

**The Impact of Grocery Store Rewards Cards on Saving and Asset Accumulation in
Children’s Savings Account Programs**

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Acknowledgment

AEDI is indebted to the staff of Promise Indiana for their invaluable guidance in pulling together this report. Particular acknowledgement is owed to: Clint Kugler, Amanda Jones-Layman, and Phil Maurizi.

Funding

This work was supported by Poverty Solutions at the University of Michigan and Annie E. Casey Foundation. These organizations are not responsible for the quality or accuracy of the report, which is the sole responsibility of AEDI, nor do they necessarily agree with any or all of the report’s findings and recommendations.

Abstract

Children's savings accounts (CSAs) are asset-building vehicles. Commonly designed for higher education savings, CSAs often incorporate specific incentives and explicit structures to encourage savings. However, low-income families save small amounts. To overcome savings limitations some CSA programs are experimenting with grocery store rewards cards that pay rewards, as a percentage of purchases, directly to CSAs. To test impact on savings activity and asset accumulation, we conducted a cluster randomized trial using household-level random assignment to compare households of students with and without grocery store rewards cards. Findings show a greater than three-fold increase in savings activity in CSAs in the treatment group. The effect is stronger for households with low-income children than high-income households. This underscores not only the effect of rewards cards but also the possibility of redeeming the equalizing potential of CSAs. Further, findings indicate that providing rewards significantly increased total dollars saved among CSAs in treatment households.

Children's Savings Accounts (CSAs) are asset-building vehicles that often incorporate specific incentives and explicit structures to encourage savings by disadvantaged youth and families that otherwise may not have equitable access to financial institutions. While the design and implementation of CSA programs vary substantially, they usually allow deposits from children, their parents and other relatives, and third parties such as scholarship programs. Ideally these investments are leveraged with an initial deposit and/or matching funds adding public or philanthropic funds to families' savings, usually on a ratio ranging from 1:1 to 5:1. The intent is to provide meaningful incentives for saving and support for building balances to low-income savers, activities already available to higher-income households through tax benefits. CSA programs typically provide participants with account statements and financial education. Increasingly, they are also providing supports for children's academic preparation for higher education in the form of college and career readiness activities and efforts to promote positive college expectations. Withdrawals from CSAs are normally permitted for higher education expenses after children turn 18.

Proliferation of CSAs

According to Prosperity Now (2018), as of the end of 2017, there were approximately 54 CSA programs serving 382,000 children in more than 32 states. This is a 22 percent increase from 2016 (Prosperity Now, 2018). In addition, Pennsylvania recently signed into law a new CSA program called the Keystone Scholars Program. The Keystone Scholars Program provides families with \$100 grant to open a Pennsylvania 529 College Savings Account. There are about 140,000 babies born each year in Pennsylvania, and all babies are eligible for the \$100 grant. What has led to the expansion of these small-dollar CSAs is not their ability to help children pay for college, however. It is the empirical evidence demonstrating their ability to complement

efforts to reduce inequality in early education, facilitate college completion, and improve post-college financial health (for a review of this literature, see Elliott and Lewis 2018).

The Smaller Dollar CSA Appeal

While not the focus of this paper, what has made CSAs so popular over the past few years is their ability to complement efforts to reduce inequality in early educational outcomes, facilitate college completion, and improve post-college financial health. For example, a randomized experiment conducted by the Center for Social Development, SEED for Oklahoma Kids (SEED OK), has shown a causal link between CSAs and improved socioemotional well-being among children (Huang et al. 2014), higher parental educational expectations (Kim et al. 2015), and maternal depression (Huang, Sherraden, and Purnell 2014). Importantly, these findings are strongest among low-income families. Correlational studies using national data sets have found that children who have savings set aside for college have higher math scores (Elliott 2009), higher educational expectations (Elliott et al. 2011), and are more likely to attend and complete college (Elliott 2013). A recent randomized experiment in Italy supports the correlational evidence, with findings that show a causal link between CSAs and college enrollment as well as performance while in college (Azzonlini et al. 2018).

Despite these important and encouraging findings, CSAs are a financial instrument whose design features (e.g., accounts, match, and incentives), at their core, are meant to help families build assets, at least in part, through saving. In line with this, in this study, we focus on how to improve saving and asset accumulation in CSAs. While families do save in CSAs and accumulate assets at rates higher than where no CSA program exists, they are saving at far lower rates than what most programs desire.

Review of Research on Saving in CSA Programs

Children's Savings Account programs are held in banks, credit unions, or state-sponsored college savings plans (for a discussion of some of the advantages and disadvantages of each type of delivery system, see Elliott et al. 2015). About 86 percent of all CSAs are built on a 592 platform (Clancy and Beverly 2017). However, given that the data from this study are drawn from a program that delivers its CSA through a 529 plan, this review will primarily focus on data from CSA programs delivered through 529s.

Authorized in the Internal Revenue Code since 2001 and named after the section of the tax code that created them, 529 plans are tax-preferred vehicles for post-secondary education saving administered by states, usually through contractual agreements with private financial institutions (Boshara et al. 2009; Clancy, Lassar, and Taake 2010). Promise Indiana's CSAs, the program under study here, are administered using Indiana's direct-sold (not advisor or CD) state 529 plan, known as CollegeChoice. Families opening CollegeChoice 529 accounts through Promise Indiana are given options for their investment allocation, as are all individuals opening CollegeChoice accounts. However, those who are part of Promise Indiana are given a shortened enrollment form. All families in the program open accounts in CollegeChoice's age-based investment portfolio with 5-year returns ranging between 2.37 percent and 7.72 percent (CollegeChoice Direct, 2016). Accounts that hold the savings incentives offered by Promise Indiana mirror the investment choices selected by the account holder for the primary account.

Saving in CSA Programs

The first large-scale CSA study was called Saving for Education, Entrepreneurship, and Downpayment (SEED). SEED was a national research demonstration that operated from 2003 through 2007. It incorporated match incentives, financial education, and withdrawal restrictions (Sherraden and Stevens 2010). In SEED, low-income children from birth to 23 years old and

their parents were invited to open savings accounts at 13 locations nationwide. In line with the understanding of CSAs being, at least in part, about saving and asset accumulation, a key question for SEED was whether the institutional mechanisms incorporated into CSAs could facilitate saving and encourage asset accumulation for children and their parents (Mason et al. 2010).

Accounts in SEED came with saving incentives, including initial deposits of up to \$1,000, additional deposits of up to \$1,000 for milestones such as birthdays and attending financial education workshops, and dollar-for-dollar savings match incentives of up to \$3,000 (Mason et al. 2010). SEED allowed child participants to withdraw their savings for asset purchases, but generally the accounts were geared toward long-term investments such as college education. Median quarterly savings in SEED, nationally, were \$7, with an average net quarterly contribution of \$30 per participant (Mason et al. 2010). So, while families can and do save in CSAs, they save small amounts of money in these accounts. It is important to point out that low amounts of saving are not unique to CSAs. Americans generally do not save a lot (Huddleston 2017).

Studies of Maine's Harold Alfond College Challenge (HACC), one of the oldest and most well-known CSAs in the country, also find evidence that saving in CSA programs varies by income level. For example, after about eight years, 26 percent of households earning less than \$25,000; 38 percent of households earning \$25,000 to \$49,999; 51 percent of households earning \$50,00 to \$74,999; 68 percent of households earning \$75,000 to \$149,999; and 76 percent of households earning \$150,000 or more made at least one contribution to their account (O'Brien et al. 2017). Not only do low-income families contribute less often, but when they do contribute, they contribute less than their higher-income counterparts. The average total contribution by

income level in HACC is \$2,732 for households earning less than \$25,000; \$1,914 for households earning \$25,000 to \$49,999; \$2,634 for households earning \$50,00 to \$74,999; \$3,767 for households earning \$75,000 to \$149,999; and \$9,833 for households earning \$150,000 or more. This illustrates the dilemma for CSA programs; personal income is a barrier to saving, and low-income families lack income.

In SEED OK, savings in parent-opened accounts for treatment children averaged \$261 (Beverly, Clancy et al. 2015) over seven years of the CSA intervention. As in other wealth-building systems, however, asset accumulation in CSAs does not hinge entirely—or, in some cases, even primarily—on families’ own savings efforts. Instead, initial seed deposits, savings matches, and investment earnings can contribute substantially to total asset ownership. The SEED OK experiment finds similar results to HACC. High-income families with a CSA are more likely to contribute to their account and have contributed more than low-income families with a CSA (Beverly, Kim et al. 2015).

Asset Accumulation

In SEED OK the average value of Oklahoma 529 assets held by children in the treatment group is \$1,851. Of this amount, \$1,000 was the automatic initial seed (Beverly et al. 2015). Accumulation outcomes from other children’s savings interventions similarly underscore the significance of using levers other than family savings to catalyze asset building. In Michigan’s SEED program, initial program deposits accounted for 53 percent of the total asset accumulation, with matches and earnings further amplifying family saving (Loke, Clancy, and Zager 2009). Median accumulation across SEED sites was \$1,093, with initial program seed deposits accounting for approximately half the total amount (Mason et al. 2009). As in state 529s, asset accumulation in CSAs favors higher-income families that can contribute more of their own

savings. For example, households participating in HACC earning less than \$25,000 have an average asset value of \$1,614; households earning \$25,000 to \$49,999 have \$1,731; households earning \$50,00 to \$74,999 have \$2,541; households earning \$75,000 to \$149,999 have \$4,069; and households earning \$150,000 or more have \$10,815 (O'Brien et al. 2017).

The long tenures of account ownership (e.g., from birth to 18 years) in CSA programs can facilitate meaningful balances. For example, the Federal Reserve Bank of Boston used historical data from 1997 through 2014 to calculate potential CSA balances over the course of 18 years (Elliott et al. 2015). The assumptions used in the model were based on the Harold Alfond College Challenge (investment in a 529 college savings plan, an initial deposit of \$500, annual family savings of \$600, and \$300 in savings matches). The investigators calculated a potential asset accumulation of approximately \$24,677 to \$31,483, depending on the type of investment a family chose (10-Year Treasury note or S&P 500 Index, respectively) (Elliott et al., 2015). So, even small-dollar CSAs have the potential to accumulate meaningful assets. Of course, a challenge for CSA programs is helping families—particularly low-income families—reach the \$600 annual savings mark. This mark can be even more difficult when families have more than one child, and many do.

Problem: Low-Income Families Have Too Few Resources to Save for College

The research reviewed here suggests that while families are saving in CSAs, low-income families, at least in part, have an income problem. This is confirmed in national surveys that also point to insufficient money from which to save as the biggest reason for lack of college saving, particularly among low-income families. As detailed in Sallie Mae's survey of American households, 65 percent of low-income families reported that inadequate income is a barrier to saving for college; tellingly, even 45 percent of upper-income non-savers identify insufficient

resources as a barrier (Sallie Mae, 2015). This is not surprising given the common assumption that low-income families have little discretionary money to save after they pay for basic needs. Further, it has caused some poverty and education researchers as well as policy makers to see the field of CSAs as unimportant, if not potentially harmful (Bernstein 2010), because it takes money away from families being able to meet their basic needs.

While the focus in this study is on low-income families, it is important to note that it is not only the very low-income who struggle to save but middle-income families as well. Given all of this, finding alternative ways for families to save and build assets in CSAs is an important area of research for improving the potential of CSAs. In this paper we test the potential of grocery store rewards cards to help families save and increase assets in CSAs.

Rewards Cards: Changing Spending into Saving

Community Link Foundation is a private foundation located in Ann Arbor, Michigan, that administers the reward cards program investigated in this study. Rewards cards, sometimes called loyalty cards, are not a new idea. Rewards cards provide families in a CSA program the opportunity to save each time they make a purchase at a participating vendor's store, even when paying with SNAP benefits. In this way, rewards cards change spending into saving. The grocery store retailer offers a percentage of their sales from rewards card users statewide to CSA programs, with the expectation of increasing sales volume when users shop at their store instead of a competitor's store. For example, as part of the program examined in this study, Kroger has agreed to provide up to a 5 percent discount on any purchase made with rewards cards for participants in the Promise Indiana, Wabash County CSA program.

Using the rewards card adds no additional cost for the CSA participant, and the participant gets all rebates that other rewards card shoppers receive. At the same time, the

transaction is generating rewards that can be directed to an external beneficiary such as a family's CSA. The maximum rewards are \$150 per quarter or \$600 annually, per household. The rebate is deposited into the individual's CSA at the end of each quarter. Each time a CSA participant buys something with the rewards card, she receives a progress reminder.

Theory

This study takes an institutional approach to understanding how rewards cards are linked to increased saving and asset accumulation among CSA participants. According to Sherraden and Barr (2005), a formal institution within the applied social science context can be thought of as a type of intervention to alter behaviors and outcomes of individuals. Under this definition CSAs are institutions designed to increase saving and asset accumulation. An institutional perspective of saving and asset accumulation attempts to identify characteristics of programs that shape saving behavior. The theory identifies seven such constructs: (1) access, (2) information, (3) incentives, (4) facilitation, (5) expectations, (6) restrictions, and (7) security (Beverly et al. 2008). Of these constructs, we posit that facilitation is key to understanding how rewards cards programs increase saving and asset accumulation in CSA programs. According to Beverly and colleagues (2008), "Facilitation refers to any form of assistance in saving, especially making saving 'automatic'" (p. ES-2).

However, at best, modest saving participation in existing CSA models is due in part to the fact that CSA designs do not completely adhere to the principle of facilitation, making saving automatic. Even in CSAs where enrollment occurs automatically, saving does not. Instead, CSAs have been forced to use other program features to solve the problem of limited saving engagement. These levers often include features such as matches and incentives, but increasingly programs are turning to behavioral approaches. However, rewards cards are a type of program

designed specifically to facilitate saving and asset accumulation in CSA programs that might more closely resemble automatic saving, by transforming spending into saving with a focus on spending for basic needs such as groceries. Further, in line with institutional theory which attempts to capitalize on individual tendencies, rewards card interventions leverage what has traditionally been a negative—the natural tendency of people to value spending over saving (Fisher 1930)—and make it a positive by transforming spending into automatic saving.

In this study, we examine the impact of providing access to a Kroger rewards card program as a supplement to Wabash County's CSA program as part of Promise Indiana. Promise Indiana is a state-supported and community-driven CSA intervention designed to equip young children and their families with the financial resources, college-bound identities, community support, and savings behaviors associated with positive educational outcomes. The program started in the fall of 2013. Promise Indiana's CSAs are administered using Indiana's direct-sold state 529 plan, known as CollegeChoice. While Promise Indiana currently exists in 18 counties in Indiana, this study focuses on the program in Wabash County. Families opening CollegeChoice 529 accounts through Promise Indiana use a shortened enrollment form to ease sign-up, usually conducted onsite at school during kindergarten enrollment. In addition to facilitated opening of a CollegeChoice account, children receive a \$25 initial seed deposit and, if they contribute or raise \$25, up to \$100 in additional match. Promise Indiana's model also includes financial education and college-readiness activities, incorporated into the school experience beginning in kindergarten.

To test the impact of providing rewards cards designed to facilitate automatic saving through everyday expenditures on groceries, we conducted a cluster-randomized trial, randomly

assigning over 1,300 households (and CSAs within households) to receive a Kroger rewards card or to a delayed-treatment control condition. In this paper, we address three research questions:

1. What is the impact of providing Kroger rewards cards to households of students with children's savings accounts (CSAs) on the following:
 - a. whether or not households are engaged in saving (by contributing to their CSA or by using the rewards card)?
 - b. household contributions in the first three months (i.e., whether or not households contributed to the CSA, total number of contributions, and total value of contributions)?
 - c. total dollars saved in the first three months (by contribution or rewards)?
2. To what extent do impacts differ for families that are economically disadvantaged (i.e., have at least one child who qualifies for free or reduced-priced lunch [FRPL])?
3. Among families that receive rewards cards, what is the projected average total dollars saved after one year based on data on three months of spending at Kroger?

Methods

Participants

The study included the entire number of 1,817 CSAs belonging to 1,390 households in March 2018 as part of Promise Indiana. Among these households, 75 percent had one child with a CSA, 21 percent had two children with CSAs, and 4 percent had three or more children with CSAs. Almost half of the households (46 percent) were prior “savers” (i.e., they had previously made at least one contribution to at least one of their CSAs) and almost half of households (46 percent) had at least one child with a CSA who qualified for FRPL based on the most recently available data for each child with a CSA.

Overview of Study Design

To test the impact of providing rewards cards (vs. no rewards cards) to households of students with CSAs, we conducted a cluster randomized trial (CRT) using household-level random assignment. We randomly assigned households with children (one or several) that had previously received a CSA or CSAs to receive a rewards card on April 13, 2018, (treatment) or nine months later (delayed-treatment control).¹ During a 9-month time frame (April 13, 2018, to December 31, 2018) we will examine outcomes for households in the treatment and delayed-treatment control conditions; households assigned to delayed-treatment control will continue “business-as-usual” use of their CSA(s) for the 9-month period of the study. This paper provides a preliminary look at outcomes after only three months.

Random Assignment and Baseline Equivalence

To facilitate equivalence on characteristics of households at baseline, we conducted blocked and clustered random assignment of CSAs to condition. Our sample of 1,390 households was blocked using three variables: (1) the number of accounts within the household (one, two, three, or more); (2) whether any account within the household received a contribution prior to the study (saver status); and (3) whether households had at least one child with a CSA who qualified for FRPL based on the most recently available data for each child with a CSA (FRPL status). We were unable to ascertain saver status and FRPL status at the household level for a small percentage of households (2 percent of households for saver status; 4 percent of households for FRPL status). For this reason, we classified these households as unknown for all such variables that applied; and households were randomly assigned within 27 possible blocks (three variables,

¹ Not all cards were delivered on time. Ninety-seven percent of the cards were delivered on April 13 and 17 participants received cards on June 9 because they did not receive or lost the earlier card.

three levels each). However, based on their characteristics, all households were randomly assigned to treatment or control within 19 blocks; all households within each block had an equal probability of assignment to the treatment or control group.

Following random assignment, we excluded a small number of outlier cases (13 control cases and 20 treatment cases) with very large contributions during the prior year (i.e., greater than two standard deviations above the sample mean). This resulted in an analytic sample of 1,784 CSAs (895 control and 889 treatment) nested within 1,368 households. We then examined whether the characteristics of the CSAs and the beneficiaries at baseline differed between the treatment and control groups and found no standardized mean differences at baseline (see Table 1) that exceeded the absolute value of 0.08. Following What Works Clearinghouse Evidence Standards (2017), we included baseline characteristics with standardized mean differences above 0.05 (but below 0.25) as covariates in the impact model.

Measures

For this study, we calculated the following measures.

Spender or saver status.—We coded each CSA as *0* if there were no individual contributions and no rewards during the 3-month timeframe, and as *1* if there was at least one individual contribution made or rewards applied to the CSA during that time.

Whether households made any contributions to their CSA(s).—We coded each CSA as *0* if there were no individual contributions during the three-month timeframe, and as *1* if there were one or more contributions during this time.

Number of individual contributions.—For each CSA, we calculated the number of individual contributions during the three-month timeframe.

Total dollars saved.—To calculate the total dollars saved during the 3-month timeframe,

we added the following three measures, resulting in five outcome variables given different projected return rates on rewards:

- *Rewards earned after three months*: To estimate the rewards earned in each CSA within a treatment household after three months we first divided the total amount spent at Kroger for each household among the number of CSAs within the household (distributing rewards evenly to all children). We then multiplied the total spend for this period of time in each CSA by .01, .02, .03, .04, and .05 to simulate rewards earned at different levels of rewards.²
- *Total dollars saved from individual contributions*: For each CSA, we calculated the total dollars contributed during the 3-month evaluation timeframe.
- *Total dollars earned from incentives for individual contributions*: For each CSA, we calculated the total incentive dollars earned from individual contributions during the 3-month evaluation timeframe.

Projected rewards after one year.—We calculated the projected average rewards for the treatment group and, separately, rewards card users within the treatment group one year out by multiplying the total dollars spent at Kroger during the initial 3-month evaluation timeframe by 4 (simulating 12 months of spend and rewards).

Analytic Approach

The data for this analysis is hierarchical, with CSAs and their beneficiaries nested within households. For this reason, we employed a two-level multilevel model to evaluate the impact of access to the rewards card on CSA outcomes, with treatment effects modeled at the cluster

² How much the program as a whole spends determines the rewards rate (1 percent to 5 percent) individual households receive.

(household) level, the unit of random assignment (Bloom 2005; Raudenbush 1997). The multilevel model will appropriately account for the nonindependence of CSAs, or children, (Level 1) nested within household (Level 2). Because this study is designed to provide an internally valid, unbiased estimate of efficacy of access to the rewards card, the impact model assumes a constant treatment effect but models household intercepts as random effects. An example of the model used to test the impact of the rewards card on total rewards earned during the 3-month evaluation timeframe (RQ1) is detailed below:

Level 1

$$TotalRewards_{ij} = \beta_{0j} + \beta_{1j}Baseline_{ij} + r_{ij} \quad (1)$$

Level 2

$$\beta_{0j} = \gamma_{0j} + \gamma_{01}Treatment_j + \gamma_{02}Block_j + \mu_{0j} \quad (2)$$

$$\beta_{1j} = \gamma_{1j} \quad (3)$$

Where $TotalRewards_{ij}$ represents the outcome for CSA i in household j predicted by the household mean intercept, $Baseline_{ij}$ is a vector of CSA-specific pretreatment covariates with standardized mean differences between the treatment and control conditions at baseline between 0.05 and 0.08 (per What Works Clearinghouse, 2017) to allow for residual covariate adjustment in the impact estimates. $Treatment_j$ denotes random assignment within blocks to treatment (access to a rewards card) or control, $Block_j$ represents a vector of binary indicators for the blocks in which we conducted random assignment, and μ_{0j} represents the random effect of the intercept for household j . All predictors except for the treatment indicator were grand-mean centered to estimate the treatment effect for the average CSA in the average household.

Although two of the outcomes are binary, we used the linear model described above with conventional standard errors instead of nonlinear models (e.g., logit models) because linear

models are simpler to estimate and interpret. They also yield unbiased estimates of the intervention impact, yield standard error estimates that are approximately correct even when the underlying data-generating process is nonlinear (Judkins and Porter 2015), and have been used by multiple random assignment evaluations in education (e.g., Max et al. 2014; Glazerman et al. 2013).

Finally, we examined whether impacts differed (were moderated) by the FRPL status of households by adding FRPL and an interaction term (FRPL x condition) to each impact model (equation 2 above).

Results

Spender or Saver Status

The first question of interest for this study is whether providing households access to a rewards card engaged additional families in saving (either by families themselves making contributions or families using their rewards cards at Kroger to earn returns on their dollars spent). As detailed in Table 2, we find strong evidence of greater saving activity (spender or saver status) among CSAs within households assigned to the treatment group. During the first three months, only 9.16 percent of CSAs in control households had savings activity. In contrast, 31.27 percent of CSAs in the treatment households had savings activity via rewards spending or individual contributions, a greater than three-fold increase in savings activity in CSAs in the treatment group.

This effect differed significantly by household FRPL status: $\gamma = -0.09$, $SE = 0.03$, $p = .006$ (see Figure 1) but was significant for both FRPL households ($p < .001$) and non-FRPL households ($p < .001$). Although the absolute percentage-point difference between CSAs in treatment and control households was larger for non-FRPL families (26 percent) than for FRPL

families (18 percent), the effect size, when examined as an odds ratio and translated to a Cox Index,³ is larger for FRPL families (OR = 6.77, Cox Index = 1.16) than for non-FRPL families (OR = 4.10, Cox Index = 0.85) because the control base rate for FRPL families (4 percent) is lower than the control base rate for their non-FRPL counterparts (14 percent).⁴

Household Contribution Outcomes

The next question is whether the large increase observed in the percentage of CSAs within treatment households showing greater savings activity was driven by use of rewards cards alone, an increase in the percentage of households making contributions to CSAs alone, or both. Although the percentage of CSAs in treatment households with a contribution during the 3-month timeframe was larger (1.8 percent higher) than for CSAs in control households, this effect was only marginally significant (see Table 2) and did not differ by household FRPL status ($p = .735$). We did find some evidence that the number of contributions during the first three months increased modestly for CSAs in treatment households ($M = 0.21$, $SD = 0.88$) relative to control households ($M = 0.20$, $SD = 0.82$) (see Table 2) but this effect was small; it also did not differ by household FRPL status ($p = .136$). In addition, we examined whether providing access to a rewards card increased the total value (\$) of contributions in the first three months and observed a statistically significant impact; total individual contributions for CSAs in treatment households were \$8.29 higher, on average, than for CSAs in control households ($p < .004$). However, this

³ A Cox Index is a standardized difference measure in the probability of the occurrence of an event given a dichotomous outcome measure and an underlying normal distribution.

⁴ It takes a larger effect to increase or decrease a base rate that is closer to 0 or 1 (tails of the distribution) by the same percentage points than it does to increase or decrease a base rate that is closer to the center of the distribution.

effect was driven by a small number of outlier individual contribution values favoring the treatment group. Upon removing the outliers (13 treatment, eight control) with total individual contributions during the first three months that were greater than two standard deviations ($SD = 66.19$) above the sample mean ($M = 8.58$), this effect was no longer statistically significant (see Table 2) and also did not differ by household FPRL status ($p = .474$).

Total Dollars Saved

Finally, we examined whether providing access to rewards cards increased the total dollars saved (via contribution or by rewards for dollars spent at Kroger) during the first three months. We tested impacts assuming five different rewards return rates (1 percent to 5 percent) on dollars spent at Kroger. As shown in Table 3, after only three months, providing rewards cards significantly increased total dollars saved among CSAs in treatment households, with effect sizes varying from 0.07 to 0.19 for rewards rates ranging from 1 percent to 5 percent, respectively. These simulated effects on total dollars saved did not differ by FRPL status (all p 's $> .147$).

Projected Rewards Dollars Saved After One Year

We were also interested in examining the average projected dollars saved after one year for CSAs in treatment households based on Kroger spend rates after the first three months. In Table 4, we present the estimated average dollars saved after one year across all CSAs in treatment households (a population-average effect), as well as the estimated average dollars saved after one year across the 29 percent of CSAs benefiting from use of the rewards card in the first three months.

Discussion

CSAs are savings vehicles, most commonly designed for higher education savings, that often incorporate specific incentives and explicit structures to encourage saving and asset

accumulation. However, CSAs as a policy solution have had no real answer for the fact that low-income families have little money to save after they pay for basic needs. While research has shown that low-income families can and do save, they save small amounts of money. This study examines the impact of using rewards cards to increase saving and asset accumulation in a CSA program, particularly among low-income families.

Findings from this study demonstrate a causal link between participating in a rewards card program and savings activity. They suggest that rewards card programs can help make the CSA a more equitable instrument for asset accumulation and a viable tool for saving by all families. Specifically, treatment households were three times more likely to have savings activity (via rewards cards or individual contributions) than the control group (31.27 percent vs. 9.16 percent, respectively). Importantly, these effects were larger for households participating in the FRPL program than those who were not. One way to understand the size of these effects is to compare them to other studies. For example, the Common Cents Lab at Duke University conducted a randomized control trial in partnership with the City of St. Louis to examine whether different behavioral approaches could increase savings activity in the city's CSA program, College Kids. One approach they tested was the messenger effect, whether parents were more likely to make deposits when the program information was delivered to them by their children (i.e., brought home in backpacks) rather than through the mail. The second approach they tested involved time progression (i.e., front page), whether parents were more likely to save when they felt like college was approaching more quickly. They found that the treatment group, which received the packet through backpacks with the front page (deposit rate = 1.45%), were more likely to have saving activity (deposit rate = 1.45 percent) than the control group, which did not receive the packet via backpack (deposit rate = 0.29 percent) (Center for Advanced Hindsight

2018). This was the more effective of the two strategies (back pack or mail). Investigators did not provide a breakdown by FRPL status.

There is little evidence in this study to suggest that the treatment group made significantly more contributions than the control group. This is consistent with the institutional theory of saving (Sherraden 1991) as presented in the introduction of this paper. From an institutional perspective, any effects on saving activity from individual contributions would not be directly related to the rewards card intervention. This is because the rewards card intervention is designed to increase saving and asset accumulation through spending at a grocery store, not through individual contributions. Moreover, we posit that any effects on contributions would be modest at best as low-income households have small amounts of money to save regardless of their desire to save. That is, better behavior or even better institutions can create only so much of an increase in saving without providing additional resources for saving. The ability of the rewards card program to transform spending into saving is what makes it potentially transformational. Importantly, for the purposes of this study, the finding that the treatment group did not make more individual contributions than the control group indicates that the increase in savings activity in the treatment group was caused by the rewards card program and not by individual contributions.

Our findings also indicate that rewards card programs have an impact on the ability of households to build assets in CSA programs. Not surprising the impact is stronger the higher the rewards (effect size ranging from 0.07 to 0.19 for rewards rates ranging from 1 percent to 5 percent). These effects did not differ for FRPL households and non-FRPL households. Projected savings from the rewards cards at the end of year one with a rebate of 4 percent would be \$51.58. However, participants can earn up to \$600 per year (it is capped by Kroger at \$600 per

household) in the rewards program as currently structured, and some participants will likely reach that mark based on first quarter payouts. (The first quarter payment to households came after the analysis for this study was completed so is not included in this analysis.) However, the average amount families received was \$19, with a minimum of \$0 and a maximum of \$115. If this pattern persists, clearly some families will reach the \$600 maximum.⁵

Policy Implications

Prior to discussing policy implications, it is important to point out several limitations of this study. This study is not generalizable. Findings are specific to Promise Indiana participants in Wabash County. As a result, replication is needed. The researchers have initiated two more studies to assess the replicability of findings. One study is underway in St. Louis and another in Lansing. While all families in the treatment group received a Kroger rewards card (they had to opt out and no one did), another limitation is that implementation was low: only 29 percent of the treatment group used their rewards card. Effects might be larger with a greater push to increase usage.

The finding with the largest policy implication may be the finding related to savings activity. This finding has the potential to broaden how CSA programs determine what it means to be an engaged saver. One reason this is important is that CSA programs often offer some form of match (i.e., for every dollar saved, an additional dollar is put into the account up to a set amount). However, low-income families often fail to reach a match through individual

⁵ Whether a family reaches the \$600 maximum depends both on the amount of money a household spends at Kroger and the rewards rate (1 percent to 5 percent) a household receives. Households can share their cards with others to use on their behalf as well. Everyone in the program receives the same rebate amount. For the first quarter families received a 4 percent rebate.

contributions; as a result, match programs can end up disproportionately benefiting higher income households. If rewards card programs and a broader notion of what it means to be an engaged saver are adopted, contributions from rewards cards can count toward the match. Further, these findings suggest that many more low-income families in the Wabash County Promise Indiana program value setting aside money for college and will do so if income is removed as a barrier. That is, in line with an institutional theory of saving, engagement in the act of saving is not purely behavioral (i.e., about the individuals own attitudes and behaviors). Institutional programs can be designed to help overcome the barrier of lack of money and play a significant role in whether people save. One way to design institutions to overcome the barrier of lack of money is to transform spending into saving through a rewards card program.

Future Directions for Research

This engagement by households in helping finance a child's education might have added effects beyond paying for college. As discussed in the introduction, several studies have found evidence that suggests that savers have better educational outcomes than non-savers (Elliott, Kite, et al. 2018; Elliott, Lewis et al. 2018). However, while it is not yet conclusive if saving in a CSA produces effects above and beyond owning an account, the more relevant question is whether saving through rewards cards produces additional effects. Given this, we suggest that future research examine whether saving through rewards cards produce effects beyond saving money for college, for example, positive educational outcomes.

Additional research is also needed on how to increase use of rewards cards as well as the amount families are spending at the grocery store. Currently there is not an institutional response to increasing use of rewards cards in CSA programs. As a result, the second stage of the Promise Indiana Wabash County CSA Rewards Card study will involve conducting a sequential multi-

assignment randomized trial (SMART) in which we randomly assign users and non-users of the rewards cards to receive different messages about the benefits of usage and/or increased usage. At the 6-month mark additional behavioral approaches will be tested in an attempt to increase spending. Additional spending will increase the amount that families earn through the rewards program. Participating households are not doing all their shopping at Kroger's. There is anecdotal evidence that the Kroger's store is not the store that many households shop at in this community. Future investigators will want to gather more data on which local stores people tend to frequent. One challenge to using the most frequent store is being able to establish a contract with a that grocery store chain. However, using the most frequented store might be the easiest way to increase usage and spending.

Another related challenge is distance to the grocery store. Households in one of the school locations participating in the study were more than 15 miles from the nearest Kroger. Households whose children attend this school are shopping far less at Kroger than treatment group households that live much closer. The lessons learned in Wabash County are informing the randomized control trials that started up after this program in St. Louis and Lansing.

Conclusion

There is still much to learn about the efficacy of rewards cards programs and methods to optimize use of the cards (and corresponding rewards for families). However, this study provides promising preliminary evidence that providing access to a grocery store rewards card that adds money to families' accounts more than triples the proportion of families engaged in saving activity, particularly for lower-income families, which consequently results in increased savings in CSAs. While the amount of assets accumulated through the rewards card program is small, at this very early stage of the program many households have not yet tapped into the full potential

of the program to produce upwards of \$600 per year of additional savings. The study program also does not encourage households to recruit family members outside of the household to use their card (the phone number associated with the rewards card suffices) as a way of increasing spending. Doing so would increase the likelihood of families reaching the \$600 in rewards allowed.

Another way asset accumulation from rewards card programs can be increased is if CSA programs take a broad view of what engagement in saving looks like and include saving from rewards cards as part of a household's own contributions, making them eligible for a match. CSAs like Maine's Harold Alfond College Challenge offer up to \$300 annually in a one-to-one match. However, low-income households often fail to reach the \$300 match because they have limited money for saving after they satisfy their basic needs. If rewards earned counted toward the match, rewards card programs might make reaching the full match possible. Additionally, while the study model does not allow for rounding up (i.e., essentially getting participants to put additional money into their accounts by depositing the difference between their purchase and a whole dollar amount), rewards programs like Kroger's do have the capacity to offer the potential for an additional \$300 per year from rounding up. The point is that there is far more potential in these programs to increase asset accumulation than has been tapped so far. As discussed in the research review, with an initial deposit of \$500, annual family savings of \$600, and the \$300 savings match offered, when children (even low-income children) reach 18, they would have the potential to have accumulated upwards of \$24,677 to \$31,483 (Elliott et al. 2015). This is meaningful asset accumulation.

However, one of the most alluring elements of rewards card programs is not their ability to improve asset accumulation, although that is certainly important. It is their ability to provide

low-income households with the opportunity to engage in the act of saving for their child's education by removing the barrier of insufficient income. This assumes that it is important to families not only to have college paid for, but also that there is something added or empowering when they have helped pay for education themselves and that they view saving from rewards cards in the same way as deposits they make. And while saving from rewards cards has the potential to be an important part of accumulating assets for college, individual contributions, even when they include saving from spending, are not likely to be enough. Given this, the authors suggest that CSAs and rewards cards should be thought of as elements in a larger asset-building agenda that might include such ideas as an early commitment scholarship program (i.e., putting scholarship money into accounts prior to children turning 18), p-cards (procurement cards that allow cities and employers to earn rebates to fund their CSAs simply by purchasing goods with the card), and wealth transfer from the federal government.

References

- Azzonlini, Davide, Alberto Martini, Enrico Rettore, Barbara Romano, Antonio Schizzerotto, and Loris Vergolini. 2018. "Testing a Social Innovation in Financial Aid for Low-Income Students: Experimental Evidence from Italy." IZA Institute of Labor Economics. <ftp://repec.iza.org/RePEc/Discussionpaper/dp11625.pdf>.
- Bernstein, Jared. 2010. "Perspective from the Left: Children's Saving Accounts, Mobility, and Inequality." *Children and Youth Services Review* 32 (11): 1597-1600.
- Beverly, Sondra. G., Margaret M. Clancy, Jin Huang, and Michael Sherraden. 2015. "The SEED for Oklahoma Kids Child Development Account Experiment: Accounts, Assets, Earnings, and Savings" (CSD Research Brief No. 15-29). Center for Social Development, Washington University, St. Louis, MO. <http://csd.wustl.edu/Publications/Documents/RB15-29.pdf>.
- Beverly, Sondra. G., Youngmi Kim, Michael Sherraden, Yunju Nam, and Margaret Clancy. 2015. "Can Child Development Accounts Be Inclusive? Evidence from a Statewide Experiment." *Children and Youth Services Review* 53: 92-104. doi:10.1016/j.childyouth.2015.03.003.
- Beverly, Sondra, Michael Sherraden, Reid Cramer, Trina R. Williams Shanks, Yunju Nam, and Min Zhan, M. 2008. Determinants of asset holdings. In Signe-Mary McKernan and Michael Sherraden (Eds.), *Asset building and low-income families* (pp. 89-151).
- Bloom, Howard S. 2005. "Randomizing groups to evaluate place-based programs." 115-172 in *Learning More from Social Experiments*, edited by Howard S. Bloom. New York: Russell Sage Foundation.

- Boshara, Ray, Margaret Clancy, David Newville, and Michael Sherraden. 2009. *The Basics of Progressive 529s*. St. Louis, MO: Washington University Center for Social Development; Washington, DC: New America Foundation.
- Center for Advanced Hindsight. 2018. "Using Messenger Effects and Time Progression to Encourage Parents to Save for College." North Carolina, Duke University.
<https://advanced-hindsight.com/case-study/using-messenger-effects-and-time-progression-to-encourage-parents-to-save-for-college/>.
- Clancy, Margaret M. and Sondra G. Beverly. 2017. "Statewide Child Development Account Policies: Key Design Elements." Center for Social Development, Washington University, St. Louis, MO. <https://csd.wustl.edu/Publications/Documents/RR17-30.pdf>.
- Clancy, Margaret, Terry Lassar, and Krista Taake. 2010. "Saving for College: A Policy Primer" (CSD Policy Brief 10-27). Center for Social Development, Washington University, St. Louis, MO.
- CollegeChoice Direct. 2016. "Portfolio Price and Performance." Retrieved July 24, 2016 from: https://www.collegechoicedirect.com/indtpl/fund/pricePerformance.cs?__cookieCheck=true.
- Elliott, William. 2009. "Children's College Aspirations and Expectations: The Potential Role of College Development Accounts (CDAs)." *Children and Youth Services Review* 31 (2): 274-83.
- Elliott, William. 2013. "Small-Dollar Children's Savings Accounts and Children's College Outcomes." *Children and Youth Services Review* 35 (3): 572-85.

- Elliott, William, Eun Hee Choi, Mesmin Destin, and Kevin Kim. 2011. "The Age Old Question, Which Comes First? A Simultaneous Test of Young Adults' Savings and Expectations." *Children and Youth Services Review* 33 (7): 1101-1111.
- Elliott, William, Ben Kite, Megan O'Brien, Melinda Lewis, and Ashley Palmer. 2018. Initial Elementary Education Finding from Promise Indiana's Children's Savings Account Program. *Children and Youth Services Review* 85: 295-306.
- Elliott, William, and Melinda Lewis. 2018. *Making Education Work for the Poor: The Potential of Children's Savings Accounts*. New York: Oxford University Press.
- Elliott, William, Melinda Lewis, Megan O'Brien, Christina LiCalsi, Leah Brown, Natalie Tucker, and Nicholas Sorensen. 2018. "Contribution Activity and Asset Accumulation in a Universal Children's Savings Account Program." Center on Assets, Education, and Inclusion (AEDI), University of Michigan, Ann Arbor.
- Elliott, William, Melinda Lewis, Anthony Poore, and Brian Clark. 2015. *Toward an Agenda for CSA Delivery Systems*. Boston, MA: Federal Reserve Bank of Boston.
- Fisher, Irving. 1930. "The Theory of Interest." New York: MacMillan.
- Glazerman, Steven, Ali Protik, Bing-ru Teh, Julie Bruch, and Jeffrey Max. 2013. "Transfer Incentives for High-Performing Teachers: Final Results from a Multisite Randomized Experiment" (NCEE 2014-4003). U.S. Department of Education, National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, Washington, DC.
- Huang, Jin, Michael Sherraden, Youngmi Kim, and Margaret M. Clancy. 2014. "Effects of Child Development Accounts on Early Social-Emotional Development an Experimental Test." *Journal of American Medical Association Pediatrics* 168 (3): 265-71.

- Huang, Jin, Michael Sherraden, and Jason Q. Purnell. 2014. "Impacts of Child Development Accounts on Maternal Depressive Symptoms: Evidence from a Randomized Statewide Policy Experiment." *Social Science & Medicine* 112: 30-38.
doi:10.1016/j.socscimed.2014.04.023.
- Huddleston, Cameron. 2017. More than Half of American have Less than \$1,000 in Saving in 2017. Retrieved November 17, 2018 from <https://www.gobankingrates.com/saving-money/savings-advice/half-americans-less-savings-2017/>.
- Judkins, David R., and Kristin E. Porter. 2015. "Robustness of Ordinary Least Squares in Randomized Clinical Trials." *Statistics in Medicine* 20 (35): 1763-73.
- Kim, Youngmi, Michael Sherraden, Jin Huang, and Margaret Clancy. 2015. "Child Development Accounts and Parental Educational Expectations for Young Children: Early Evidence from a Statewide Social Experiment." *Social Service Review* 89 (1): 99-137.
- Loke, Vernon, Margaret M. Clancy, and Robert Zager. 2009. Account monitoring research at Michigan SEED (CSD Research Report 09-62). St. Louis, MO: Washington University, Center for Social Development.
- Mason, Lisa Reyes, Yuju Nam, Margaret Clancy, Youngmi Kim, and Vernon Loke. 2010. "Child Development Accounts and Saving for Children's Future: Do Financial Incentives Matter?" *Children and Youth Services Review* 32 (11): 1570-76.
doi:10.1016/j.chilyouth.2010.04.007.
- Mason, Lisa Reyes, Yuju Nam, Margaret Clancy, Vernon Loke, and Youngmi Kim. 2009. *SEED account monitoring research: Participants, savings, and accumulation* (CSD Research Report 09-05). Center for Social Development, Washington University, St. Louis, MO.

- Max, Jeffrey, Jill Constantine, Alison Wellington, Kristin Hallgren, Steve Glazerman, Hanley Chiang, and Cecilia Speroni. 2014. "Evaluation of the Teacher Incentive Fund: Implementation and Early Impacts of Pay-for-Performance after One Year" (NCEE 2014-4019). U.S. Department of Education, National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, Washington, DC.
- O'Brien, Megan, Melinda Lewis, Euijin Jung, and William Elliott. 2017. "Harold Alfond College Challenge (HACC) 2017 Savings Report for Households Who Opted-In to the Program from 2008 to 2013" (AEDI Working Paper 03-17). Center on Assets, Education, and Inclusion (AEDI), University of Michigan, Ann Arbor.
- Prosperity Now. 2018. "The Movement Takes Off: The State of the Children's Savings Field 2017." Washington, DC. <https://prosperitynow.org/resources/movement-takes-state-childrens-savings-field-2017>.
- Raudenbush, Stephen W. 1997. "Statistical Analysis and Optimal Design for Cluster Randomized Trials." *Psychological Methods* 2 (2): 199–213.
- Sallie Mae. 2015. "How America Saves for College." Newark, DE. https://news.salliemae.com/sites/salliemae.newshq.businesswire.com/files/doc_library/file/HowAmericaSaves2015_FINAL.pdf.
- Sherraden, Michael. 1991. *Assets and the Poor: A New American Welfare Policy*. Armonk, NY: M.E. Sharpe, Inc.
- Sherraden, Michael, and Michael S. Barr. 2005. "Institutions and inclusion in saving policy." 286–315 in *Building Assets, Building Wealth: Creating Wealth In Low-Income Communities*, edited by Nicolas P. Retsinas and Eric S. Belsky. Washington, DC: Brookings Press.

Sherraden, Michael, and Julia Stevens, eds. 2010. "Lessons from SEED: A National Demonstration of Child Development Accounts." Center for Social Development, Washington University, St. Louis, MO.

What Works Clearinghouse. 2017. "Standards Handbook" (Version 4.0). U.S. Department of Education, Institute of Education Sciences.

https://ies.ed.gov/ncee/wwc/Docs/referenceresources/wwc_standards_handbook_v4.pdf

Table 1. Characteristics of CSAs and beneficiaries at baseline

Baseline characteristic	Treatment		Control		Standardized mean difference
	Mean	SD	Mean	SD	
Age of beneficiary (child)	11.03	2.30	11.03	2.23	0.00
Percentage of CSAs with at least one contribution in the prior year	12.94	33.58	15.64	36.35	-0.08
Total dollar value of contributions and incentives in prior year	18.55	65.25	24.02	80.16	-0.07
Number of individual contributions in prior year	0.52	2.30	0.62	2.47	-0.04

Table 2. Impact of rewards cards on CSA outcomes during first three months

Outcome	Effect of rewards card (γ)	Standard error	<i>p</i> -value	Effect size (<i>d</i>)
Spender or saver status	0.23	0.02	<.001	0.57
Percentage of CSAs with at least one contribution	0.02	0.01	.084	0.07
Number of individual contributions	0.06	0.03	.031	0.07
Total value (\$) of individual contributions ^a	0.59	0.49	.222	0.01

^a Outlying values more than two standard deviations above the sample mean were excluded from analysis.

Table 3. Impact of rewards cards on total dollars saved during first three months

Outcome	Effect of rewards card (γ)	Standard error	<i>p</i> -value	Effect size (<i>d</i>)
Total dollars saved with 1% rewards on Kroger spend ^a	1.88	0.94	.046	0.07
Total dollars saved with 2% rewards on Kroger spend ^a	2.73	0.96	.004	0.10
Total dollars saved with 3% rewards on Kroger spend ^a	3.58	0.98	<.001	0.13
Total dollars saved with 4% rewards on Kroger spend ^a	4.43	1.01	<.001	0.16
Total dollars saved with 5% rewards on Kroger spend ^a	5.29	1.05	<.001	0.19

^a Outlying values for total value of individual contributions more than two standard deviations above the sample mean were excluded from analysis.

Table 4. One-year savings projections for treatment households among users, by rewards return rates

Outcome	All CSAs in treatment households (population CSA average)		CSAs in treatment households using the rewards card	
	Mean	N	Mean	N
Total dollars saved with 1% rewards on Kroger spend	\$3.31	889	\$12.90	228
Total dollars saved with 2% rewards on Kroger spend	\$6.61	889	\$25.79	228
Total dollars saved with 3% rewards on Kroger spend	\$9.92	889	\$38.69	228
Total dollars saved with 4% rewards on Kroger spend	\$13.23	889	\$51.58	228
Total dollars saved with 5% rewards on Kroger spend	\$16.54	889	\$64.48	228

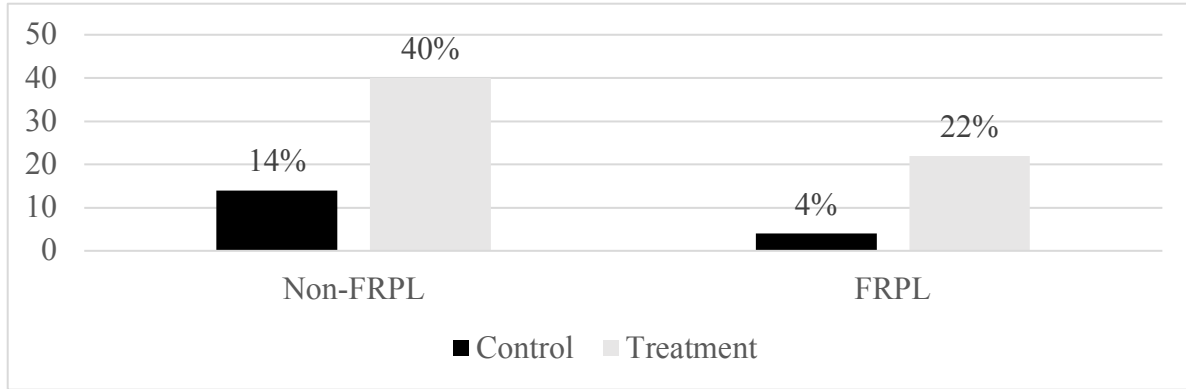


Figure 1. Percentage active CSA savers by condition and FRPL status first three months

Appendix

Wabash County Promise Indiana Program Summary

Origin and target population	Account vehicle	Incentives and features	Funding and administrator
<p>Started in September 2013 in Wabash County, Indiana Now operating in 18 Indiana communities (opt-in enrollment)</p>	<p>Indiana’s state 529 college savings plan, CollegeChoice</p>	<p>Facilitated enrollment in CollegeChoice, particularly through kindergarten enrollment \$25 initial seed deposit Matched savings (range from \$50 to \$100/year, in different implementing communities) Champion deposits from local philanthropies, employers, and private donors College and career discovery activities for all children in participating Promise Indiana schools, starting in kindergarten “Walk into my future” visits to college campuses</p>	<p>Some public dollars, mostly through local community economic development; Promise Indiana grants, mostly funded by philanthropies and individual donors Managed by Wabash County YMCA’s Promise Indiana initiative</p>