. We also explored the use of propensity scores (see Rosenbaum and Rubin, 1983), but this was not feasible, as the method does not work well when applied to two highly heterogeneous populations.

The weights were computed by multiplying the existing SCF weights[5] by a ratio adjustment. This was done as follows: the weighted counts of respondents in the SCF data were grouped into 50 adjustment cells, defined by the asset variable (for example, $0–$250, $251–$500, etc.). The counts for ADD respondents were also grouped into these categories. For each cell, the ratio adjustment was calculated by

$$(1) \qquad postwt_i = \frac{ADD_i}{WTSCF_i}$$

where ADD_i is the count for ADD in that cell and $WTSCF_i$ is the SCF count, using the original SCF weight. The final weight is then defined as follows:

$$(2) \qquad fw_i = postwt_i * wt_i$$

where wt_i is the original SCF weight. The final weight gives the SCF data a distribution identical to the ADD data along the discrete asset categories. The distributions according to a continuous measure of assets are also nearly identical (Table 1).

While closely matched on assets—the national IDA population has median assets of $2,700, compared with $2,600 for ADD participants—the two populations differ in other ways. While the overall median incomes of the two populations are not too divergent—$15,942 for the national IDA population vs. $13,176 for ADD participants—African-American ADD participants have a much higher median income than one would expect based upon their asset-holdings (Table 2). Moreover, ADD participants are more likely to be black, single women, and persons in their 30s and 40s than their national IDA counterparts, and substantially less likely to be a high school dropout, or more than 50 years old (Table 3).[6]

[PLACE TABLES 1, 2 and 3 ABOUT HERE]

While the national IDA sample is, on the whole, very similar to the population of ADD participants on known dimensions, there exists the possibility of unobserved heterogeneity—that the two differ along unknown dimensions. Because this cannot be observed or controlled for, our analysis assumes that there is no significant heterogeneity across the two populations that is not already captured by the many socioeconomic and other variables we include in our model.

3. Estimating Savings Trajectories

As we have said before, the question we attempt to answer in this paper is, what would ADD participants have saved had they not joined an IDA program? Not all the information we need to answer this question is speculative. For instance, we can know participants' combined bank account balance at the time of enrollment, the amount of money thus far deposited in the IDA account, and their socioeconomic characteristics using information collected from program management information systems (MISIDA) across the 14 ADD sites.

[5] The SCF already includes a weight to adjust for the oversampling of wealthy households.

[6] Because many SCF households had more assets than the maximum in ADD, the resulting weight for these cases is 0, and so they are not included in the national IDA sample (NIP n = 2,817, versus 4,305 for all SCF).

However, because our information on non-IDA bank balance(s) is only collected at the time of enrollment and is not regularly updated, we have no way of knowing whether participants are saving any money outside of their IDA accounts during their time in ADD. Nor do we know whether their IDA deposits represent net new savings or merely the transfer of money from non-IDA bank accounts—with no matching-fund incentives—into IDA accounts, where every dollar they deposit is matched by at least one additional dollar. While we can simulate the impacts of fungibility on net household savings, which we do later, in order to proceed with our analysis we are forced to assume that during their time in ADD, participants are not making any new deposits to a non-IDA account and that all net savings are reflected in their ADD balances. We think this is a reasonable assumption, given participants' low incomes, their low pre-enrollment bank balances, and the financial benefits of concentrating all net new savings in IDA accounts with substantial matching funds.

We address the issue of how much ADD participants would have saved were they not enrolled in an IDA program by first estimating the savings trajectories, or time-dependent estimates of savings activity, of banked national IDA households. We then apply these trajectories to ADD participants, controlling for a wide range of socioeconomic variables. Finally, to estimate the savings effects of ADD, we subtract the savings trajectory of each ADD participant from her IDA balance. We describe our estimating technique below.

Because the SCF is a cross-sectional database, we cannot observe savings over time. Instead, we estimate the effects of time on savings. Table 4 presents the results of an Ordinary Least Squares (OLS) regression of household demographic and socioeconomic characteristics of the national IDA population on their combined account balances. In order to estimate savings trajectories, our model includes the number of years the household has held its current bank account(s),[7] which we also interact with all of the other independent variables.[8] This model suggests that bank balances tend to increase with time, and that this trend is more pronounced among several groups, including Hispanic and African-American households, households with children, those with higher incomes and assets, and those with less debt. The rate of growth of account balances is slower among renters and older households.

Our estimates of higher savings trajectories for African-Americans and Hispanics would appear to contradict other research, which generally find that minorities are less likely than whites to save, and that whites tend to have higher bank balances than either Blacks or Hispanics.[9] (Carrol and Samwick, 1998, Kennickell et al., 2000). Our model estimates savings per time period; not total account balances. This suggests that, over time, savings differences among otherwise similar whites and minorities can be expected to narrow. That part of the differences in savings balances among whites and minorities is explained by differences in the age of their respective bank accounts is evident in our analysis. The average account age for banked whites in the

[7] Because the SCF does not include the age of savings accounts, we were forced to exclude a small number of banked households (8percent) who only owned a savings account. We also are forced to assume that the age of a checking account also reflects the age of the savings account. Given that over 90percent of all households with both have them at the same institution, this seems reasonable.

[8] See Cohen, 1978 and Jaccard et al., 1990 for elaboration on interaction effects.

[9] Kennickell, et al find, for example that a larger percentage of white families-than-minorities save (p. 5), and that white families with transaction account(s) have a median balance of $2,600 compared with $1,500 for all banked Non-whites or Hispanics (p. 10).

national IDA population is 10.1 years (15.0 for all banked whites), the average for African-Americans is 7.4 years (11.3 for all banked African-Americans) and for banked Hispanics in the National IDA population it is 6.4 years (8.5 for all banked Hispanics). These findings are important not only because they explain part of the disparity between the savings behavior of minorities and Caucasians, but they also suggest that, despite their lower current balances, African-Americans and Hispanics may become more attractive and profitable banking customers over time.

[TABLE 4 ABOUT HERE]

In the fully-specified model (i.e., considering all of the interaction terms), we estimate that the median household in the national IDA population saves about $70 a year. We estimate that, including the effects of all other factors, the median annual savings of banked African-American households is about one-third more ($93) than the overall median, that of whites about ten percent less ($63), and that of Hispanics ($159) over twice the median (Table 5).

[TABLE 5 ABOUT HERE]

When we apply these trajectory coefficients to each ADD participant (Table 6), we find similar results: The median household saves $69 a year, African-American participants save somewhat more ($74) Caucasians somewhat less ($54) and Hispanics more than twice as much ($170).[10] Married couples ($84) are estimated to save more than single women ($69) or single men ($75), while unmarried couples save substantially less ($44). Finally, when controlling for their socioeconomic characteristics, the expected annual savings of active ADD participants differs only slightly from those of the whole ADD population.

Because 20 percent of all ADD participants are "inactive," with IDA balances of zero,[11] it is useful to separate results between active and inactive participants. When that is done, we see that the median predicted trajectory for active participants ($74) is roughly one-third larger than that of inactive participants ($46). This disparity remain across all racial/ethnic groups and by household composition, although the differences are larger among some groups than others: the predicted trajectory of inactive Hispanics ($111) was just over half that of active Hispanics ($201), and the predicted trajectory of inactive African-Americans ($20) is less than a quarter of that of active African-Americans ($81). This lends some support to the model specified in Table 4, as it suggests that the variables associated with higher savings trajectories are also correlated with active participation in ADD.

[TABLE 6 ABOUT HERE]

To estimate the total amount that ADD participants would have saved had they not joined the program, we multiply the expected annual savings for each participant by the number of years in ADD. Since the average number of years is 1.11, the estimates of total savings are only slightly larger than those presented in Table 6.

[10] Hispanics and African-Americans are estimated to have lower account balances than Caucasians, but higher growth rates.

[11] This is because they either have never made a deposit or have made unauthorized withdrawals of their previous deposits.

4. The Savings and Asset Effects of the National ADD Demonstration

It is useful to compare the modest non-IDA savings estimates applied to ADD participants in Section 3 with the account balances of all U.S. households. The combined (savings and checking) account balances of all households in 1998 is presented in Table 7, separated by income quartile and race/ethnicity. Among all banked American households, regardless of race or ethnicity, the lowest 20 percent—those with incomes below $13,176—have a median bank account balance of just $610. Within that group, 40 percent are African-American households, and their median bank balance is just $200. Among African-Americans with incomes between $13,177 and $25,388, the median bank balance is $800, compared to $1,150 for all households in that range. This same pattern is repeated for Hispanic households. For the 25 percent in the bottom income quintile, the median account balance is just $400, while for those in the fourth quintile median balance is $530.

The vast majority of ADD participants have incomes that would place them in the bottom 40 percent of all U.S. households, where the combined median bank balance is just $940—$1,100 for whites, $450 for African-Americans, and $500 for Hispanics.[12] Given these realities, it is not unreasonable to expect ADD participants to have savings trajectories like those reflected in Table 5 and IDA balances similar to those reflected in Table 7.

[PLACE TABLE 7 ABOUT HERE]

Consistent with these patterns, ADD participants have quite modest IDA balances (Table 8). Among active participants, the overall median IDA account balance excluding matching funds is $316, but just $181 for African-Americans. All other active participants have median balances that are roughly twice those of African-Americans. Single women ($276) have a lower median IDA balance than married couples ($385), and banked participants have a median IDA balance ($361) that is more than twice that of those who were unbanked before they opened their IDA account ($151). College graduates and older participants also have higher IDA balances than their less educated or younger counterparts.[13]

[PLACE TABLE 8 ABOUT HERE]

These patterns pretty much track those of monthly IDA contributions (Table 9) and are similar to those found by Mills et al. (2000) in other IDA programs. The median monthly deposit for all active ADD participants is $24, with African-Americans' monthly contributions about 25 percent less ($19). Hispanic and other minorities make greater monthly deposits than whites or African-Americans ($34 and $33, respectively). College graduates, married couples, and older participants have higher monthly contributions than others.[14]

[PLACE TABLE 9 ABOUT HERE]

[12] These figures combine the fourth and fifth income quintiles, and are not shown in Table 7.
[13] Not shown.
[14] Not Shown.

***Savings Effect*:** Using the savings trajectories generated from Table 4, we can assess the actual impacts of ADD on participants' savings, which we call the "savings effect" of IDAs. This is simply the difference between what ADD participants actually saved and what we estimate they would have saved. The savings effect is calculated as follows:

(3) Savings Effect = IDA Balance – (Annualized Savings x Years in ADD)

In this equation, "IDA" balance is defined as total individual IDA contributions, excluding matching funds; "Annualized Savings" is derived from Table 4; and "Years in ADD" is the number of years the participant has been enrolled in the IDA program, based on administrative program data.

Table 10 displays the savings effects of IDAs by race/ethnicity and household composition. We estimate that overall, the median ADD participant saved $117 more than they would have saved had they not enrolled in an IDA program. The average savings effect is almost two-and-a-half times greater—$285. If we exclude inactive participants in our calculation of savings effects, the picture is even brighter. Fully half of all active ADD participants had additional savings of at least $236 over what they would have saved absent their IDA, while the average boost to their overall savings is $368.

[PLACE TABLE 10 ABOUT HERE]

The evidence here suggests not only that low-income people can save, but that the resources offered by IDA programs are effective in helping people get into the habit of saving. These include financial education, peer support and encouragement, an accessible and cooperating financial institution, and financial inducements in the form of matching funds. The importance of these positive estimates is enhanced even more when we consider that there are compelling reasons for IDA participants to save *less* than they otherwise might have saved. For the most part, income among the ADD population is highly constrained, so it is understandable that some participants might reduce their "normal" rate of saving because of the available matching funds. After all, at the end of the day they will still end up with more money in the bank than they would have, if not for the IDA . Only one-fifth of all ADD participants (20.9 percent) are estimated to have negative savings effects, with an average of –$91. If we exclude inactive participants, less than one-sixth (13percent) experienced negative savings effects (Table 11).

[**PLACE TABLE 11 ABOUT HERE]**

While IDAs appear to increase the savings of most participants, the size of the increase varies significantly by race and marital status. At the median, African-Americans experience dramatically lower savings effects than any other racial or ethnic group ($56 overall, $112 for active participants). We cannot simply attribute this finding to lower IDA contributions on the part of African-Americans: the low estimated savings effects are also driven by the higher expected savings rates (from our OLS model of savings trajectories in Table 4). IDAs make a greater difference to Caucasians ($257 overall, $370 active), Hispanics ($175 overall, $303 active) and other minorities. ($328 overall, $403 active) Married couples ($214 overall, $313

active) also enjoyed greater savings effects than single women ($94 overall, $198 active), single men ($97 overall, $277 active), and unmarried couples ($101 overall, $205 active).

Asset Effects: IDA programs have two related objectives: to encourage participants to develop a new savings discipline, and to help them build long-term assets. Our formula, the savings effect of IDAs, attempts to measure the first objective. The success of the second is captured in a measure that we call the asset effect of ADD. It looks at how much more money IDA holders end up with because of ADD's substantial matching funds. Specifically, the asset effect is calculated as:

(4) Asset Effect = [IDA balance + match funds] – (Annualized Savings x Years in ADD)

IDA programs produce significant asset effects. Some reward depositors with two- or three-to-one matches; for every dollar an individual deposits from his or her own income, the program kicks in another two, three, or more, dollars. Overall, ADD participants enjoyed a median asset effect of $559 and a mean asset effect of $1,033 (Table 12). Active IDA participants have a much greater median asset effect of $905 and a mean of $1,288. This means that because of both the matching fund feature and their increased individual contributions, ADD participants have, on average, over $1,000 more to invest in long-term assets than they would have had they not actively participated in an IDA program.

Consistent with their lower contributions and IDA balances, asset effects are generally lower for African-American participants ($326 overall, $559 active), though still significantly positive. Married couples again seem to enjoy larger effects ($908 overall, $1,208 active) than unmarried participants.

[PLACE TABLE 12 ABOUT HERE]

5. Who Benefits Most from ADD?

This section explores the relationship between the savings effect of IDAs and the characteristics of the participants and the programs. We use monthly savings effect as our dependent variable in order to capture changes in the rate at which IDA's influence savings. For example, the savings effect could change if the IDA holder, through a learning process, internalizes a savings culture. This would result in an increase in savings over time. On the other hand, the savings effect could change if the IDA holder found it increasingly difficult to save on a regular basis, resulting in a decline in savings over time.

One methodological problem we faced in this analysis was how to address inactive participants, who by definition have zero IDA balances.[15] Their savings effect is not necessarily zero;. in fact, many inactive participants have negative savings effect, meaning they would have saved more had they not opened an IDA account and then failed to make any deposits.

[15] Unlike the savings analysis undertaken by Schreiner et al. elsewhere in this volume, we cannot employ a Heckman two-step model to control for categorical differences between active and inactive participants, because our dependent variable is incompatible with such a procedure.

Because of the distribution of our dependent variable, we chose to run a probit model, using the independent variables presented in Table 13. We then included the predicted probability of active participation (from the probit) for each ADD participant in the OLS equation. Another methodological issue we address is that of unobserved heterogeneity among IDA programs, which we account for through a set of program dummy variables.

[PLACE TABLE 13 ABOUT HERE]

Our analysis, rather than revealing the factors associated with *greater* IDA savings, looks at the factors associated with the *relative* impacts of ADD on participant savings. For example, it is possible that being a welfare recipient is associated both with smaller IDA contributions[16] *and* larger savings effects. This is because welfare recipients may contribute less than others to their IDA, but nonetheless save substantially more than they would have saved had they not enrolled in ADD.

Consistent with our univariate findings, the savings effect of IDA programs vary substantially across racial and ethnic lines. Controlling for a large number of other factors, IDA programs have a more modest effect on the savings behavior of African-Americans and Hispanics than on that of whites or other minorities. On average, the monthly savings effects for African-Americans and Hispanics are $10 and $8 less than that of whites (Table 13). This does not imply that minorities have negative savings effects, that they are 'failing' or not benefiting from ADD, or that their IDA programs are failing them, only that they experience lower savings effects than whites or other minorities.[17]

Education and socioeconomic characteristics also influence relative impacts of ADD (Table 13). College graduates enjoy larger monthly savings effects than high school dropouts (-$5), high school graduates (-$7), or college dropouts (-$5). Because the unbanked participants would not otherwise save anything in the absence of ADD, other things equal, unbanked ADD participants enjoy a $7 per month larger savings effect than banked participants.

In contrast to our univariate analysis, controlling for such characteristics as age, income, and education, an ADD participant's marital status appears to have no bearing on monthly savings effect. Nor does age affect the relative financial impact of IDAs. Holding other things constant, the young and the old benefit equally. This is also true for employment and welfare status, whether a participant lives in an urban or rural location, or owns or rents her home.

We also find that IDAs appear to be equally effective in encouraging savings regardless of their intended use and that savings effects are reasonably time-insensitive. Controlling for other factors, the average monthly savings effect of a participant who has had an IDA for 18 months is not significantly different from the savings effect of someone who has been in ADD for just a few months.[18] On the other hand, financial education does appear to be a positive factor, to a

[16] Center for Social Development, "Savings Patterns in IDA Programs", January, 2000.
[17] In fact, since the vast majority of ADD participants—and virtually all active participants—experience positive savings effects, we interpret these results in terms of degrees of success.
[18] We also tested for nonlinearity, using polynomial terms, but these were insignificant and were dropped.

point. The monthly savings effect increases with additional hours of financial education, although the rate of increase gradually tapers off with still more education.

A program's total contribution limit is also positively related to savings effect, although this, too, decreases. The total contribution limit is the maximum amount of a participant's deposits that are eligible for matching funds over the life of the program. The median contribution limit across the 14 ADD programs is $1,500, the minimum is $240. Our model suggests that the monthly savings effect for a participant in a program with the median contribution limit would be$21 greater, on average, than the effect for someone in a program with a $240 limit.

This is particularly interesting in light of the fact that two years into ADD, contribution limits constrain very few participants; only 8percent of all ADD participants had met or exceeded their program contribution limits. Based on our research, it is possible to speculate that IDA programs with high contribution limits induce more ambitious savings goals and results from their participants.

Finally, although match rates are critical to participants' ability to amass significant assets, our model suggests that they are not related to savings effects.[19] This is largely congruent with other findings (Schreiner et al., 2001). It suggests that matching funds are an important inducement for households to enroll in an IDA program, but the size of the match does not influence how much more or less of one's own money a participant might save.

6. Are IDAs Financed from Non-IDA Savings?

There is a growing literature on whether tax-advantaged retirement plans, such as 401(k)s, result in additions to net wealth.[20] While empirical studies present mixed evidence, Engen and Gale's recent work suggests that 401(k)s held by groups with low earnings "are more likely to represent an addition to net wealth than 401(k)s held by high-earning groups." This is because the latter are more likely to finance their retirement plans with reductions in existing assets.[21]
Until now, we have implicitly assumed that all IDA deposits represent additions to household net wealth. This suggests that ADD participants do not finance their IDAs by transferring resources from an existing transaction or savings account into their IDA account to take advantage of match opportunities. In light of the fact that more than 80 percent of ADD participants had a pre-existing bank account, however, it is not unreasonable to expect that some of them are transferring money from low-yielding accounts to their IDAs, which yield returns of 100 percent or more.

Although we have no way of knowing the extent to which this kind of shuffling is going on, we have found (not shown) a small but statistically significant relationship between bank account balances at the start of the program and IDA savings. Other research indicates that at least

[19] Like Schreiner et al., we tested the possibility that match rate has a nonlinear influence on savings effect, employing both polynomial terms as well as a set of indicator variables, but found no support for this hypothesis. The polynomial terms were insignificant, as were the indicator variables.
[20] See, for example, Eric Engen and William G. Gale, "The Effects of 401(k) Plans on Household Wealth: Differences Across Earnings Groups," NBER Working Paper, Original Draft May 2, 2000, revised draft August, 2000.
[21] Engen and Gale, p. 1.

12percent of ADD participants did sell assets in order to increase their IDA savings (Moore et al., 2000). Moreover, Engen and Gale have found that between 71 and 89 percent of 401(k) savings are financed through asset reductions.[22] These results suggest that some degree of shuffling is also likely to apply to some ADD participants. To the extent that shuffling is taking place, then net IDA deposits overstate net household savings, as do our estimates of the savings effects of IDAs.

Table 14 presents the results of an adjustment process that reduces net IDA balances under different assumptions of the degree of shuffling.[23] We simulate the effects of shuffling on ADD balances in ten percent increments of participants combined bank account balances the start of the program.[24] Thus, for example, the ten percent shuffling line in Table 14 implies that a participant has shifted ten percent of her pre-existing bank account balance into her IDA account; the 20 percent line suggests that one-fifth of a participant's IDA balance came from her non-IDA account, etc.

[TABLE 14 ABOUT HERE]

Although our shuffling analysis is all hypothetical, it does suggest that even substantial amounts of shuffling still yield relatively large IDA balances. If banked participants transferred half of their existing balances into their IDAs, the median IDA balance for active participants would still be $125, and a quarter of all active participants would still have over $450 in net new saving.

Table 15 repeats this analysis for savings effects. Under moderate shuffling rates, IDAs continue to have a significant positive impact on most participants. Even assuming 50 percent shuffling—that half of a participant's IDA deposits came from another account—half of all active ADD households would have saved at least $56 more than they would have in the absence of their IDA. We conclude from this analysis that, in general, *IDAs effectively encourage greater savings, even when a significant percentage of IDA deposits are financed through reductions in non-IDA savings.*

[TABLE 15 ABOUT HERE]

7.What About Previously Unbanked ADD Participants?

Thus far, we have assumed that some kind of bank account is a precondition to saving, which implies that the 19 percent of previously unbanked ADD participants would have no savings were it not for their IDA. Considering that many low-income households have "mattress cash" or other non-bank liquid assets of one form or another (Edin and Lein, 1997), we should modify our assumption that 100 percent of previously unbanked ADD participants' IDA balances represent net additions to wealth.

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[22] The savings of middle income ($30k-$40k) households were estimated to be largely new, while the authors could not determine whether the savings of low income households was new or not (Engen and Gale, 2000; see also Engen et al., 1994 and Poterba et al., 1996).

[23] We only consider shuffling for banked ADD participants because previously unbanked IDA holders have no accounts to transfer deposits from. This also implies that all net IDA deposits made by unbanked ADD participants represent net new wealth.

[24] Unbanked participants are assumed to be incapable of shuffling, and as such, 100% of their IDA balances are considered new saving.

In order to approximate these participants' annual non-IDA savings, we apply the coefficients from our OLS model of banked ADD participants previously reported in Table 5 to all unbanked participants. Treating the unbanked as if they were banked most likely overstates their true non-IDA savings, however, because there are factors that may not be observable but that cause otherwise similar households not to have bank accounts. This suggests that the true savings trajectories of unbanked ADD participants are no larger than the ones estimated here, and that their estimated savings effects are likely to be understated (since the higher savings trajectory is subtracted from the IDA balance to derive the savings effect).

Table 16 presents predicted annual savings of unbanked ADD participants. Net of their IDA accounts, we estimate that unbanked ADD participants save $135 per year on average. Reducing estimated savings effects by the non-IDA savings estimates from our model still produces positive savings effects for most unbanked participants.[25] The mean savings effect is $61 for all unbanked participants and $147 for active unbanked participants (with medians of –$27 and $45, respectively). From this we conclude that even if unbanked IDA holders were to have some "mattress savings"—which are not identified at the time of enrollment, as existing bank balances are identified for banked applicants—IDAs generate positive net savings for the unbanked as well as the banked.

We also tested these revised savings effects estimates in a multivariate context, using the same model specified in Table 13. The coefficient for unbanked switched from significantly positive to mildly negative and statistically insignificant, with no other substantive changes among the other variables. This suggests that IDAs work at least as well for unbanked families as for banked.

8. Conclusions

This paper contributes to the growing body of empirical studies of Individual Savings Accounts by attempting to answer the counterfactual: how much difference does an IDA make to a household's net wealth? We find that IDAs have a small but significant positive impact on net savings. Two years into ADD, the median participant has saved $117 than she otherwise would have saved, while the mean savings effect is a much higher $285. Limiting our analysis to active participants with positive IDA balances results in even higher savings effects—a median of $236 and an average of $368.

While these net additions to financial assets might seem small in absolute terms, they represent significant relative increases measured against documented bank account balances of this country's low-income households, the bottom 20 percent of whom have median account balances of just $610,or $200 if they are among the 40 percent of African-American households in that lowest quintile. In short, IDAs may induce net additional savings equal to a third or more of existing passbook and checking account balances.

Three additional findings are worth repeating here. First, given the important role that IDAs might play in welfare reform, it is encouraging to find that one's welfare status has no bearing on savings effect. This means that IDAs are as effective in helping welfare recipients build assets as

[25] We use the same method as before: subtract the total predicted savings of unbanked participants (net of IDA participation) from their actual IDA balances.

they are in helping others save more than they otherwise would. Second, our analysis adds to the accumulating body of empirical research that suggests financial education encourages savings (Bernheim and Garrett 1996). Finally, while matching funds dramatically leverage individual IDA deposits and help build net wealth, we find no relationship between the match rate and resulting savings effects.

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Table 1: Distribution of Assets Among ADD Participants (2000) and the National IDA Population (1998), by Race

	ADD Participants*			National IDA Population		
	25%	**Median**	**75%**	**25%**	**Median**	**75%**
Overall	$325	$2,600	$12,600	$400	$2,700	$12,600
Caucasian	$1,378	$4,877	$32,000	$850	$3,800	$19,500
African-American	$50	$1,300	$8,000	$50	$900	$8,000
Hispanic	$300	$2,475	$10,700	$10	$1,700	$6,050
Other race	$490	$3,000	$14,250	$20	$2,300	$11,300

* All asset information was obtained only upon entry into the IDA program. (n=2,245 for ADD; 2,817 for National IDA)

Sources: US Federal Reserve Board, *Survey of Consumer Finances, 1998.*

Center for Social Development, *American Dream Demonstration* , 2000.

Table 2: Distribution of Income Among ADD Participants (2000) and the National IDA Population (1998), by Race

	ADD Participants*			National IDA Population		
	25%	**Median**	**75%**	**25%**	**Median**	**75%**
Overall	$10,518	$15,942	$22,800	$7,601	$13,176	$25,338
Caucasian	$10,080	$15,360	$22,812	$8,108	$15,203	$27,365
African-American	$10,548	$16,320	$22,992	$5,980	$9,730	$19,257
Hispanic	$12,000	$15,756	$22,560	$10,135	$17,230	$25,338
Other race	$9,900	$16,800	$22,644	$6,993	$14,189	$27,365

***** All asset information was obtained only upon entry into the IDA program. (n=2,245 for ADD; 2,817 for National IDA)

Sources: US Federal Reserve Board, *Survey of Consumer Finances, 1998.*

Center for Social Development, *American Dream Demonstration* , 2000.

Table 3: Demographic Characteristics of ADD Participants (2000) and US Households (1998)

	ADD Participants	National IDA Population	US Households
White	46.7%	60.5%	77.7%
African-American	37.1%	22.1%	11.9%
Hispanic	8.9%	13.7%	7.2%
Other	7.3%	3.6%	3.2%
High school dropout	15.0%	28.2%	12.8%
High school graduate only	24.1%	34.9%	25.9%
Some college	42.8%	17.8%	19.8%
College graduate	18.2%	19.1%	41.5%
Single women	51.6%	33.6%	20.3%
Single men	7.0%	14.8%	10.7%
Married couples	22.9%	25.9%	52.1%
Unmarried partners	18.4%	25.7%	16.9%
Unbanked	19.4%	28.0%	9.3%
Homeowners	17.8%	14.6%	66.2%
Under age 20	4.4%	2.3%	0.9%
In their 20's	25.5%	25.8%	14.3%
In their 30's	36.3%	24.7%	21.3%
In their 40's	24.6%	15.8%	21.6%
Over age 50	9.2%	31.5%	41.9%
Median age	35	39	45
N	2,446	2,817	4,305

Sources: US Federal Reserve Board, *Survey of Consumer Finances, 1998.*
Center for Social Development, *American Dream Demonstration* , 2000.

*Table 4: OLS Regression of Bank Account Balances for Banked Households in the National IDA Population, 1998^*

Variable	Coefficient	S. E.
Constant	662.98	(367.30)
Race (Caucasian is reference)		
African American	-314.12 *	(129.39)
Hispanic	-430.12 *	(177.44)
Other minority	1732.54 ***	(230.36)
Household composition (unmarried couple is reference)		
Single female	256.06 *	(124.64)
Single male	178.93	(147.59)
Married couple	-404.04 **	(134.23)
Education (college graduate is reference)		
High school dropout	-302.00	(159.97)
High school graduate only	-786.49 ***	(123.37)
Attended college	-567.39 ***	(129.21)
Other socioeconomic variables		
Age	-85.50 ***	(13.70)
Age*age	0.93 ***	(0.14)
Number of kids	-137.86 **	(48.25)
Income ($ thousands)	47.12 ***	(4.91)
Income squared ($ millions)	-0.18 ***	(0.05)
Assets^^ ($ thousands)	0.05 ***	(0.00)
Assets squared ($ millions)	0.0004	(0.00)
Debt ($ thousands)	-12.48 *	(5.20)
Debt squared ($ millions)	-0.15 **	(0.04)
Unemployed	247.68 *	(126.17)
Receiving TANF	-12.50	(150.53)
Renter	1471.96 ***	(173.60)
Years using current bank	116.09 **	(37.57)
Years at bank squared	1.60 ***	(0.29)
Interaction terms		
African-American*yearbank	49.20 ***	(11.08)
Hispanic*yearbank	126.92 ***	(19.03)
Other*yearbank	3.91	(18.12)
Single female*yearbank	-1.92	(10.72)
Single male*yearbank	14.14	(13.91)
Married couple*yearbank	10.14	(11.07)
High school dropout*yearbank	1.95	(11.81)
High school graduate*yearbank	12.26	(10.64)
Some college*yearbank	1.70	(11.50)
Age*yearbank	-3.62 ***	(1.22)
Age squared*yearbank	0.017	(0.01)
Number of kids*yearbank	16.19 ***	(4.92)
Income*yearbank ($ thousands)	0.18	(0.24)
Income squared*yearbank ($ millions)	0.003 ***	(0.00)
Assets*yearbank ($ thousands)	0.0002 **	(0.00)
Assets squared*yearbank ($ millions)	-0.0007 ***	(0.00)
Debt*yearbank ($ thousands)	-3.12 ***	(0.36)
Debt squared*yearbank ($ millions)	0.016 ***	(0.00)
Unemployed*yearbank	-11.03	(10.10)
Welfare*yearbank	5.67	(16.77)
Renter*yearbank	-29.66 ***	(9.47)
N = 2,817 Adjusted R square: .26	F score: 93.9***	

^A small portion of banked households (8%) are excluded because of lack of information on the age of their bank account.

^^ To avoid endogeneity bias in this model, "assets" does not include bank account balances.

* p < .05; ** p < .01; *** p <.001

Source: US Federal Reserve Board, *Survey of Consumer Finances, 1998.*

Table 5: Predicted Annual Savings of National IDA Households, 1998

	25%	Median	75%
Overall	$0	$70	$131
Caucasian	$0	$63	$108
African-American	$0	$93	$150
Hispanic	$0	$159	$218
Other minority	$0	$65	$110
Single female	$0	$81	$133
Single male	$0	$69	$106
Married couple	$0	$79	$141
Unmarried couple	$0	$50	$123

N = 2,817

Source: US Federal Reserve Board, *Survey of Consumer Finances, 1998.*

Table 6: Predicted Annual Savings of ADD Participants, Net of IDA Participation, 2000

	All Participants			Active Participants			Inactive Participants		
	25%	**Median**	**75%**	**25%**	**Median**	**75%**	**25%**	**Median**	**75%**
Overall	$0	$69	$145	$9	$74	$156	$0	$46	$104
Caucasian	$6	$54	$115	$7	$55	$127	$0	$42	$76
African-American	$0	$74	$148	$0	$81	$158	$0	$20	$110
Hispanic	$0	$170	$296	$51	$201	$311	$0	$111	$178
Other minority	$20	$66	$117	$16	$66	$121	$47	$85	$95
Single female	$1	$69	$142	$15	$73	$154	$0	$50	$106
Single male	$0	$75	$140	$5	$77	$149	$0	$65	$119
Married couple	$13	$84	$178	$13	$86	$183	$6	$71	$143
Unmarried couple	$0	$44	$109	$0	$57	$124	$0	$0	$56

N = 2,154 overall, 1,743 active

Source: Center for Social Development, *American Dream Demonstration* , 2000.

Table 7: Distribution of Account Balances of Banked US Households, by Income and Race, 1998

	25%	Median	75%	Overall Percent In Each Quintile	Percent Unbanked In Each Quintile
All Households					
Top income quintile	$2,750	$7,000	$15,700	20%	0%
Income quintile 2	$1,320	$3,500	$8,280	20%	1%
Income quintile 3	$600	$2,000	$5,880	20%	5%
Income quintile 4	$330	$1,150	$3,850	20%	10%
Bottom income quintile	$130	$610	$2,200	20%	31%
Caucasian					
Top income quintile	$2,750	$7,000	$16,410	22%	0%
Income quintile 2	$1,410	$3,500	$8,500	21%	1%
Income quintile 3	$740	$2,000	$6,300	21%	3%
Income quintile 4	$500	$1,400	$4,320	19%	6%
Bottom income quintile	$200	$730	$2,500	16%	19%
African-American					
Top income quintile	$2,000	$5,300	$11,000	9%	0%
Income quintile 2	$800	$1,690	$7,100	10%	0%
Income quintile 3	$380	$1,990	$5,300	21%	5%
Income quintile 4	$150	$800	$2,100	20%	20%
Bottom income quintile	$70	$200	$600	40%	53%
Hispanic					
Top income quintile	$1,970	$7,410	$10,100	7%	0%
Income quintile 2	$1,000	$4,150	$8,200	13%	4%
Income quintile 3	$300	$1,000	$3,000	23%	13%
Income quintile 4	$100	$530	$1,500	32%	25%
Bottom income quintile	$100	$400	$1,180	25%	58%
Other					
Top income quintile	$4,100	$7,000	$19,500	26%	3%
Income quintile 2	$2,300	$2,700	$5,000	20%	0%
Income quintile 3	$1,000	$2,000	$6,000	17%	20%
Income quintile 4	$360	$800	$1,500	13%	16%
Bottom income quintile	$200	$1,500	$6,140	24%	28%

N = 4,305

Key:

Top income quintile	>=$67,906
Income quintile 2	$42,567 - $67,905
Income quintile 3	$25,339 - $42,566
Income quintile 4	$13,177 - $25,388
Bottom income quintile	<=$13,176

Source: US Federal Reserve Board, *Survey of Consumer Finances, 1998.*

Table 8: IDA Balances of ADD Participants, 2000

	All Participants			Active Participants^		
	25%	**Median**	**75%**	**25%**	**Median**	**75%**
Overall	$15	$177	$564	$97	$316	$645
Caucasian	$26	$298	$673	$137	$390	$761
African-American	$10	$112	$408	$71	$181	$507
Hispanic	$13	$391	$750	$225	$533	$890
Other	$28	$318	$715	$95	$402	$811
Single women	$10	$151	$529	$85	$276	$605
Single men	$0	$124	$622	$76	$342	$708
Married couples	$40	$305	$744	$129	$385	$823
Unmarried partners	$15	$162	$521	$83	$270	$595

N = 2,446 overall; 1,967 active

^ Excludes the 20% of ADD participants who had $0 IDA balances.

Source: Center for Social Development, *American Dream Demonstration* , 2000.

Table 9: Average Monthly Contributions of ADD Participants, 2000

	All Participants			Active Participants		
	25%	**Median**	**75%**	**25%**	**Median**	**75%**
Overall	$2	$17	$39	$11	$24	$44
Caucasian	$4	$23	$43	$14	$30	$47
African-American	$1	$13	$29	$9	$19	$35
Hispanic	$2	$25	$44	$17	$34	$51
Other	$4	$26	$53	$11	$33	$58
Single women	$2	$16	$36	$10	$22	$42
Single men	$0	$18	$38	$8	$30	$44
Married couples	$6	$23	$44	$13	$31	$49
Unmarried partners	$1	$17	$36	$11	$22	$42

N = 2,446 overall; 1,967 active

Source: Center for Social Development, *American Dream Demonstration* , 2000.

Table 10: Predicted Savings Effects of IDAs, 2000

	Percent Active	All Participants			Active Participants		
		25%	Median	75%	25%	Median	75%
Overall	80.5%	$0	$117	$467	$31	$236	$544
Caucasian	81.9%	$6	$257	$601	$100	$370	$695
African-American	78.9%	-$6	$56	$293	$10	$112	$364
Hispanic	78.0%	-$13	$175	$532	$50	$303	$579
Other minority	86.6%	$8	$328	$676	$68	$403	$710
Single female	79.6%	-$1	$94	$410	$22	$198	$503
Single male	74.9%	-$36	$97	$469	$27	$277	$607
Married couple	84.0%	$0	$214	$592	$63	$313	$687
Unmarried couple	80.9%	$0	$101	$427	$26	$205	$508

N = 2,154 overall, 1,743 active

Source: Center for Social Development, *American Dream Demonstration* , 2000.

Table 11: Percent of ADD Participants with Negative Savings Effects, 2000

	Overall Percent	Active Participa Percent
Overall	20.9%	13.0%
Caucasian	16.6%	6.7%
African-American	23.7%	17.7%
Hispanic	24.8%	15.9%
Other minority	19.6%	12.9%
Single female	22.5%	14.1%
Single male	24.6%	17.2%
Married couple	19.1%	10.2%
Unmarried couple	17.1%	12.1%

N = 2,154 overall, 1,743 active

Source: Center for Social Development, *American Dream Demonstration* , 2000.

Table 12: Liquid Asset Effects of IDA's, 2000

	Percent	All Participants			Active Participants		
	Active	25%	Median	75%	25%	Median	75%
Overall (n=2,154)	80.5%	$15	$559	$1,651	$219	$905	$1,871
Caucasian	81.9%	$57	$906	$2,023	$401	$1,191	$2,268
African-American	78.9%	$0	$326	$1,154	$140	$559	$1,464
Hispanic	78.0%	$0	$924	$2,041	$579	$1,405	$2,291
Other minority	86.6%	$51	$1,027	$2,032	$346	$1,302	$2,319
Single female	79.6%	$9	$466	$1,514	$187	$803	$1,734
Single male	74.9%	$0	$400	$1,841	$155	$943	$2,213
Married couple	84.0%	$62	$908	$2,054	$386	$1,208	$2,316
Unmarried couple	80.9%	$20	$490	$1,572	$172	$793	$1,833

N = 2,154 overall, 1,743 active

Source: Center for Social Development, *American Dream Demonstration* , 2000.

Table 13: OLS Regression of Monthly Savings Effect, 2000

Variable	Coefficient	S. E.
Constant	-13.11	(11.88)
Ethnicity (Caucasian is reference)		
African American	-9.65 ***	(2.01)
Hispanic	-7.72 *	(3.03)
Other minority	-1.52	(3.04)
Household composition (unmarried couple is reference)		
Single female	0.30	(2.01)
Single male	-0.58	(3.32)
Married couple	0.74	(2.41)
Education (college graduate is reference)		
High school dropout	-5.53 *	(2.71)
High school graduate only	-7.69 ***	(2.37)
Attended college	-4.63 *	(2.08)
Other socioeconomic characteristics		
Number of children	-1.16 *	(0.54)
Age	-0.02	(0.08)
Income ($ thousands)	0.25 **	(0.09)
Assets ($ thousands)	0.08	(0.04)
Debt ($ thousands)	0.05	(0.05)
Unemployed	-1.25	(2.08)
Unbanked	7.07 ***	(2.20)
Renter	-2.51	(3.53)
Receiving TANF	1.00	(2.67)
Rural	-2.86	(3.16)
Intended use of IDA (home purchase is reference)		
Use for education	-1.13	(2.14)
Use for business	-1.53	(2.29)
Use for other asset	4.35	(3.01)
Other program features		
Months in program	-0.21	(0.16)
Hours of general financial education	1.74 ***	(0.36)
Hours of financial education squared	-0.05 ***	(0.01)
Match rate	-0.98	(1.35)
Total contribution limit	0.017 ***	(0.00)
Total contribution limit squared	-0.000002 *	(0.00)
Limit is lifetime, not annual limit	6.32	(3.31)
Predicted probability of active participation	12.98	(8.71)
Fixed effects		
Program 1	16.96 **	(6.23)
Program 2	16.55 **	(6.10)
Program 3	-9.19	(5.14)
Program 4	8.78	(6.21)
Program 5	-8.04	(6.60)
Program 6	7.33	(4.81)
Program 7	5.20	(11.16)
Program 8	-7.26	(4.34)
Program 9	6.88	(4.95)
Program 10	6.15	(6.89)
Program 11	3.71	(5.79)
Program 12	4.88	(5.25)
Program 13	14.43 *	(5.81)
N = 2,001 Adjusted R square: .16	F score: 9.8***	

* p < .05; ** p < .01; *** p <.001

Source: Center for Social Development, *American Dream Demonstration* , 2000.

Table 14: Adjusted IDA Balances Under Varied Shuffling Assumptions, 2000

	All Participants			Active Participants		
	25%	**Median**	**75%**	**25%**	**Median**	**75%**
No shuffling	$15	$177	$564	$97	$316	$645
10% shuffling	$0	$149	$508	$63	$273	$593
20% shuffling	$0	$115	$464	$36	$221	$536
30% shuffling	$0	$85	$417	$16	$182	$502
40% shuffling	$6	$60	$370	$6	$154	$480
50% shuffling	$0	$40	$336	$0	$125	$454
60% shuffling	$0	$26	$311	$0	$108	$425
70% shuffling	$0	$14	$288	$0	$86	$395
80% shuffling	$0	$6	$271	$0	$61	$369
90% shuffling	$0	$0	$254	$0	$50	$354
100% shuffling	$0	$0	$243	$0	$36	$321

N = 2,310 overall; 1,867 active

Source: Center for Social Development, *American Dream Demonstration* , 2000.

Table 15: Adjusted Savings Effects Under Varied Shuffling Assumptions, 2000

	All Participants			Active Participants		
	25%	**Median**	**75%**	**25%**	**Median**	**75%**
No shuffling	$0	$117	$467	$31	$236	$544
10% shuffling	-$19	$81	$398	$10	$182	$477
20% shuffling	-$39	$49	$350	-$8	$141	$441
30% shuffling	-$50	$25	$306	-$27	$111	$394
40% shuffling	-$59	$12	$273	-$41	$81	$367
50% shuffling	-$67	$5	$247	-$52	$56	$333
60% shuffling	-$72	$0	$223	-$59	$40	$313
70% shuffling	-$76	$0	$205	-$68	$26	$292
80% shuffling	-$79	$0	$186	-$72	$19	$265
90% shuffling	-$82	$0	$168	-$76	$12	$252
100% shuffling	-$86	-$2	$152	-$80	$10	$238

N = 2,310 overall; 1,867 active

Source: Center for Social Development, *American Dream Demonstration* , 2000.

Table 16: OLS-Predicted Savings Trajectories and Savings Effects of Unbanked ADD Participants, 2000

	25%	Median	75%	Mean
Predicted annual savings of unbanked (overall)	$98	$131	$172	$135
Adjusted savings effects, unbanked (overall)	-$95	-$27	$112	$61
Predicted annual savings, unbanked (active)	$97	$131	$172	$135
Adjusted savings effects, unbanked (active)	-$41	$45	$235	$147

N = 446 overall; 299 active

Source: Center for Social Development, *American Dream Demonstration* , 2000.

Appendix

Table A1: Combined Account Balances of Banked ADD Participants, 2000

	Banked Participants			
	25%	**Median**	**Mean**	**75%**
Overall	$72	$260	$683	$740
Caucasian	$75	$270	$769	$826
Black	$60	$235	$531	$612
Hispanic	$100	$365	$1,027	$1,125
Other	$70	$250	$678	$600

N = 1,839

Source: Center for Social Development, *American Dream Demonstration* , 2000.