The Impact of Grocery Store Rewards Cards on Savings and Asset Accumulation In Children's Savings Account Program

Work Paper

CENTER ON ASSETS, EDUCATION & INCLUSION

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Abstract

Children's savings accounts (CSAs) are designed for accumulating higher education savings with specific incentives and explicit structures to encourage savings, but often benefit low-income families the least because these families' saving efforts are often hurdled by their scarce financial resources. To address this issue, some CSA programs recently experimented with grocery store rewards cards that pay a percentage of purchases directly to CSAs. This study conducted two cluster randomized trials using household-level random assignment to test the impact of a rewards cards program at two different locations: Wabash County Indiana and the City of St. Louis. Findings show the treatment group in Indiana had a greater than three-fold increase in savings activity in CSAs, and in St Louis had a greater than seven-fold increase in savings activity in CSAs. These findings suggest that rewards cards can be an effective strategy for engaging families of different backgrounds in saving activities.

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 and saving tools. While the design and implementation of CSA programs vary substantially, they usually allow deposits from participating children, their parents and relatives, and third parties such as scholarship programs. Ideally these deposits are leveraged with an initial deposit and matching funds adding public or philanthropic funds to families' savings at 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 that are 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. Some CSAs programs allow children, if they do not use their savings for educational purposes by age 25, to use them for other asset building purposes such as buying a home, starting a business, or retirement.

Proliferation of CSAs

The Smaller Dollar CSA Appeal

According to Prosperity Now (2018), as of the end of 2017, there were approximately 65 CSA programs serving 457,000 children in more than 34 states. This is about a 22 percent increase from 2016 (Prosperity Now, 2018). What has led to the expansion of CSAs is not their ability to help children pay for college. 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).

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 at al. 2018).

Despite these important and encouraging findings, CSAs are a financial instrument whose design features (e.g., accounts, match, and incentives), at least in part, are meant to help families build assets 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, programs still are seeking additional ways to facilitate accumulate assets and to create supports to enhance the amount families are able to save.

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, with about 86 percent of all CSAs are built on a 529 platform (Clancy and Beverly 2017, for a discussion of each type of delivery system, see

Elliott et al. 2015). This study uses data both from a program delivered through a 529 plan (Promise Indiana) and a program delivered through a bank (College Kids). However, given that most research conducted to date has been on CSA programs delivered through a 529 plan, this review will primarily focus on these types of programs. These college savings plans are 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).

Saving in CSA Programs

In his groundbreaking book, *Assets for the Poor*, Michael Sherraden (1991) introduced an institutional theory of saving. 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). In this section we review research on to what degree CSAs have altered savings behavior.

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. In SEED OK, savings among children in the treatment groups 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. Studies on SEED showed that high-income families with a CSA are more likely to contribute to their accounts and have contributed more than low-income families with a CSA (Beverly, Kim et al. 2015).

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 of the program

existence, 26 percent of households earning less than $25,000 compared to about 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 compared to $9,833 for households earning $150,000 or more. It is important

to point out that low amounts of saving are not unique to CSAs participants, Americans

generally do not save a lot (Huddleston 2017). However, evidence from SEED and HACC

both illustrate the dilemma for CSA programs; personal income is a barrier to saving, and

low-income families lack income.

Behavioral Approaches to Saving in CSAs

Unlike institutional approaches to saving, which focus on the institution's role in

saving, behavioral strategies focus on the individual's role in saving. Few studies exist on

behavioral strategies to increasing saving in CSAs. Recently, however, the Common Cents

Lab at Duke University conducted a randomized control trial to examine whether different

behavioral approaches increase savings activities among participants of a 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

were more likely to have saving activity (deposit rate = 1.45 percent) than the control

group who did not receive the packet via backpack (deposit rate = 0.29 percent) (Center for

Advanced Hindsight 2018). Overall, however, behavioral approaches have been rarely tested in the CSA field.

Asset Accumulation

CSAs programs are interventions that seek to build assets for children to use as long-term investments. As such, they have the potential to act as the plumbing that helps low-income children build assets through linking them with accounts that allows them to receive both private and public wealth-building transfers. In this sense, CSAs are not just household savings vehicles but also as an institutional structure for asset transfers. What might be termed small-dollar CSAs (i.e., initial deposits between $5 and $1,000) is a starting point of building a financially secure and thrive life. This is evidenced by observation from the SEED OK where more than half ($1,000 out of $1,851) of assets held by children in the treatment group was from the automatic initial seed (Beverly et al. 2015). Similarly, 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). Accumulation outcomes from these interventions underscore the significance of using levers other than family savings to catalyze asset building. It demonstrates the prominent role of CSAs in providing an infrastructure for redistributing wealth.

Research also show that long tenures of account ownership in CSA programs can also facilitate meaningful balances. Using data from the Federal Reserve Bank of Boston from 1997 through 2014, researchers calculate potential CSA balances over the course of 18 years 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). 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).

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

The research reviewed here suggests that while families are saving in CSAs, however low-income families don't seem to benefit most from participating CSAs. This is confirmed in national surveys showed that 65 percent of low-income families reported that inadequate income is a barrier to saving for college (Sallie Mae, 2015). This is not surprising given that low-income families have little discretionary money to save after paying for meeting basic needs. Some poverty and education researchers as well as policy makers question the value of CSAs, even raised concerns whether the program is potentially harmful (Bernstein 2010) because it takes money away from families being able to meet their basic needs. Indeed, one major challenge for CSA programs is helping low-income families save, particularly on reaching the $600 annual savings mark. This mark can be especially difficult for families have multiple children. 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. We are particularly interested in understanding the potential of whether a grocery store rewards card program that pay rewards as a percentage of purchases directly to CSAs, can be an effective tool for helping families reach the $600 annual savings target.

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, also known as loyalty cards, under study provide families in a CSA program the opportunity to save each time they make a purchase at a participating vendor's store including purchases using 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 stores. For example, as part of study one examined herein, the grocery store under investigation 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. In the case of study two, the grocery store under investigation agreed to provide up to 3 percent discount on any purchase made with rewards cards for participants in College Kids, City of St. Louis 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. A progress reminder is given each time a CSA participant make purchases with the rewards card. The reminder is not a special feature of the CSA/rewards program, rather all rewards programs provide this information.

Theory

The authors posit modest saving participation in existing CSA models is due partly

to the current CSA designs that do not completely adhere to the principle of facilitation, namely making saving automatic. Even in CSAs where enrollment occurs automatically, saving does not. Instead, CSAs often use program features such as offering matches and incentives to engage saving efforts. Rewards cards are an innovative approach of facilitating saving and asset accumulation in CSA programs, sought to resemble automatic saving by transforming spending into saving. 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. The current study examines the effects of two reward cards interventions on saving activity in the context of CSA programs.

Study Descriptions

In two studies, we examine the impact of providing access to a grocery store rewards card program as a supplement to CSA programs in Wabash County, Indiana and St. Louis, Missouri. We chose these areas because they currently have a CSA program in place, and they are very different demographically. These differences are important for understanding the generalizability of the findings; that is, will rewards cards work in very different locations among very different populations.

Study 1: Promise Indiana

Study 1 was conducted as part of Wabash County's CSA program as part of Promise Indiana. Wabash County is a rural area with 79.7 people per square mile (land area of 412.4 square miles). Its population of 31,443 is nearly entirely White (96.7%), followed by Hispanic or Latino (Census Bureau, 2017). Most residents (88.7%) have completed at least a high school degree and nearly one-fifth have completed a bachelor's

degree or higher (18.7%). While only 13% of individuals in Wabash County live below the federal poverty line, for those who fail to complete high school, the rate jumps to 25.6% and drops to 3.3% for those who have completed at least a bachelor's degree (American Community Survey, 2017).

Promise Indiana is a state-supported, 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. Most 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. 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. Promise Indiana is funded through some public dollars; however, it is mostly funded through philanthropies and individual donors.

Study 2: St. Louis' College Kids

Study 2 was conducted as part of St. Louis' College Kids program, a city-wide

saving intervention designed to cultivate college-bound identity, and to build savings and assets for children's educational future. In contrast to Wabash County (79.7 people per square mile), St. Louis has 5,157.5 people per square mile (land areas of 79.7 square miles). Its population of 308,626 (Census Bureau, 2017) is made up of almost half (47.9%) African Americans and a similar portion (45.6%) of whites. Only about a third (34.6%) of the population has a bachelor's degree or higher. Large racial gaps exist in educational attainment between white and black groups in St Louis: 37.2% of whites have a college education, while 18.6% of blacks have college education (American Community Survey, 2017). The percentage of blacks in St. Louis with a college education is very similar to the percentage of whites in Wabash County who have completed a bachelor's degree. However, poverty is higher in St. Louis than in Wabash County. Over a quarter (26.7%) of St Louis residents live blow the federal poverty line (American Community Survey, 2017). Moreover, black families in St. Louis are far more likely to be poor than white families. Black families living in St. Louis are for times more likely to be living in poverty than white families (33.3% versus 8.5%).

Launched in 2015, St. Louis' College Kids Program is an opt-out program. It opens accounts with an initial deposit ($50) for all Kindergarten students enrolled in St. Louis public or charter schools. To promote a broad, active participation, College Kids provides participants incentives to engage in savings through various mechanisms such as school attendance, financial education course, and saving matches. Further, for every dollar put into the child's account, the City matches with an additional dollar up to $100 annually. The program is administered by the St. Louis Treasurer's Office in partnership with 1st Financial Federal Credit Union and is funded with a mix of public funding, private donations, and corporate donations.

Research Questions

To test the impact of providing rewards cards designed to facilitate automatic saving through everyday expenditures on groceries, we conducted two cluster-randomized trials--one in partnership with Promise Indiana (Study 1) and one in partnership with St. Louis College Kids (Study 2), randomly assigning households to receive a grocery store rewards card or to a delayed-treatment control condition. We address three research questions:

1. What is the impact of providing grocery store 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 (i.e., whether or not households contributed to the CSA, total number of contributions, and total value of contributions)?

    c. total dollars saved (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])?[1]

3. Among families that receive rewards cards, what is the projected average total dollars saved after one year based on data on spending at partnering grocery stores during the timeframe for each study?

Study 1 Methods

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[1] We were unable to address this question for Study 2 (St. Louis College Kids) because we did not have access to information on family economic disadvantage (e.g., FRPL status).

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).[2] During a 10-month time frame (March 5, 2018, to December 31, 2018) we examined outcomes for households in the treatment and delayed-treatment control conditions; households assigned to delayed-treatment control continued "business-as-usual" use of their CSA(s) for the 10-month period of the study. Delivery of the rewards cards was delayed more than a month following random assignment (March 5, 2018).

Random Assignment and Baseline Equivalence

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[2] 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.

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, 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 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 0.13.

Measures

Spender or saver status. We coded each CSA as *0* if there were no individual contributions and no rewards following random assignment, and as *1* if there was at least one individual contribution made or rewards applied to the CSA.

Whether households made any contributions to their CSA(s). We coded each CSA as *0* if there were no individual contributions following random assignment, and as *1* if

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there were one or more contributions.

Number of individual contributions. For each CSA, we calculated the number of individual contributions following random assignment.

Total dollars saved. To calculate the total dollars saved following random assignment, we added the following three measures, resulting in five outcome variables given different projected return rates on rewards.

Rewards earned after nine months. To estimate the rewards earned in each CSA within a treatment household after nine months we first divided the total amount spent at the grocery store 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.[3]

Total dollars saved from individual contributions: For each CSA, we calculated the total dollars contributed following random assignment.

Total dollars earned from incentives for individual contributions: For each CSA, we calculated the total incentive dollars earned from individual contributions following random assignment.

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 dividing the total dollars spent at the grocery store during the 9 months of implementation by 9 (to estimate average rewards per month) and multiplying the quotient

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

by 12 (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 (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 estimates household intercepts as random effects. An example of the model used to test the impact of the rewards card on total dollars saved following random assignment (RQ1C) is detailed below:

Level 1

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

Level 2

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

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

Where $TotalDollarsSaved_{ij}$ represents the outcome for CSA i in household j predicted by the household mean intercept. $Baseline_{ij}$ represents the total value of all contributions and incentives in the year prior to random assignment (to provide residual adjustment for baseline standardized mean difference of 0.13 per What Works Clearinghouse Evidence Standards (2017) suggests including baseline characteristics with standardized mean differences above 0.05 but below 0.25 as covariates in the impact model. $Treatment_j$

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).

Study 1: 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 the grocery store 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. After nine months, only 27.67 percent of CSAs in control households had savings activity. In contrast, 48.18 percent of CSAs in the treatment households had savings activity via rewards spending or individual contributions, a nearly two-fold

increase in savings activity in CSAs in the treatment group, and this effect did not differ by household FRPL status: $\gamma = -0.01$, SE = 0.04, $p = .759$.

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. As shown in Table 2, we did not find evidence of the rewards cards having an impact on the percentage of CSAs with at least one contribution, the number of individual contributions, or the total value of individual contributions (excluding N=31 outliers with contributions more than two standard deviations above the mean) after nine months of implementation. We also did not observe differences by household FRPL status on these outcomes (all p's > 0.57).

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 the grocery store) after nine months of implementation. We tested impacts assuming five different rewards return rates (1 percent to 5 percent) on dollars spent at the grocery store. As shown in Table 3, after nine months, providing rewards cards significantly increased total dollars saved among CSAs in treatment households when a 5 percent return rate is applied with an effect size of d=0.10. These simulated effects on total dollars saved did not differ by FRPL status (all p's > .72).

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 the grocery store spend rates after the first

nine 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 50 percent of CSAs benefiting from use of the rewards card in the first nine months.

Study 2: Methods

Participants

The study included 9,586 CSAs belonging to 8,351 households in May 2018 as part of St. Louis College Kids. Among these households, 87 percent had one child with a CSA, 11 percent had two children with CSAs, and 3 percent had three or more children with CSAs. The vast majority of households (75 percent) had CSAs with only a seed deposit, approximately 1 in 5 households had at least one child with a CSA that received an incentive(s) (e.g., for good attendance, participation in a financial education opportunity), and a small portion of households (3 percent) were prior "savers" (i.e., they had previously made at least one contribution to at least one of their CSAs).

Overview of Study Design

The study employed the same design as in Study 1 with households randomly assigned to receive a rewards cards (treatment) or twelve months later (delayed-treatment control). This paper provides a preliminary look at outcomes between the date of random assignment (May 15, 2018) through December 31, 2018 (five months following delivery of the rewards cards).

Random Assignment and Baseline Equivalence

As in Study 1, for Study 2 we conducted blocked and clustered random assignment of CSAs to condition. However, in St. Louis, individual CSAs were not linked within household, so we created family identifiers (linking multiple CSAs within the same

household) using the address on file. The sample of 9,586 CSAs belonging to 8,351 households described above excluded 473 CSAs that could not be linked due to limitations on information provided (e.g., missing unit numbers in buildings containing multiple units). These 473 CSAs will receive rewards cards as part of delayed treatment. Our sample of 8,351 households was blocked using three variables: (1) the number of accounts within the household (one, two, three, or more); (2) whether at accounts within the household contained only a seed deposit, or whether at least one account within the household contained a seed deposit and incentives (not requiring a contribution), or a seed deposit, incentives and a contribution prior to the study (saver status); and (3) the total assets across CSAs within the household ($0-50, $51-100, $101-500, $501-1000, more than $1000).

We did not have access to information about family economic disadvantage (e.g., FRPL status) in St. Louis and were unable to account for this in our blocking approach. However, we added total prior assets as a blocking variable in this study given outlier contributions observed at baseline in Study 1. Thus, households were randomly assigned within 45 possible blocks (two variables with three levels, one variable with five levels). 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. 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 5) that exceeded the absolute value of 0.03.

Measures

Spender or saver status. We coded each CSA as *0* if there were no individual

contributions and no rewards between the date of random assignment (May 15, 2018) through December 31 2018, and as *1* if there was at least one individual contribution made or rewards applied to the CSA during that time.

Spender, incentive user, or saver status. In addition, to the *spender or saver status* measure, in Study 2, we coded each CSA as *0* if there were no individual contributions, incentives and no rewards following random assignment, and as *1* if there was at least one individual contribution made, one incentive applied, or rewards applied to the CSA.

Whether households made any contributions to their CSA(s). We coded each CSA as *0* if there were no individual contributions following random assignment, and as *1* if there were one or more contributions.

Participation in incentivized activity. We coded each CSA as *0* if there were no incentives applied during the study timeframe, and as 1 if there were one or more incentives following random assignment.

Number of individual contributions. For each CSA, we calculated the number of individual contributions following random assignment.

Total dollars saved. To calculate the total dollars saved during the study timeframe, we added the following four measures:

Rewards earned after five months: For each CSA, we calculated the total dollars earned from rewards from August through December of 2018.[4] In contrast to Study 1, in St. Louis, rewards are not distributed across CSAs within the household; they are only

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[4] CSAs receive 1% rewards on monthly spend between $0-$300, 2% rewards on monthly spend between $301-$600, and 3% rewards on monthly spend between $601-$999. Spending exceeding $999 receives no additional contributions.

applied to the CSA associated with the rewards card used.

Total dollars saved from individual contributions: For each CSA, we calculated the total dollars contributed following random assignment.

Total dollars earned from matched individual contributions: For each CSA, we calculated the total match dollars earned from individual contributions following random assignment. Upon receipt of transaction data, we learned that St. Louis College Kids applies rewards as personal contributions and consequently also matches these "contributions," thereby doubling the rewards earned for families. We calculated the total dollars with and without dollars matched based on rewards and analyze and report results separately.

Total dollars earned from participating incentivized activities: For each CSA, we calculated the total incentive dollars earned from incentivized activities following random assignment.

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 dividing the total rewards earned after the 5 months of implementation by 5 (to estimate the average rewards per month) and multiplying the quotient by 12 (simulating 12 months of rewards for rewards card users).

Analytic Approach

Study 2 used the same analytic approach as Study 1.

Study 2: Results

Spender or Saver Status

We again find strong evidence of greater saving activity (spender or saver status) among CSAs within households assigned to the treatment group (see Table 6). After five

months of implementation of the rewards card program, only 1.84 percent of CSAs in control households had savings activity. In contrast, 13.03 percent of CSAs in the treatment households had savings activity via rewards spending or individual contributions, a greater than seven-fold increase in savings activity in CSAs in the treatment group. Because beneficiaries of CSAs in St. Louis can also increase dollars saved by participating in incentivized activities (e.g., high student attendance, parent participation in financial education activities), not only through individual contributions or use of the rewards card, we similarly examined the impact of the rewards card program after five months of implementation on whether CSAs had savings activity via rewards spending, incentivized activities or individual contributions. We observed a similar statistically significant positive impact (see Table 6). After five months of implementation of the rewards card program, 19.34 percent of CSAs in control households had savings activity. In contrast, 27.13 percent of CSAs in the treatment households had savings activity via rewards spending, incentivized activities or individual contributions, increasing the percentage of CSAs with savings activity by nearly 7 percentage points.

Household Contributions and Incentivized Activities

The next question is whether the 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, participation in incentivized activities alone, or all three. As shown in Table 6, we did not find any evidence of impacts of the rewards card program after five months of implementation on the percentage of CSAs that received incentives (for completing incentivized activities), the percentage of CSAs that had at least one individual contribution, the number of individual contributions, or the total dollar value of individual

contributions.

Total Dollars Saved

Finally, we examined whether providing access to rewards cards increased the total dollars saved (via rewards card usage, individual contribution, and/or incentivized activities) after five months of implementation. As shown in Table 6, excluding the match on rewards provided by St. Louis College Kids described earlier, we did not yet observe a statistically significant increase in total dollars saved as a result of implementation of the program for five months (average of $9.54 for CSAs in the control group, and an estimated average of $10.42 for CSAs in the treatment group). However, when we include the matched rewards applied by St. Louis College Kids, we observe a marginally significant increase in total dollars saved following five months of implementation (average of $9.54 for CSAs in the control group, and an estimated average of $11.03 for CSAs in the treatment group).

Projected Rewards Dollars Saved After One Year

As in Study 1, we were also interested in examining the average projected dollars saved after one year for CSAs in treatment households based on spend rates after the first five months. Across all CSAs in the treatment group following five months of implementation, the average rewards totaled $0.29 ($0.58 when matched is applied by St. Louis College Kids), resulting in an estimated $0.69 in rewards after one year ($1.38 when match is applied). Among the N=547 CSAs that earned rewards in the five three months (11% of the CSAs in the treatment group),[5] the rewards averaged $5.00 after five months ($10.00 when match is applied), resulting in an estimated $12.01 in rewards after one year

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[5] This number is conservative given that many of the treatment group CSAs didn't receive the cards.

for users ($14.02 when is applied).

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 to poverty have had no answer to low levels of saving activity due to scarce financial resources available among low-income family participants to engage saving. While research has shown that low-income families can and do save, the amount of money saved are rather small. Few attempts in the CSA field tried to address this issue. The recent innovation, rewards card program, is designed to leverage the CSA infrastructure by putting money into accounts other than personal savings from income in order to help low-income families save in their CSA accounts. This study examines the impact of the rewards cards' programs on saving activity and asset accumulation in a CSA setting among low-income families.

Findings from this study demonstrate a causal link between participating in a rewards card program and savings activity in both Wabash County and St. Louis. These findings suggest that rewards card programs can help make CSAs 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) in Wabash County. The citizens of Wabash County are almost exclusively white. Moreover, Wabash county is a rural area with relatively high savings activity compared to most other existing CSA programs (see Elliott, 2018). This raises questions about whether rewards cards would also be effective in an ethnically diverse urban setting with very low savings activity documented; we find similar results in St. Louis, an urban

metropolitan in the Midwest with a high number of low-income African Americans. Specifically, we find that treatment households in St. Louis were seven times more likely to have savings activity than the control group (11.65 percent vs. 1.65 percent, respectively).

CSAs are designed with the goal of helping low-income families save and build assets. Therefore, the question of whether the impacts are strongest among poor households is of great importance. In the case of Wabash County, the effects on savings activity are larger for households participating in the FRPL program than those who are not. FRPL data were not available in St. Louis, so we were not able to test whether the effects were larger among households participating in study two.

There is little evidence in either 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 activity 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 when there are no additional resources for saving. The ability of the rewards card program to transform spending into saving is potentially transformational for CSA programs. 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

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savings activity in the treatment group was caused by the rewards card program and not by individual contributions.

In the two studies, we also find different impacts regarding asset accumulation. Such difference may due to the different lengths of implementation of the rewards card programs. In the case of St. Louis, we find no statistically significant difference in total dollars saved after three months. However, in the case of Wabash County we find that treatment households accumulated more assets than did the control group. 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.

In Wabash County, the projected savings from the rewards cards at the end of year one with a rebate of 4 percent would be $51.58. Participants can earn up to $600 per year (it is capped by the grocery store 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.[6] The amounts would be smaller in the case of St. Louis. Across all CSAs in the treatment group following three months of implementation, the average rewards totaled $0.35, resulting in an estimated $1.40 in

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[6] Whether a family reaches the $600 maximum depends both on the amount of money a household spends at the grocery store 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.

rewards after one year. The projected average rewards after one-year increase when looking at only those participants who used their reward card, but they would still be modest. Among all the CSAs (n=463) that earned rewards in the first three months (10% of the CSAs in the treatment group),[7] the rewards totaled $3.61 after three months, resulting in an estimated $14.44 in rewards after one year for users.

Policy Implications

The finding of a causal link between rewards cards and saving activity in both Wabash County and St. Louis has important policy implication. This finding has the potential to broaden the way CSA programs assess an engaged saver. CSA programs often offer some form of match (for example, for every dollar saved, an additional dollar is put into the account up to a set amount), with a cap on matching (e.g. $250 annually). Past research shows that matches often benefit higher income families who save more and are more likely to meet the full annual match amount than their lower income counterparts (Elliott, 2018). As a result, match programs can end up disproportionately benefiting higher income households. There has been little attempt to design CSA interventions that help low-income families to more equitably benefit from matches offered by most CSA programs. 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, whether it be the more rural low-income families in the Wabash County or the urban families in City of St. Louis, value setting aside money for college and will do so if income barrier is

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[7] This number is conservative given that many of the treatment group CSAs didn't receive the cards.

removed. 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 possible way of designing institutional programs to overcome the barrier of lack of money is to add elements that transform spending into saving such as 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 suggested that savers have better educational outcomes than non-savers (Elliott, Kite, et al. 2018; Elliott, Lewis et al. 2018). While it is not yet conclusive if saving in a CSA produces effects above and beyond owning an account, a relevant question is whether saving through rewards cards produces additional effects. Given this, we suggest that future research examines 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 that families are spending at grocery stores. 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 the grocery store. There is anecdotal evidence that the grocery 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 the grocery store. Households whose children attend this school are shopping far less at the grocery store 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

While 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), this study provides promising preliminary evidence that access a grocery store rewards card that adds money to families' CSA accounts more than triples the proportion of families engaged in saving activity, particularly for lower-income families. These savings from using rewards cards 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 engage 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.

This study also shed lights on the definition of saving engagement. Our finding suggest engagement in saving should 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 the grocery store's investigated here 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.

One of the most alluring elements of rewards card programs is 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.

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Table 1. Study 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	41.14	49.24	39.98	49.01	0.02
Total dollar value of contributions and incentives in prior year	140.65	590.03	79.16	332.13	0.13
Number of individual contributions in prior year	1.59	3.89	1.50	3.80	0.02

Table 2. Study 1: Impact of rewards cards on CSA outcomes after nine months of implementation

Outcome	Effect of rewards card (γ)	Standard error	p-value	Effect size (d)
Spender or saver status	0.21	0.02	<.001	0.43
Percentage of CSAs with at least one contribution	0.02	0.02	.438	0.04
Number of individual contributions	0.15	0.15	.326	0.04
Total value ($) of individual contributions[a]	0.13	6.72	.984	0.00

[a] Outlying values more than two standard deviations above the sample mean (N=31) were excluded from analysis.

Table 3. Study 1: Impact of rewards cards on total dollars saved after nine months of implementation

Outcome	Effect of rewards card (γ)	Standard error	p-value	Effect size (d)
Total dollars saved with 1% rewards on grocery store spend [a]	6.57	7.26	.365	0.04
Total dollars saved with 2% rewards on grocery store spend [a]	8.80	7.29	.227	0.06
Total dollars saved with 3% rewards on grocery store spend [a]	11.03	7.32	.132	0.07
Total dollars saved with 4% rewards on grocery store spend [a]	13.26	7.37	.072	0.08
Total dollars saved with 5% rewards on grocery store spend [a]	15.50	7.42	.037	0.10

[a] Outlying values for N=31 CSAs for total value of individual contributions more than two standard deviations above the sample mean were excluded from sums of total dollars saved for those CSAs.

Table 4. Study 1: 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 grocery store spend	$2.82	909	$5.67	451
Total dollars saved with 2% rewards on grocery store spend	$5.63	909	$11.35	451
Total dollars saved with 3% rewards on grocery store spend	$8.45	909	$17.03	451
Total dollars saved with 4% rewards on grocery store spend	$11.27	909	$22.71	451
Total dollars saved with 5% rewards on grocery store spend	$14.08	909	$28.39	451

Table 5. Study 2: Characteristics of CSAs and beneficiaries at baseline

Baseline characteristic	Treatment		Control		Standardized mean difference
	Mean	SD	Mean	SD	
Percentage of CSAs with at least one contribution in the prior year	2.23	14.77	2.21	14.70	0.00
Percentage of CSAs with incentives applied for participation incentivized activities	5.67	23.14	5.49	22.78	0.01
Total dollar value of contributions and incentives in prior year	23.88	53.43	24.20	63.12	-0.01
Number of individual contributions in prior year	0.33	2.60	0.41	2.66	-0.03

Table 6. Study 2: Impact of rewards cards on CSA outcomes after five months of implementation

Outcome	Effect of rewards card (γ)	Standard error	p-value	Effect size (d)
Spender or saver status	0.11	0.01	<.001	0.43
Spender, incentive user, or saver status	0.08	0.01	<.001	0.19
Percentage of CSAs with at least one incentive applied	0.00	0.01	.942	0.00
Percentage of CSAs with at least one individual contribution	0.00	0.00	.893	0.00
Number of individual contributions	0.01	0.03	.764	0.01

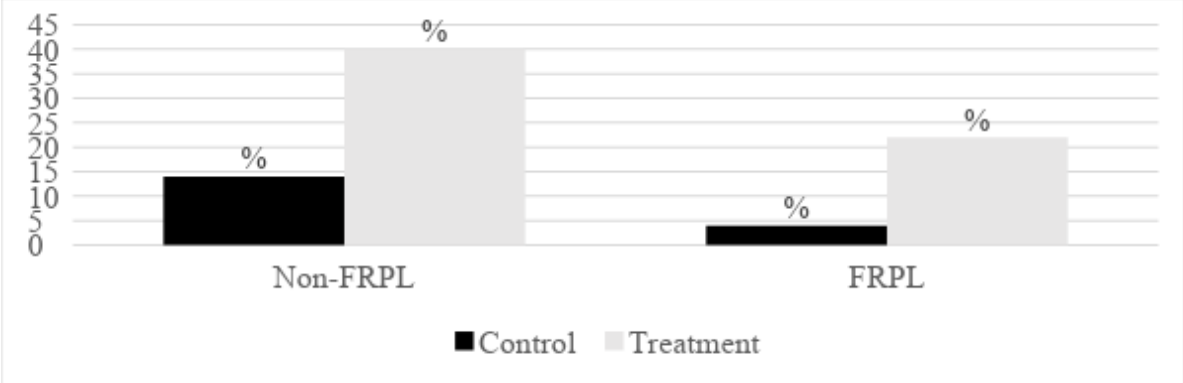|				
Total value ($) of individual contributions	0.37	0.62	.556	0.01
Total dollars saved (without matched rewards)	0.88	0.78	.258	0.02
Total dollars saved (with matched rewards)	1.49	0.79	.059	0.03

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
Started in September 2013 in Wabash County, Indiana Now operating in 18 Indiana communities (opt-in enrollment)	Indiana's state 529 college savings plan, CollegeChoice	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	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