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GEORGE WARREN BROWN SCHOOL OF SOCIAL WORK

# The SEED for Oklahoma Kids Experiment

## Initial Account Opening and Savings

Robert Zager

Youngmi Kim

Yunju Nam

Margaret Clancy

Michael Sherraden

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Campus Box 1196 One Brookings Drive St. Louis, MO 63130-9906 • (314) 935.7433 • [csd.wustl.edu](http://csd.wustl.edu)



Washington University in St. Louis

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# The SEED for Oklahoma Kids Experiment: Initial Account Opening and Savings

The SEED for Oklahoma Kids (SEED OK) experiment is a large-scale study of universal Child Development Accounts with randomly-selected newborn children in the state. SEED OK aims to investigate the policy innovation of giving every child an account at birth, and test whether participation has an impact on family attitudes and behaviors, saving for the child, and child development outcomes. Participants in the SEED OK experiment were randomly assigned to a treatment group or a control group. SEED OK is a partnership of the State of Oklahoma (Treasurer's Office, Department of Health, Department of Human Services, Tax Commission, and Oklahoma College Savings Plan), the Center for Social Development (CSD), and RTI International (RTI).

Data for this report come from Oklahoma birth records, a baseline telephone survey, and Oklahoma College Savings Plan (OCSP)<sup>1</sup> account and savings records. This report addresses the questions: 1) Who are SEED OK participants? 2) How many and what types of accounts were opened and how much was deposited into these accounts? 3) Do participants in the SEED OK treatment group open more accounts and make greater deposits into OCSP accounts relative to the control group? and 4) Do the effects of SEED OK on account opening and deposit amounts differ by demographic and socioeconomic characteristics of participants?

To answer these questions, this report first describes the SEED OK program and study design, including sampling and data collection. Second, we outline treatment incentives and information in SEED OK. Third, we identify the demographic and household characteristics of the study participants. Fourth, we describe OCSP account opening rates and deposit amounts for SEED OK children. Fifth, we compare demographic and household characteristics of those who opened participant-owned accounts with those who did not. Finally, we estimate whether SEED OK increased account opening and deposit amounts overall and among subgroups by comparing savings outcomes between treatment and control participants.

## Background

Saving for college may promote long-term socioeconomic development of young people through multiple pathways. A college degree has become an almost necessary credential in getting a job with a living wage and benefits. For decades, the earnings gap between college and high school graduates has increased (Acemoglu, 2002). At the same time, college tuition and related costs have risen dramatically, often twice as fast as the overall inflation rate (FinAid, 2010).

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<sup>1</sup> The OCSP is a state-sponsored 529 education savings program created to help families save for college. Details are provided later in this report.

<sup>2</sup> The sample frame is not self-selected. However, as described on page 4, study participation decisions among those who were invited to participate may have produced a selection bias: 38% of those individuals selected from the sampling

Savings helps young people and their families pay for college expenses and, therefore, may assist them in staying in and graduating from college. Assets, especially savings for college, may motivate children to study hard and prepare for college while increasing future orientation (Nam, Huang, and Sherraden, 2008; Oliver & Shapiro, 1997; Sherraden, 1991). Empirical evidence suggests that household assets, especially financial assets, have a positive association with children's educational attainment, including college education (Conley, 1999; Keister, 2000; Nam & Huang, 2009; Zhan, 2006; Zhan & Sherraden, 2003, 2009, 2010). Many families, however, save little for their children's future. According to Bucks, Kennickell, Mach, and Moore (2009), savings amounts are, on average, lowest among parents in a racial or ethnic minority group and those with less education. Households headed by a college graduate averaged \$95,700 in financial assets, while those headed by a non-high school graduate had \$3,000. Non-Hispanic White families held an average of \$44,300 in financial assets, compared to \$9,000 for non-White or Hispanic families. And of those who do save, high-income parents tend to start saving earlier than lower-income parents (Sallie Mae & Gallup, 2009). Across all income and demographic groups, though, only 5% of 529 College Savings Plan beneficiaries under age 21 are 2 years of age or under (Bearden, 2009), so there is an opportunity to encourage families to start saving earlier.

Recognizing the potential of asset building for children and difficulties associated with saving, several countries have adopted Child Development Accounts (CDAs), including Canada, Singapore, the Republic of Korea, and the United Kingdom (Loke & Sherraden, 2009). CDAs are accounts for children that provide a structured opportunity to save and accumulate assets (Mason, Nam, Clancy, Kim, & Loke, 2010; Sherraden, 1991). These accounts may offer lifetime accumulation potential and positive psychological and behavior effects, and have bipartisan political appeal (Sherraden & Stevens, 2010). Interest in CDAs has grown in the United States, as shown by legislative discussion of several bills at the federal level: the America Saving for Personal Investment, Retirement, and Education (ASPIRE) Act, 401Kids Accounts, and Baby Bonds (Cramer & Newville, 2009; Loke & Sherraden, 2009). No federal CDA legislation has as yet been passed in the United States.

Current government policies in the United States are regressive in terms of asset building in general and college savings policies in particular. For example, contributions and earnings in 529 College Savings Plans grow tax free, and many states offer tax deductions for contributions to 529s. Low-income families have low or no tax liabilities, so they do not benefit from such policies (Clancy, Orszag, & Sherraden, 2004).

### **SEED for Oklahoma Kids Experiment**

SEED for Oklahoma Kids (SEED OK) is a social experiment that tests the potential of universal and progressive CDAs in the United States. SEED OK targets every child, while particularly benefiting children from low- and moderate-income families. Built upon the existing 529 college saving plan policy in Oklahoma (the Oklahoma College Savings Plan, or OCSP), SEED OK provides an account to the child of every treatment participant and saving matches to income-eligible families. As the first randomized, controlled trial of a universal and progressive CDA in the United States, SEED OK aims to assess CDA feasibility while investigating short- and long-term impacts on savings for children, parenting practices, and children's developmental outcomes.

Partnering with the State of Oklahoma (Treasurer's Office, Department of Health, and Oklahoma College Savings Plan), SEED OK tests a unique and innovative policy design. The sample for

SEED OK is drawn from 2007 birth records provided by the Department of Health. Therefore, the SEED OK study sample is likely representative of the target population of children born in Oklahoma, not self-selected individuals. In this way, SEED OK overcomes selection bias in the sampling frame, a common limitation of most social experiments (Manski & Garfinkel, 1992).<sup>2</sup> SEED OK randomly assigns study participants into the treatment and control groups, and this type of experimental design is considered the most rigorous method for evaluating the impacts of an intervention (Manski & Garfinkel, 1992; Orr, 1999). Furthermore, SEED OK obtains data on savings in accounts from the OCSP Program Manager instead of relying on study participants' self-report.

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<sup>2</sup> The sample frame is not self-selected. However, as described on page 4, study participation decisions among those who were invited to participate may have produced a selection bias: 38% of those individuals selected from the sampling frame were located by the research team, consented to participate in the study, and completed the baseline survey questionnaire. Limitations are discussed in detail later in this report.

## SEED OK Research Methods

### *Data*

The SEED OK impact assessment results described in this report utilize three types of data: 1) birth records; 2) baseline survey; and 3) OCSP account and savings. Birth records were provided by the Oklahoma Health Department at the beginning of the study. Birth record data have information on basic demographics and health (e.g., children's gender and birth weight) as well as information on birth mothers and fathers (e.g., education and race). Birth records were used as a sampling frame and provide useful information for data analyses.

Baseline survey data were collected by RTI for all children in the sample before random assignment placed children into the treatment or control group. The data were gathered through telephone interviews from the mothers<sup>3</sup> of sampled children, also referred to as participants. These data have detailed information on demographic and household characteristics as well as child development and parenting practices for the 2,704 study participants who completed the baseline survey.<sup>4</sup>

This report also uses OCSP account and savings data containing information on every OCSP account that lists a SEED OK child as the account beneficiary. Every calendar quarter, TIAA-CREF, the OCSP program manager, delivers account and savings data to the Treasurer's office. The Treasurer's office then utilizes a CSD-created management database to export selected data to CSD. These account data provide detailed information such as: account balance; quarter-to-date, year-to-date, and life-to-date deposits and withdrawals; and owner relationship to beneficiary for all accounts owned by individuals. Each quarter, CSD performs regular, systematic data checks to identify any problems or missing values, and resolves data questions directly with the OCSP program manager. The account and savings data used in this report were collected from January 1, 2008 through June 30, 2009, and released by agreement with the OCSP Board.

### *Sample*

Using Oklahoma State Department of Health birth records, RTI drew two samples from all births in the state during two three-month periods: 1) 3,676 children born April through June 2007, and 2) 3,652 children born August through October 2007 (Marks, Rhodes, & Scheffler, 2008). The second sample was drawn because the response rate from the first sample did not provide a large enough sample size. Three racial and ethnic groups of interest were oversampled to ensure sufficient statistical power for separate analyses with each group: African Americans, American Indians, and Hispanics. From the total sample of 7,328 birth records, 7,115 were defined as eligible for SEED OK.<sup>5</sup>

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<sup>3</sup> In very rare circumstances, someone other than the mother or mother figure completed the interview. Exceptions were made on a case-by-case basis, typically because the household had experienced a tragedy. For these cases, the father, grandparents, older siblings, or other caregivers were interviewed (Marks, Rhodes, & Scheffler, 2008).

<sup>4</sup> SEED OK study participants who completed the baseline survey received \$40 for their time.

<sup>5</sup> Twins from the same family are not independent observations from each other, and this lack of independence reduces the efficiency of estimations (Greene, 2003). The SEED OK research team decided before drawing the sample that only the oldest child from any multiple births by a mother would be considered for SEED OK. Thirty-one younger twins were dropped. An additional 182 cases were identified as ineligible due to infant or maternal death.

Mothers of infants were invited by letter to participate in the SEED OK study by the State Treasurer and were told that they had a 50-50 chance of receiving an Oklahoma College Savings Plan (OCSP) account with \$1,000 for the child. They were also told they would have to complete three 45-minute interviews over the course of seven years.

Eligible mothers were also told they would have to provide the child's Social Security Number (SSN).<sup>6</sup> This SSN request was unavoidable in the study and may have been a barrier to participation. Among 7,115 eligible participants, 6,133 caregivers of infants were located by the RTI research team (an 86% location rate). Of those who were located, 2,704 agreed to participate in the study and completed telephone interviews conducted from fall 2007 through spring 2008.<sup>7</sup> The overall study response rate is 38% (Nam, Mason, Kim, Sherraden, & Clancy, forthcoming).

Bi-variate analysis<sup>8</sup> of information from birth records shows that participants (those who completed telephone interviews) did not differ statistically from eligible nonparticipants on the following variables: child race, child gender, child birth weight, mother's marital status, mother's birthplace (Oklahoma or not), father's age, geographical area, and urbanicity. Participation in the SEED OK study did differ by mother's age (participants are slightly older; mean age of 25.5 vs. 25.2 years), mother's education (participation highest for those with a BA degree or more), father's education (again, participation highest for those with BA degree or more), and whether mothers were recruited for the study from August-December 2007 or January-April 2008 (participation higher for the 2007 group). These findings are consistent with results of research on survey participation showing that educated and older individuals are more likely to complete a survey (Abraham, Maitland, & Bianchi, 2006; Oropesa & Landale, 2002). In this study, we are fortunate to know these basic characteristics of nonparticipants, and it will be possible to adjust for these differences in assessing impacts for the Oklahoma population. Also, it is important to note that non-participation in the study is an artifact of the research requirements and cannot be interpreted as information about CDA participation. Under a universal CDA policy with automatic enrollment, these research-oriented barriers to participation would not be issues.

### *Treatment and Control Assignment*

Following the telephone baseline survey, RTI randomly assigned 2,708 participants to treatment and control groups (Table 1). This includes the 2,704 participants who completed the baseline survey telephone interview and four<sup>9</sup> who were determined after assignment not to have completed an interview. As shown in Table 1, among the 1,260 study participants who were notified of their treatment or control status in January 2008, 618 were assigned to the treatment group and the remaining 642 to the control group. Similarly, 743 of 1,448 participants notified in May 2008 were assigned to the treatment group and 705 to the control group. The final treatment group consists of 1,361 participants, while the control group has 1,347.

Overall, the treatment group is similar to the control group on observed characteristics (Kim & Nam, 2009). This result suggests that the treatment and control groups do not systematically differ,

<sup>6</sup> The child's Social Security Number was required to open the Oklahoma College Savings Plan account.

<sup>7</sup> 218 telephone interviews were completed in Spanish.

<sup>8</sup> Statistical significance was at 0.05 level.

<sup>9</sup> Among the four participants who did not complete the baseline survey, three were assigned to the treatment group and one was assigned to the control group. Thus, 1,358 treatment and 1,346 control participants completed the survey.



at least for observed characteristics, except in terms of their access to the treatment—a condition that an experiment aims to create for impact assessment (Orr, 1999). In SEED OK, all participants will be periodically assessed as the children grow up, with two more interview waves planned for 2011 and 2014.

Table 1. SEED OK Sample and Treatment Group Assignment

Sample based on OK Births	Baseline Interviews	Treatment Notification Date <sup>a</sup>	Treatment Participants	Control Participants	Total Participants
Apr – Jun 2007	Aug-Dec 2007	Jan 2008	618	642	1,260
Aug – Oct 2007	Jan-Apr 2008	May 2008	743	705	1,448
		Total	1,361	1,347	2,708 <sup>b</sup>

<sup>a</sup> Some participants (95 treatment and 91 control) from the first sample were notified of their treatment or control status with the second sample group. These figures are based on notification date rather than the birth sample group.

<sup>b</sup> RTI assigned 2,708 participants to treatment and control status. It was later found that four of these participants did not complete the baseline survey telephone interview.

### The SEED OK “Treatment”

The OCSP is a state-sponsored 529 education savings program created to help families save for college. It includes several investment options, including an equity fund, a bond fund, a balanced fund, a guaranteed option, and age-based funds that adjust investments according to the beneficiary’s age. Money in OCSP accounts may be used at both in-state and out-of-state eligible educational institutions. These institutions include public and private colleges and universities, graduate and post-graduate schools, community colleges, and certain proprietary and vocational schools.

The SEED OK intervention consists of incentives that encourage treatment participants to open and deposit into OCSP accounts. All treatment participants 1) received \$1,000 in an Oklahoma College Savings Plan (OCSP) account for their child; 2) are encouraged to open their own OCSP account (with the opportunity for a time-limited \$100 account opening incentive); and 3) are offered a match to savings in their own OCSP account, if they are income eligible (Table 2).<sup>10</sup> Control participants did not receive these incentives.

As an artifact of the SEED OK experiment and the existing state policy structure, a single 529 account structure was not possible.<sup>11</sup> Therefore, funds are deposited into both state-owned and participant-owned accounts in SEED OK. The following sections describe the OCSP and SEED OK incentives for treatment participants in detail.

Table 2. Treatment versus Control Conditions in the Oklahoma College Savings Plan

Treatment	Control
State-owned OCSP account for child opened with \$1,000 deposit	No state-owned account for child
Participant-owned OCSP account encouraged; time-limited \$100 account opening incentive offered	OCSP account may be opened by control participant; no information or incentives offered
Savings into own account is matched, if income eligible	No savings match

#### *State-owned OCSP Account Opened with \$1,000*

In December 2007 or May 2008, an OCSP account was opened for the benefit of each of the 1,361 treatment children. This is a test of “automatic” account opening. Participants could still “opt out” by rejecting the account. Each of these state-owned accounts received a \$1,000 initial “seed” deposit from SEED OK. Money in this account can be used for the child’s post-secondary education until the child reaches age 30. The seed deposit was made into the OCSP Balanced Option. This

<sup>10</sup> Seven of the 1,361 treatment participants never received notification of their status as treatment participants or any ongoing information about SEED OK because mail could not be delivered to any address obtained by RTI or the Oklahoma Treasurer’s Office.

<sup>11</sup> This contrasts with Maine, where state matching grants and Harold Alfond College Challenge funds are deposited directly into the participant’s eligible account, in a special investment portfolio created and owned by the Finance Authority of Maine (FAME). This structure allows FAME to ensure that the grant funds are used only for qualified educational purposes and all funds to be held in a single account, in separate portfolios (Clancy & Lassar, 2010).

investment option, a mix of stocks and bonds, was chosen due to the long time horizon for the funds. Each treatment child, as the account beneficiary, receives a quarterly statement showing how much money is in the state-owned account.<sup>12</sup>

*Savings Match Incentive*

The savings match is a SEED OK incentive for treatment participants to save for their child’s future post-secondary education. The savings match is progressive, and is available for families with an Adjusted Gross Income (AGI) of up to \$43,499 (Table 3). The \$29,000 and \$43,500 cut-off amounts correspond to 100% and 150% of the estimated median AGI in Oklahoma in 2006.<sup>13</sup> To receive this match, treatment participants must first open their own OCSP account. When money is saved in the account, treatment participants may be eligible for a 1:1 or 0.5:1 match on savings in 2008, 2009, 2010, and 2011. The match is limited to \$250 per year for treatment participants eligible for the 1:1 match and to \$125 per year for those eligible for the 0.5:1 match. The Oklahoma Treasurer’s Office calculates the savings match, sends a file containing deposit information, and wires funds to the OCSP Program Manager in the quarter following each matched deposit. The savings match is deposited into the state-owned OCSP account.

Table 3. Savings Match for SEED OK Treatment Participants

Participant’s Adjusted Gross Income (AGI)	Match Rate	With Yearly Deposits of:	Participant’s Savings is Matched:
Below \$29,000	When a participant deposits \$1.00, the State deposits \$1.00	\$25 to \$250+	\$25 to \$250
\$29,000 to \$43,499	When a participant deposits \$1.00, the State deposits \$0.50	\$25 to \$250+	\$12.50 to \$125
\$43,500 or more	Not eligible		

Savings match eligibility is determined primarily by treatment participants’ federal AGI. Once a treatment participant permits the State of Oklahoma to search his or her records via a Match Eligibility Form (MEF), the Oklahoma Tax Commission provides certain tax return data to the Treasurer’s Office for use in determining the savings match eligibility for each year of SEED OK. A one-time return of the MEF allows the Tax Commission to verify AGI data and determine the participant’s match eligibility for the duration of SEED OK.<sup>14</sup>

If the Oklahoma Tax Commission does not have record of a participant’s tax return, then the Oklahoma Department of Human Services (DHS) determines if the SEED OK participant received DHS benefits during the given year. Treatment participants receiving Supplementary Nutrition

<sup>12</sup> The value of the state-owned account goes up or down with the financial markets. Depending on the account opening date, the value has fluctuated between a high of \$1,003 and a low of \$698.

<sup>13</sup> These estimates were based on statewide AGI data provided by the Oklahoma Tax Commission.

<sup>14</sup> AGI data from the tax year two years prior to the current year are used to determine match eligibility and rate. For example, for savings matched during 2009, the 2007 AGI is used to determine eligibility. The AGI value is used from whatever Oklahoma income tax return the participant filed in the applicable year, even if it is a joint return. Match eligibility for an individual treatment participant can vary between a 1:1, 0.5:1, or no match based on annual AGI fluctuations.

Assistance Program (SNAP, formerly known as Food Stamps), Medicaid, or Temporary Assistance for Needy Families (TANF) benefits are eligible for the 1:1 match. This alternate method of match approval ensures the opportunity for non-filers of the Oklahoma State Income Tax Return to receive the savings match.<sup>15</sup>

The Tax Commission and Department of Human Services share electronic files with the Treasurer's Office. This process of sharing records among state government agencies automates the eligibility determination for the SEED OK quarterly savings match. Thus, annual income certification or paper records from SEED OK participants are not necessary.

### *\$100 Account Opening Incentive*

In the SEED OK experiment, a participant's own savings cannot be commingled with money in the state-owned OCSP account for the SEED OK child. In order to receive a savings match for their child, treatment participants were asked to open their own OCSP account and save. A \$100 minimum initial contribution is normally required of a new OCSP account opener. To remove any financial barriers to account opening, SEED OK offered an incentive to encourage treatment participants to open an OCSP account for their child. SEED OK deposited the required \$100 for treatment participants who opened an account by August 31, 2008. This time-limited offer was renewed in early 2009, through April 15 of that year, to provide a second account opening opportunity. Treatment participants opening their account after April 15, 2009, must deposit the \$100 themselves.<sup>16</sup>

### *Communicating SEED OK and OCSP Details*

SEED OK uses the Oklahoma College Savings Plan as the vehicle for its accounts, so the standard OCSP materials<sup>17</sup> (account application, disclosure booklet, quarterly account statements, etc.) are provided for all SEED OK treatment participants. All communication specific to SEED OK must be in materials that supplement the standard OCSP materials. For example, the SEED OK materials reference incentives and guidelines that apply only to SEED OK participants, like the savings match and state-owned account. The guidelines described in the materials sometimes override the OCSP rules in place, such as describing how SEED OK treatment participants were not required to make the \$100 minimum initial contribution that was otherwise required of all new OCSP enrollees.

In practice, OCSP application language such as "indicate the amount of your initial contribution" may cause participants to mistakenly think that they must make the \$100 minimum initial contribution, when that contribution would have been made for them by SEED OK if they opened their own account by April 15, 2009. To reduce this potential confusion, CSD and the Oklahoma

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<sup>15</sup> Non-filers may have been below the required income filing level or may have resided out-of-state. If a participant is not found in either Tax Commission or DHS records, she may submit a Self-Certification Form to verify match eligibility by either a) submitting a copy of her Federal income tax return if filed in a state other than Oklahoma, or b) verifying why she was not required to file in any state. A participant verifying her match eligibility using the Self-Certification form is eligible based upon her AGI in the first case and for the 1:1 match rate in the second.

<sup>16</sup> Deadlines were created to spur treatment participants to open accounts by a certain date. Given timing issues related to account opening, SEED OK deposited the \$100 for all treatment account-openers through May 15, 2009.

<sup>17</sup> OCSP has a standard account application and disclosure booklet that provides legal details of the account for all account openers, whether or not they are SEED OK participants. OCSP also periodically sends to all accountholders brochures, e-mail, or other communication pieces that explain the features and benefits of saving in a 529 account, encourage college savings, and advise people on ways to save.

Treasurer's Office developed a variety of communications pieces to inform treatment participants of the features that SEED OK adds to a standard OCSP account. The content and chronology of SEED OK communication to study participants is described below.

From the outset of SEED OK, the Treasurer's Office communicated to treatment participants the details of the seed (\$1,000) deposit for their child, the opportunity to open their own OCSP account and save further, and information about how to take advantage of SEED OK savings incentives. First, treatment participants were informed of their status by letters distributed in January and May 2008. All but 20 treatment participants, those who were unreachable by their most recently provided address, received a folder containing SEED OK information, including: a Frequently Asked Questions (FAQ) brochure, Match Eligibility Form (MEF—completion of which allows Oklahoma to retrieve Adjusted Gross Income from tax records), Savings Match Terms (details of the savings match), and an OCSP account application form.<sup>18</sup> By completing the paper or online OCSP account application and returning the Match Eligibility Form, treatment participants can save for their child's postsecondary education and have that savings matched, if income eligible.

Treatment participants received multiple communications reminding them of the opportunity to open an account and receive the \$100 account opening deposit. In February 2009, all but 81 unreachable treatment participants who had not yet opened their own account received a folder of updated SEED OK information, including a guide on how to open and save in an OCSP account.<sup>19</sup>

In 2008, the Oklahoma State Department of Health called treatment participants to encourage the return of the MEF. Calls were made in 2009 to encourage OCSP account opening and to answer questions about SEED OK. The Treasurer's Office also placed phone calls to selected treatment participants, such as those who returned the MEF but had not yet opened an account, and to all treatment participants to encourage them to open an account.

Currently, treatment participants who opened an OCSP account receive postcards and e-mail encouraging them to save, while all treatment participants (including those who have not opened their own account) receive periodic reminders of the OCSP account that Oklahoma owns for the benefit of their child. All treatment participants are also reminded of the incentive that the savings match provides them to save for their child's education.

Control participants were notified that they would be contacted in the future about follow-up interviews but were not randomly selected to receive \$1,000 in an OCSP account for their child. They also did not receive special information from SEED OK about opening their own account. Like any other Oklahoma residents, control participants could be informed about the OCSP by regular advertising and other channels, and could open their own accounts if they chose to do so, since the OCSP is open to the general public. No restrictions of any kind were placed on control participants; they simply did not get the "treatment."

<sup>18</sup> Thirteen of these 20 treatment participants eventually received a folder of SEED OK information in a second, February 2009 mailing. A selection of SEED OK participant communications pieces can be viewed at <http://csd.wustl.edu/AssetBuilding/SEEDOK/Pages/SEEDOKMaterials.aspx>. Materials introducing SEED OK were translated for those treatment participants who indicated that Spanish was their primary language.

<sup>19</sup> A number of treatment participants did not receive every communication from SEED OK, even though these communications used updated addresses and phone numbers based on RTT's sample maintenance. A call service reported that many telephone numbers were not in service. In addition, a number of the SEED OK mailings were returned as undeliverable.

### Demographic and Household Characteristics of SEED OK Participants

Tables 4 through 7 summarize SEED OK treatment and control participants’ demographic and household characteristics. Descriptive statistics in this section use birth record and survey data. We weighted the data with sample weights developed by RTI to adjust for the oversampling of African-Americans, American Indians, and Hispanics, and also to adjust for non-participation bias, where SEED OK study participants may not be identical to those who declined. In addition to overall information about the full sample, separate distributions of treatment and control participants are presented in the tables.

The SEED OK sample consists predominantly of non-Hispanic Whites (and “other”),<sup>20</sup> but also includes sizeable populations of African-Americans, American Indians, and Hispanics—the three racial and ethnic groups oversampled for this research. Just over half of the children are male (Table 4).

Table 4. Demographic Characteristics from Birth Records

Characteristic	Treatment (%) (n= 1,358)	Control (%) (n= 1,346)	Total (%) (N=2,704)
Child Race/Ethnicity			
Whites and Other	67	67	67
African-American	9	9	9
American Indian	11	11	11
Hispanic	13	13	13
Child Gender			
Female	46	48	47
Male	54	53	53

*Note:* Percentages may not sum to 100% due to rounding.

But for a very few exceptions, study participants are the mother of the child (Table 5). A very small portion of study participants are the father or another relative.<sup>21</sup> Participants are married in about three-fifths of cases, with just under one-third never married and a small percentage widowed, divorced, or separated. Most participants are younger than 35 years: 45% are 24 years or younger and 47% are 25 to 34 years old. Only 8% are 35 years old or older. Close to a quarter (23%) of participants did not complete a high school diploma or GED, while about one-third of participants have completed high school but gone no further. While 43% had received some post-secondary education, less than half of those (19%) obtained a bachelor’s or graduate degree.

A majority of participants live in small households: one-third of participants report living in household with three or fewer members. Another third live in households consisting of four

<sup>20</sup> We report race using birth record data. The variable combines non-Hispanic Whites with the "other" category (e.g., Asian). Only a very small percentage of Oklahoma births do not fall in one of the White, African American, Hispanic, or Native American categories. Accordingly, the non-Hispanic White and “other” category consists predominantly of children who are White.

<sup>21</sup> As noted earlier, mothers were invited to participate in SEED OK. There were four (0.29%) treatment and two (0.05%) control participants who were the father, sibling, or grandmother of the SEED OK child.

members. The remaining third live in large households with five or more members. One-third of participants report only one child in their households at the time of the baseline survey, indicating that the SEED OK child is the only child under their care. Another third have two children in the household, while the remaining third have three or more children. Average annual household income is about \$40,089 (median \$25,500). The income distribution is quite skewed. The bottom 22% have a household income of less than \$10,000, and the next 26% have an income between \$10,000 and \$25,500, indicating that about half of participants belong to low-income groups. Another 25% have an income between \$25,500 and \$54,000, and the top 25% have an income of more than \$54,000 a year. A substantial minority of participants have high income: about 10% report income of \$90,000 or more. Among SEED OK households, there are slightly more renters than owners, and a small proportion report some other housing arrangement. At baseline, 16% of SEED OK participants have received TANF, Supplementary Security Income (SSI), or Social Security Disability Insurance (SSDI) in the previous 12 months, while over a third (36%) have received SNAP.

Table 5. Participant and Household Characteristics from Baseline Survey

Characteristic	Treatment (%) <sup>a</sup> (n= 1,358)	Control (%) (n= 1,346)	Total (%) (N= 2,704)
Relationship to Child			
Mother	>99	>99	>99
Father/Sibling/Grandmother	<1	<1	<1
Marital Status			
Married	62	62	62
Widowed/Divorced/Separated	7	7	7
Never married	31	31	31
Age			
24 or under	46	44	45
25 to 34	47	47	47
35 or older	7	9	8
Education			
Less than high school	24	23	23
High school diploma or GED	33	34	34
Some college or associate degree	23	26	24
Bachelor's degree or more	20	18	19
Spouse Education			
Less than high school	11	11	11
High school diploma or GED	23	23	23
Some college or associate degree	13	14	14
Bachelor's degree or more	17	17	17
Missing	37	35	36

*Table continues on next page*

Table 5 (continued). Participant and Household Characteristics from Baseline Survey

Characteristic	Treatment (%) (n= 1,358)	Control (%) (n= 1,346)	Total (%) (N= 2,704)
Household Size			
2-3	32	35	33
4	33	32	33
5 or more	35	33	34
Number of Children			
1	34	37	36
2	34	33	34
3 or more	32	29	30
Household Income			
Less than \$10,000	22	22	22
\$10,000 to less than \$25,500	25	28	26
\$25,500 to less than \$54,000	26	23	24
\$54,000 or more	23	25	24
Missing	4	3	3
Housing			
Own	42	42	42
Rent	45	46	45
Have some other arrangement <sup>b</sup>	13	12	13
TANF, SSI, or SSDI recipient <sup>c</sup>	16	16	16
SNAP recipient <sup>c</sup>	36	36	36

*Note:* Percentages may not sum to 100% due to rounding.

<sup>a</sup> “>99” means  $100 > x \geq 99.5$ . “<1” means  $0 < x < 0.5$ .

<sup>b</sup> This category includes those who live with friends/relatives, either pay partially or not at all, stay in a shelter, receive housing as part of a job, or other types of housing arrangements.

<sup>c</sup> Household received in the past year.

At baseline, participants have different types of savings at widely varying levels. Three-quarters of participants have a checking account, while just over half own a savings account. About half of all participants make deposits directly into one or both types of accounts. Fewer participants own retirement accounts, about two in five, while only about 15% have savings at home or with trusted friends or family members, and just over 10% report owning stock or mutual fund assets.



Table 6. Household Assets and Savings from Baseline Survey

Type of Asset	Treatment (%) (n= 1,358)	Control (%) (n= 1,346)	Total (%) (N= 2,704)
Checking account	75	74	74
Savings account	55	55	55
Direct deposits to savings or checking account	49	49	49
Retirement account	41	40	41
Stocks or mutual funds	10	11	11
Savings stored at home or with trusted friends or family members	15	16	15

*Note:* Percentages may not sum to 100% due to rounding.

Most participant households report debt. Medical bills are the most prevalent source of debt, with over half of participants indicating their household owed money on medical bills. Other sources of indebtedness include car loans (50%) and credit cards (41%). Other noteworthy household debt sources, in decreasing order of prevalence, are student loans, a home mortgage, overdue bills, personal loans, and installment loans for major items like furniture and appliances.

Table 7. Household Debt from Baseline Survey

Type of Debt	Treatment (%) (n= 1,358)	Control (%) (n= 1,346)	Total (%) (N= 2,704)
Medical bills	54	52	53
Car loans	50	50	50
Credit card debt	41	43	42
Student loans	34	35	34
Home mortgage	34	34	34
Overdue bills	29	29	29
Personal loans from banks, credit union, friends, or relatives	21	25	23
Installment loans for major items	10	9	9

*Note:* Percentages may not sum to 100% due to rounding.

## Oklahoma College Savings Plan Accounts

### *OCSP Accounts*

This report covers savings in three different types of OCSP accounts: State-owned accounts, private accounts owned by participants (participant-owned accounts), and private accounts owned by others (other private accounts). State-owned accounts have been automatically opened for every treatment child and hold the initial deposit and savings matches made by SEED OK. The two types of private accounts can be opened by and receive deposits from participants, family members, or friends for the treatment and control children. Only treatment participants, however, may receive incentives for opening a participant-owned account. Table 8 summarizes these three types of accounts.

The policy purpose and intent of SEED OK is that these three types of accounts together should be thought of as a test of an automatic, universal CDA policy. The accounts are not unified in the test for administration reasons, but in a large-scale policy there would ideally be only one account for each child, which would receive all deposits for that child, as in the universal Child Trust Fund in the United Kingdom and the state-wide Harold Alfond Challenge in Maine (Clancy & Lassar, 2010).

Table 8. OCSP Account Types for SEED OK

Account Type	Owner	Deposits	Eligibility
State-owned account	State of Oklahoma	\$1,000 and opportunity for savings matches	Treatment participants
Participant-owned account	SEED OK participant	Optional	Treatment and control participants
Other private account	Family member or friend of the child	Optional	Treatment and control participants

Deposits made by SEED OK (the \$1,000 seed deposit and any savings matches) are held in accounts separate from those made by private individuals, simply as an artifact of the study and the existing state policy structure. Separating deposits made by individuals from those made by SEED OK to the state-owned account prevents SEED OK deposits from impacting eligibility for federal financial aid or federal or state benefits. Since the initial deposit and match funds are owned by Oklahoma, participants and their children cannot access the money in the state-owned account (funds will eventually be sent by the state directly to the child’s eligible educational institution to use for approved educational expenses). Unfortunately, the separate account structure is cumbersome and challenging to communicate to SEED OK participants. This report’s research questions can be answered regardless of whether all savings go into the same account,<sup>22</sup> but the effects of the separate accounts on savings cannot be investigated in this study due to the account structure limitation.

*State-owned accounts* for treatment participants were opened with a \$1,000 deposit in 2007 or 2008. Since state-owned accounts were opened and investments were purchased at different times, account balances differ for treatment participants.

<sup>22</sup> As in 401(k) plans, where employee deposits and employer matches go to the same account.

The \$1,000 seed initial deposit and savings matches are held in the state-owned account for the SEED OK child. Since treatment participants do not have access to the account, it is retained solely for the benefit of the child. Assets in the state-owned account are not counted when determining a household’s eligibility for public assistance programs or financial aid for college education.<sup>23</sup> SEED OK participants may open their own, separate, OCSP account—the *participant-owned account*. Only deposits to the participant-owned accounts in the treatment group can be considered for the savings match. There can be no more than one participant-owned account per child. Children in both the treatment and control groups can be beneficiaries of participant-owned accounts.

Family members or friends may also open OCSP accounts for the benefit of the child, known as *other private accounts*. Other private accounts are OCSP accounts held by other relatives—such as fathers, aunts, uncles, and grandparents—or friends. One child may have multiple accounts of this type held for him or her. Children in both the treatment and control groups can have private accounts owned by other relatives or friends.

In order to open a participant-owned or other private account, all enrollees, whether treatment or control, must complete a four-page OCSP application form that requires information about the account owner, beneficiary, and contingent account owner; selection of a contribution method and one or more investment options (Table 9); banking information (optional); and a paper or online signature certification of consent to account conditions.<sup>24</sup>

Table 9. Oklahoma College Savings Plan Investment Options

Investment Option <sup>a</sup>	Description
Managed Allocation	Uses the number of years until college to determine the appropriate investment allocation. Younger beneficiaries have a higher exposure to equities which will decrease significantly as they approach college age.
Diversified Equity	Offers greater risk and volatility in exchange for higher potential returns over time.
100% Equity	Provides a blend of domestic and international securities mutual funds which may provide greater investment return opportunities over the long-term.
Balanced	Designed to appeal to moderately conservative and moderately aggressive account owners who can tolerate a degree of volatility in exchange for potentially higher returns over time.

*Table continues on next page*

<sup>23</sup> CSD worked with the State of Oklahoma to ensure that participant-owned and other private OCSP accounts are also not included in asset tests for various benefits (Mason, Clancy, & Lo, 2008). Oklahoma Senate Bill 1390 codified that, as of November 2008, money in OCSP accounts is not considered as an available resource in determining eligibility for: SNAP, the Low Income Home Energy Assistance Program (LIHEAP), TANF, Child Care, and certain SoonerCare (Medicaid) programs.

<sup>24</sup> The OCSP Account Application is available at [http://www.ok4saving.org/pdf/ok\\_part.pdf](http://www.ok4saving.org/pdf/ok_part.pdf).

Table 9 (continued). Oklahoma College Savings Plan Investment Options

Investment Option <sup>a</sup>	Description
Fixed Income	Designed for account owners who are willing to accept some volatility in returns in order to attempt to achieve a long-term rate of return potentially higher than that offered through less volatile investments such as the Guaranteed Option.
Guaranteed	Guarantees return of principal and an annual minimum rate of return to OCSP (not directly to account owners). The minimum rate of return will not be less than 1% nor greater than 3%.

<sup>a</sup> OCSP investment options can be viewed at [http://www.ok4saving.org/ourplan/invest\\_options.html](http://www.ok4saving.org/ourplan/invest_options.html).

To summarize, consider the fictional example of a child, William, born in Oklahoma in 2007, drawn in the SEED OK sample, and then randomly assigned to the treatment group. The state opened an OCSP account with a \$1,000 deposit for William in early 2008. His mother, Marla, can open a participant-owned account for William and save in the OCSP for him. Marla's deposits would go into the participant-owned account. If she is income-eligible, a savings match would be deposited into the state-owned account for William. Finally, if William's grandmother, uncle, or a friend wishes to open an OCSP account for him, their accounts would be considered other private accounts, and would not be eligible for savings matches.

**Account Opening in SEED OK<sup>25</sup>**

*State-owned OCSP Account Opening*

SEED OK opened a state-owned account for every treatment child. Among 1,361 treatment participants, only one declined the state-owned account for her child, for religious reasons.<sup>26</sup> As a result, almost every child in the treatment group has a 529 OCSP account owned by the state (Table 10). A high account ownership rate was a goal of the SEED OK treatment design. Automatic or “default” opening of state-owned accounts, with the ability for treatment participants to “opt out,” demonstrates that a universal CDA policy may be possible using a 529 College Savings Plan as the platform. This result is consistent with existing studies showing higher account opening rates of savings plans using an “opt out” approach, compared to an “opt in” design that requires participant action (Choi, Laibson, Madrian, & Metrick, 2003; Madrian & Shay, 2001).

Table 10. State-owned Account Opening

Quarter Ending	Accounts Opened
December 2007	618
June 2008	743
<b>Total</b>	<b>1,360</b>

*Note:* One family opted to close the account for religious reasons.

*Participant-owned OCSP Account Opening*

What are the results so far in SEED OK for participant-owned accounts? Of the 1,361 treatment participants, 202 (15%) opened an OCSP account for their child. In contrast, among the 1,347 control participants, only 10 (1%) opened an OCSP account.

<sup>25</sup> Data in this section are not weighted, in order to report actual numbers of accounts.

<sup>26</sup> The family’s religion prohibited them from holding assets in interest-bearing accounts.

The number of treatment participant-owned accounts opened by quarter varies greatly. In the months immediately after their child’s birth in 2007 but before OCSP information was sent to treatment participants (the “pre-SEED OK” period), only four treatment participants opened OCSP accounts. Since the OCSP is open to the public, anyone is able to open accounts on behalf of SEED OK children after their birth. Once SEED OK was offered to treatment participants, 40 early adopters opened accounts in the first two quarters of 2008. The majority of the 202 treatment participant-owned accounts were opened in the third quarter of 2008, prior to the August 31 deadline to receive the \$100 deposit. The quarter ending June 2009 also produced a high rate of account opening. These results suggest that the deadlines to receive the \$100 account opening incentive (August 31, 2008 and April 15, 2009) may have motivated treatment participants to open accounts.

Control participants, who did not receive the treatment information or incentives, had a low level of OCSP account opening throughout this period of SEED OK. Of the 10 control participants who opened an account, all but two did so within a year or less of their child’s birth (through March 2008).

Figure 1. Participant-owned Accounts Opened, by Quarter

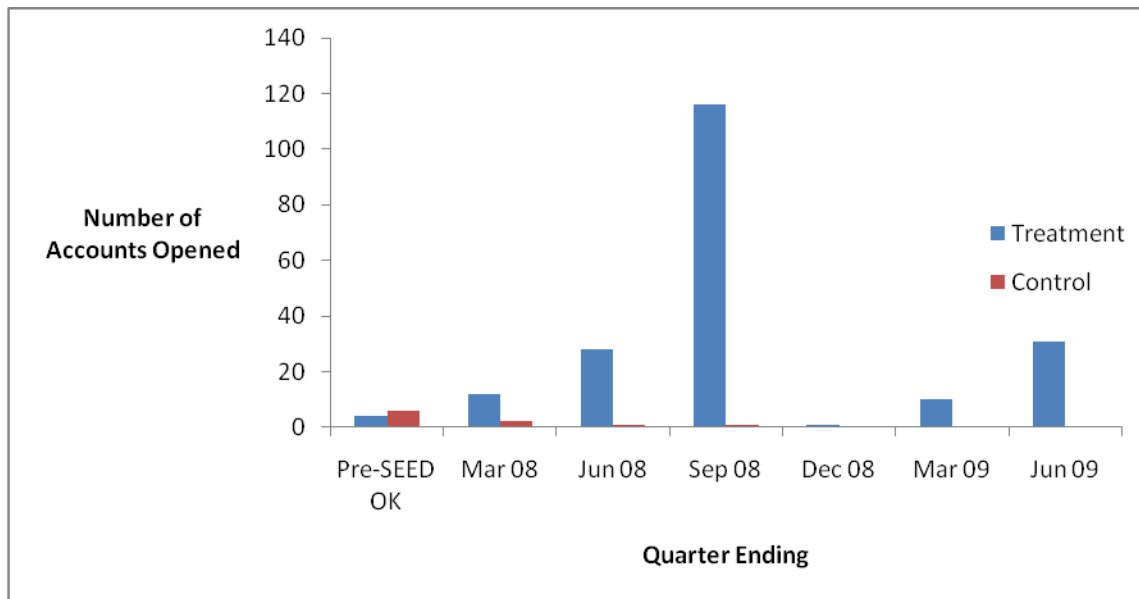
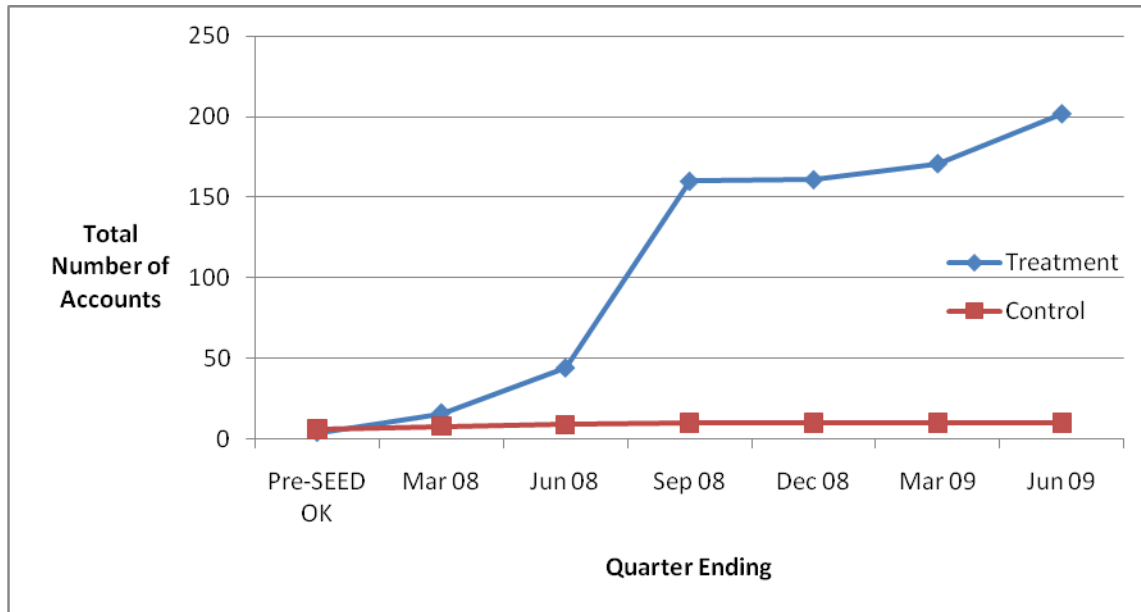


Figure 2 illustrates the cumulative number of participant-owned accounts. Consistent with information shown in Figure 1, only a small number of participants opened OCSP accounts prior to notification of treatment status and before OCSP information was sent to participants. The difference in account opening between treatment and control groups is very small during the pre-SEED OK period. Gaps between the two group increased after the SEED OK intervention started, resulting in a difference of about 200 participant-owned accounts as of the last observation (June 2009). The difference between treatment and control groups jumped at the two deadlines for account opening incentives (quarters ending September 2008 and June 2009). These results suggest that the SEED OK intervention motivated treatment participants to open OCSP accounts by providing information and offering an account opening incentive.

Figure 2. Total Number of Participant-owned Accounts Opened over Time



*Other Private OCSP Account Opening*

A total of 28 OCSP accounts were opened by other relatives or friends for 26 treatment children, while 20 other private accounts were opened for 17 control children. Nearly half of these other private accounts opened for treatment children (13 of 28) and over half of these opened for control children (12 of 20) were opened before participants were notified of their treatment status in the first part of 2008 (Figure 3). Following notification of SEED OK treatment or control status, the numbers of new other private accounts for treatment and control children remained small, but the number of new accounts is higher among treatment participants than controls (15 and 8 accounts, respectively).

Figure 3. Other Private Accounts Opened, by Quarter

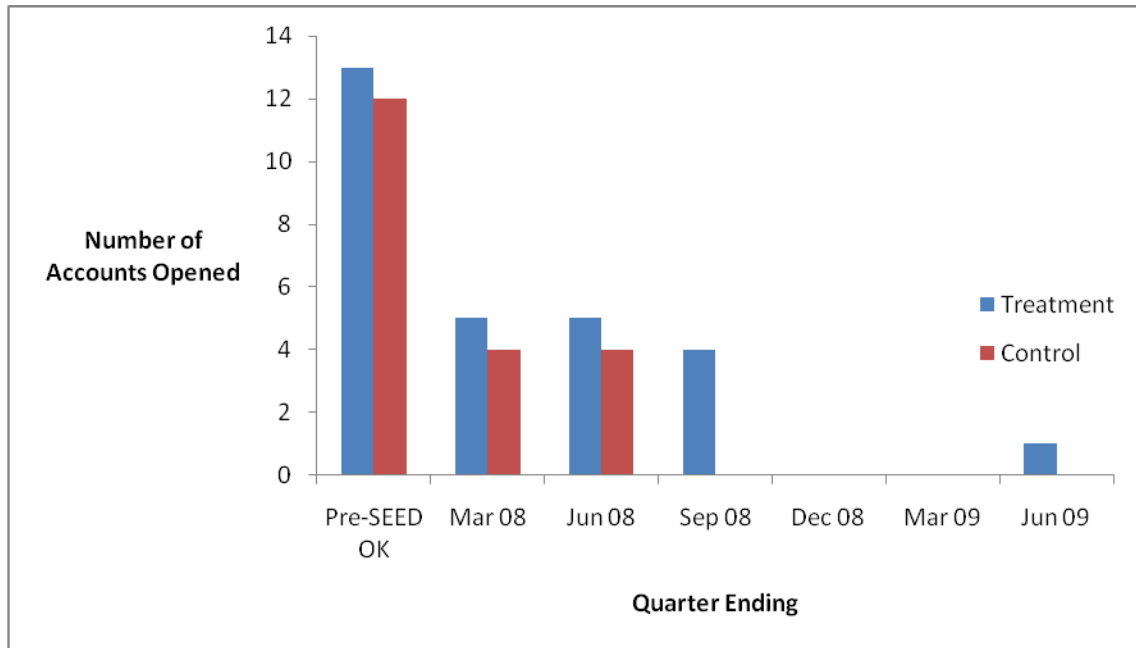
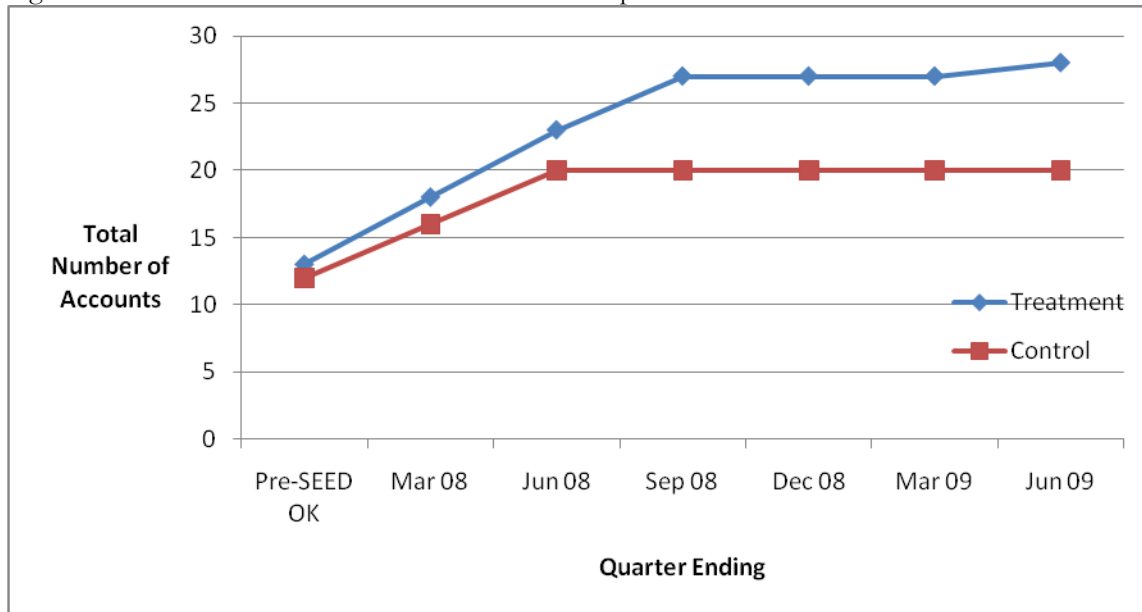




Figure 4 illustrates the cumulative number of other private OCSP accounts. For both treatment and control participants, other private accounts were largely opened before SEED OK notification or early in the initiative in 2008. Other private account opening for treatment children continues at a low rate into the quarter ending in September 2008, while control account opening ceases one quarter earlier. Relatives and friends might have opened more accounts for treatment children than for control children because 1) treatment participants distributed information about OCSP accounts to friends and relatives; or 2) the non-study participant parent (father) opened an account in the erroneous belief that it would be part of SEED OK and thus receive the \$100 account opening incentive and be eligible for a savings match.<sup>27</sup> These results may suggest possible effects of SEED OK on other private account opening, although the small number of accounts requires a great deal of caution in interpreting results.

Figure 4. Total Number of Other Private Accounts Opened over Time



<sup>27</sup> In some cases, account records indicate that a male parent opened an account for a SEED OK child. The reason for opening was not reported.

Unlike participant-owned accounts, which are almost entirely owned by the mother, other private accounts are owned by people of varying relationship to the SEED OK child. As Table 11 indicates, 40% more accounts were opened for treatment children than for control children by other family and friends, though the small sample size advises us to remain cautious about drawing inference. Since the number of grandparents and other family or friends opening an account is about the same in each case, the difference in treatment and control account opening rates lies with how many non-participant parents (generally fathers) opened an account for their child. SEED OK communications to treatment participants emphasized that only accounts opened by the study participant (almost always the mother) would be a part of SEED OK. However, a few participants may have missed or ignored the rules that a *study participant* (typically the mother) must open an OCSP account for it to be considered for the savings match and, instead, opened an account in the father’s name.

Table 11. Other Private Account Ownership, through June 30, 2009

Owner Relationship to Child	Number of Treatment Accounts	Number of Control Accounts
Parent (other than participant)	19	12
Grandparent	8	5
Other <sup>a</sup>	1	3
Total	28	20

<sup>a</sup> Includes one treatment account owner who reported relationship to beneficiary as “self.”

*OCSP Account Opening Method*

SEED OK participants had the option to open OCSP accounts either online or by submitting a paper form by mail (Table 12). The distribution of account opening method rates indicates that more treatment participants opened their accounts via the paper form than did control participants. This may be because a paper OCSP account application was provided in the package of information mailed to SEED OK treatment participants. State-owned accounts were opened by a single data file, delivered in December 2007 and May 2008 to the OCSP Program Manager by the state Treasurer’s office.

Table 12. Account Opening Methods, through June 30, 2009

Account Opening Method	State-owned (%)	Participant-owned (%)		Other Private (%)	
		Treatment	Control	Treatment	Control
Paper form	N/A	42	10	31	35
Online	N/A	58	90	69	65
Data files from OK	100	N/A	N/A	N/A	N/A

*Length of Participation with OCSP Accounts*

State-owned accounts have been open for a fixed period of time during SEED OK, either since SEED OK began in January 2008 (Q1)<sup>28</sup> or since May 2008 (Q2). Thus, state-owned accounts for treatment participants had been open, as of June 2009, for either five or six quarters during SEED OK (Table 13).

The number of quarters for which participant-owned accounts have been open during SEED OK ranges from one to six, for both treatment and control accounts. Larger numbers of treatment participants opened participant-owned accounts than did control participants after being notified of their treatment status, as reported above. Among control account openers, the majority (6 out of 10) opened accounts prior to notification of their SEED OK treatment status. As a result, for those who opened accounts, the average number of quarters participant-owned accounts have been open in SEED OK is greater for the control group than for the treatment group (5.4 versus 3.7 quarters). For both treatment and control account openers, other private accounts have, on average, been open for more than five quarters.

Table 13. Length of Participation with OCSP Accounts among Account Openers, through June 30, 2009

Account Type	Number of Quarters Open in SEED OK				
	N	Mean	Median	Min	Max
State-owned	1,361	5.5	5	5	6
Participant-owned					
Treatment	202	3.7	4	1	6
Control	10	5.4	5.5	4	6
Other private					
Treatment	28	5.2	5	1	6
Control	20	5.5	5.5	5	6

<sup>28</sup> The first set of state-owned accounts were opened on December 27, 2007, but treatment participants were not notified of the accounts' existence until receiving a letter with information about the account and SEED OK in January 2008.

**Deposits to OCSP Accounts in SEED OK<sup>29</sup>**

*State-owned Accounts*

Automatic account opening assured that all but one of the 1,361 children in the treatment group had a state-owned account opened with a \$1,000 deposit (Table 14).<sup>30</sup> Each child receives quarterly account statements listing all transactions and the account balance; these allow the family to track the amount of money available for their child’s education over time.

In addition to the initial deposits, state-owned accounts received a total of \$5,330 as matches to savings in 32 treatment participant-owned accounts. In all, 1,360 treatment participants have received total net deposits of \$1,365,330 in state-owned accounts for their child’s postsecondary education. Matches accrued in the last quarter of the analysis period ending June 30, 2009 are not deposited to state-owned accounts until the following quarter (ending September 30, 2009).

Table 14. Initial and Match Deposits and Accruals to State-owned Accounts, through June 30, 2009

Number of Accounts	Deposits		Withdrawals	Total Net Deposits
	Initial	Match		
1,360	\$1,360,000	\$5,330	\$0	\$1,365,330

The \$5,330 in matches consists of \$4,130 in savings matches at the 1:1 rate and \$1,200 in matches at the 0.5:1 rate. Savings matches earned are discussed in more detail in the *Participant-owned Accounts* section.

*Pre-SEED OK Deposits to Private Accounts*

SEED OK participants were notified of their treatment or control status approximately seven to nine months after their child’s birth.<sup>31</sup> Thus, SEED OK participant parents, other relatives, or friends had the opportunity to open and make deposits to OCSP accounts for the child before the SEED OK treatment began. Pre-SEED OK deposits are those that occurred before the quarter in which participants were notified of their treatment or control status.

A few OCSP accounts had pre-SEED OK deposits. Table 15 shows the number and value of pre-SEED OK deposits to both participant-owned and other private accounts. Four treatment participant-owned accounts had pre-SEED OK deposits totaling \$4,435, while six control participant-owned accounts had pre-SEED OK deposits totaling \$6,750. Pre-SEED OK deposits in other private accounts were made to 14 accounts for each of the treatment and control groups, with such deposits totaling \$41,555 and \$29,541, respectively.

<sup>29</sup> Data in this section are not weighted, in order to report actual dollar values.

<sup>30</sup> One state-owned account was closed and the funds withdrawn because the treatment participant declined the account for religious reasons.

<sup>31</sup> SEED OK children were born April through June or August through October, 2007. Treatment status notification for the first group occurred via a letter dated January 9, 2008 (in the quarter beginning January 1, 2008), and via a letter dated May 9, 2008 (in the quarter beginning April 1, 2008) for the second.

Throughout this report, pre-SEED OK deposits are not included in deposit amounts analyzed. Our interest lies in examining the effects of the SEED OK treatment (\$1,000 deposited to a state-owned account and a savings match for eligible participants), so we focus on outcomes once the treatment began.

Table 15. Pre-SEED OK Deposits to Accounts

Account Type	Number of Accounts with Pre-SEED OK Deposits	Pre-SEED OK Deposits <sup>a</sup>
Participant-owned		
Treatment	4	\$4,435
Control	6	\$6,750
Other private		
Treatment	14	\$41,555
Control	14	\$29,541

*Note:* Pre-SEED OK deposits are those that occurred before the quarter in which participants were notified of their treatment or control status. Because state-owned accounts were opened at the beginning of the treatment, there are no pre-SEED OK deposits in these accounts.

*Participant-owned Accounts*

As noted previously, deposits to participant-owned accounts may be eligible for a savings match. As of June 30, 2009, 424 (31%) of 1,361 treatment participants had returned a Match Eligibility Form (MEF) to the Treasurer’s Office, giving Oklahoma consent to check their income eligibility for the savings match. However, the majority of participants who returned the MEF have not deposited their own money in the Oklahoma College Savings Plan (Table 16).

Table 16. Return of Match Eligibility Form by Treatment Participants

Match Eligibility Form (MEF) Status	n	%
MEF returned, participant made deposits	72	5
MEF returned, participant did not make deposits	352	26
MEF not returned	937	69
Total	1,361	100

Of the 202 treatment participants who opened an OCSP account, 161 returned the MEF (Table 17). Fifty-three percent of treatment participant-owned account openers who returned the MEF have been eligible for a savings match through June 30, 2009.<sup>32</sup> Account openers who did not receive a match were primarily ineligible because their AGI was \$43,500 or greater. Match eligibility was not determined for a small percentage of these participants because their income tax and public benefit information was not locatable by Oklahoma and/or because they declined to submit the form allowing self-certification for the match.

<sup>32</sup> Match eligibility can vary by year if the participant’s AGI increases or decreases in an amount that crosses the SEED OK match income thresholds.

Table 17. Match Eligibility among Treatment Participants who opened a Participant-owned Account and Returned the Match Eligibility Form, through June 30, 2009

Match Eligibility through June 30, 2009	N	%
Ever match eligible at 1:1 or 0.5:1 rate	86	53
Never match eligible	69	43
Match eligibility never determined <sup>a</sup>	6	4
Total	161	100

<sup>a</sup> Match Eligibility Form returned by participant but information not located by the Oklahoma Tax Commission or Department of Human Services, and participant did not submit a Self-Certification Form.

Table 18 shows net deposits to participant-owned accounts through June 30, 2009. Net participant deposits exclude the \$100 account opening incentive from SEED OK (treatment accounts only) and withdrawals. From the beginning of SEED OK through June 30, 2009, 87 of the 202 treatment participant account owners have deposited a net total of \$60,363 for their children. Account opening incentives totaled \$20,200 for 202 accounts.<sup>33</sup> Treatment participants have made no withdrawals. In comparison, 10 control participants have deposited a net total of \$12,036.

Table 18. Net Deposits to Participant-owned Accounts, through June 30, 2009

Account Type	n	Gross Participant Deposits <sup>a</sup>	SEED OK \$100 Deposit	Gross Withdrawals	Net Participant Deposits
Treatment	202	\$80,563	\$20,200	\$0	\$60,363
Control	10	\$14,950	N/A	\$2,914	\$12,036

<sup>a</sup> Deposits made during SEED OK. Excludes pre-SEED OK deposits.

Table 19 below shows the number of participants and the amounts of annual deposits in treatment participant-owned accounts and matches through June 30, 2009. More participants fall in the 1:1 match rate than the 0.5:1 rate, but over half of participants who opened accounts and made deposits are not eligible to receive a match. However, the majority of all treatment participants meet the SEED OK savings match income eligibility requirements.<sup>34</sup>

<sup>33</sup> The four treatment participants with accounts opened prior to SEED OK also received a \$100 deposit.

<sup>34</sup> The SEED OK savings match is available for participants who earned up to 150% of the estimated median AGI in Oklahoma in 2006.

Table 19. Net Deposits to Participant-owned Accounts by Match Rate

Match Rate	January-December 2008			January-June 2009			Total		
	# of Parts.	Participant Deposits	Match	# of Parts.	Participant Deposits	Match	# of Parts. <sup>a</sup>	Deposits	Match <sup>b</sup>
1:1	18	\$3,805	\$3,030	6	\$1,350	\$1,100	21	\$5,155	\$4,130
0.5:1	10	\$2,895	\$913	5	\$725	\$288	12	\$3,620	\$1,200
No match <sup>c</sup>	46	\$37,648	\$0	34	\$13,940	\$0	58	\$51,588	\$0
Total	74	\$44,348	\$3,943	45	\$16,015	\$1,388	87	\$60,363	\$5,330

<sup>a</sup> Totals are the number of *unique* participants who made deposits at a given match rate and time period. Match rates for a particular participant can change from year to year. Consequently, the total number of participants making deposits across the two time periods is less than the sum of participants in each period. Likewise, the sum of total participants with deposits at each match rate is greater than the unique total.

<sup>b</sup> Because some participants reached the match limit in one or more years, the total match may be less than 100% or 50% of the total deposits for participants at a given match rate and time period.

<sup>c</sup> No match was received when participants were not eligible or their eligibility could not be determined.

#### *Other Private Accounts*

Other private accounts were opened by 28 non-participant family members (often fathers) or friends of treatment children, with net deposits totaling \$25,382 from the beginning of SEED OK through June 30, 2009. This compares to the 20 non-participant family members or friends of control children who deposited \$39,730 (Table 20).

Net deposits to other private accounts in SEED OK are net of withdrawals.

Table 20. Net Deposits to Other Private Accounts, through June 30, 2009

Account Type	n	Gross Other Deposits <sup>a</sup>	Gross Withdrawals	Net Other Deposits
Treatment	28	\$26,651	\$1,269	\$25,382
Control	20	\$39,730	\$0	\$39,730

<sup>a</sup> Deposits made during SEED OK. Excludes pre-SEED OK deposits.

## Who Opened a Participant-owned OCSP Account?

In this section, we compare demographic and household characteristics between treatment participant-owned account openers and non-openers to examine factors related to account opening. We do not examine state-owned account opening because this outcome is mostly decided by SEED OK treatment design, not by participants' decisions or actions. By design to model inclusive policy, opening a state-owned account was automatic and did not require effort from treatment participants, while closing it required that the participant take action to opt out. We do not compare account openers and non-openers for control participants because only a small number of control group members opened an account (10 of 1,346).

Due to the small number of other private accounts opened, it is also not feasible to compare account-openers and non-openers of these accounts. In addition, other private accounts were not opened by SEED OK participants, but by other relatives or friends of SEED OK children. Accordingly, it would be difficult to establish a direct connection between participant characteristics and other private account opening.

The analysis uses weighted data, using a weight variable provided by RTI. Results indicate that socially and economically advantaged groups were more likely to open participant-owned accounts in the treatment group.

### *Participant-owned OCSP Account Openers and Non-openers Among the Treatment Group*

Table 21 compares demographic and socioeconomic characteristics of participant-owned account openers with those of non-openers among treatment participants. Pearson chi-square and independent samples t-tests were conducted to examine statistical differences in demographic and household characteristics by account opening status.

*Child characteristics.* The account opening rate is significantly different by child's race and Hispanic origin. In particular, participant-owned account openers are predominantly non-Hispanic White (and other): their proportion among account openers is 85%. Considering that they comprise 67% of the total treatment participants, they are overrepresented among openers. From the other racial/ethnic groups, 5% of account openers are African American, 6% are American Indian, and 5% are Hispanic. At the same time, racial and ethnic minority groups are overrepresented among non-openers: 10% of non-openers are African American, 12% are American Indian, and 15% are Hispanic. Child's gender is not significantly associated with account opening.

*Participant characteristics.* Several participant characteristics are associated with account opening. Younger participants are underrepresented among account openers: the youngest group (24 or younger) comprises only 21% of account openers, but 51% of non-openers. At the same time, highly-educated participants are more likely to open accounts. The majority of account openers are composed of treatment participants with a BA or higher level of education, and only a small percentage do not have a high school diploma.

Married participants are more likely to open accounts while their never-married counterparts are less likely to do so: married participants consist of 84% of openers and 57% of non-openers, while



never-married participants make up 14% of openers and 35% of non-openers. Neither household size nor the number of children is significantly associated with account opening.

*Income and income sources.* Households with economic resources are more likely to open accounts than those without. Almost 50% of account openers belong to the highest income group (\$54,000 or more), while less than 10% are in the lowest bracket (less than \$10,000). Conversely, the majority of non-openers belong to the two lowest income groups and less than 20% belong to the highest income group. Similarly, poor households are underrepresented among account openers and overrepresented among non-openers (11% and 17%, respectively) and households on public assistance programs (either cash assistance or SNAP) were less likely to open accounts than those not receiving these benefits.

*Asset ownership.* In general, account openers show higher rates of asset ownership than non-openers. Ninety-four percent of account openers have bank accounts, whereas 76% of non-openers do. Other types of assets show similar patterns. Among account openers, 42% have investment assets (15% of non-openers); 71% own retirement accounts (35% of non-openers); 69% are homeowners (37% of non-openers); and 98% own a vehicle (89% of non-openers).

*Liabilities.* Associations between liabilities and account opening do not show consistent patterns, reflecting complicated relationships between the ability to save and use of credit. The proportions of households with home mortgage or credit card debt are significantly higher among account openers than non-openers, probably because mortgages and credit cards tend to be more available to those with economic resources and may indicate greater familiarity with financial products. Conversely, the percentage of households with overdue bills is significantly higher among non-openers than among openers (17% versus 31%). Yet, the chance of having unpaid medical bills or installment loans does not differ significantly between the two groups.

*Financial management and expectations.* Not surprisingly, the proportion of households using direct deposit services into bank accounts is significantly higher among account openers than non-openers. Households' expectations for future financial situations, however, do not have a significant association with account opening: most study participants in both account openers and non-opener groups have hopeful views of future financial situations. The expectation of a college education for their child is generally high in the two groups, but account openers (98%) are more likely to expect their child to go to college in the future.

In sum, patterns of account opening by treatment participants reflect disparities by resources, race, and education that are common in many studies. The promise of matched savings for treatment participants in SEED OK is not enough to change this pattern substantially. Perhaps these results point instead to the importance of universal account opening and initial deposits.

Table 21. Demographic and Socioeconomic Characteristics of the Treatment Group by Participant-owned Account Opening Status

Participant and Household Characteristics	Account Openers (%) (n=201)	Account Non-openers (%) <sup>a</sup> (n=1,157)	Total (%) (N=1,358)
<b>Child Characteristic</b>			
Race***			
White and Other <sup>b</sup>	85	63	67
Black, African-American	5	10	9
American Indian	6	12	11
Hispanic	5	15	13
Gender			
Male	57	53	54
Female	43	47	46
<b>Participant Characteristic</b>			
Relationship to Child <sup>c</sup>			
Mother	100	>99	>99
Father/Sibling/Grandmother	0	<1	<1
Age***			
24 or under	21	51	46
25 to 34	64	44	47
35 or older	15	5	7
Education***			
Less than high school	5	28	24
High school diploma or GED	19	36	33
Some college or associate degree	24	22	23
Bachelor's degree or more	52	14	20
Marital Status***			
Married	84	57	62
Widowed/Divorced/Separated	2	8	7
Never married	14	35	31
Household Size			
2-3	35	32	32
4	35	33	33
5 or more	30	35	35
Number of children			
1	34	34	34
2	36	34	34
3 or more	30	32	32

*Table continues on next page*

Table 21 (continued). Demographic and Socioeconomic Characteristics of the Treatment Group by Participant-owned Account Opening Status

Participant and Household Characteristics	Account Openers (%) (n=201)	Account Non-openers (%) (n=1,157)	Total (%) (N=1,358)
<b>Income and Income Sources</b>			
Household Income***			
Less than \$10,000	9	25	22
\$10,000 to less than \$25,500	14	27	25
\$25,500 to less than \$54,000	29	25	26
\$54,000 or more	48	19	23
Missing	1	4	4
TANF, SSI, or SSDI <sup>d</sup> *	11	17	16
SNAP <sup>c</sup> ***	17	40	36
Poverty status: Below 100% of poverty line***	17	47	42
<b>Asset Ownership</b>			
Bank account (either checking or savings)***	94	76	79
Investment assets***	42	15	20
Retirement accounts***	71	35	41
Home***	69	37	42
Vehicle***	98	89	90
<b>Liabilities</b>			
Home mortgage***	62	28	34
Credit card debt**	51	39	41
Overdue bills***	17	31	29
Medical bills	52	54	54
Installment loans for major items (e.g. furniture/appliances)	9	10	10
<b>Financial Management and Expectations</b>			
Direct deposits to savings/checking accounts***	71	44	27
Family financial situation looks hopeful	95	92	93
Parent expects child to go to college (at least)***	98	92	93

*Note:* Percentages may not sum to 100% due to rounding. Pearson chi-square and independent samples t-tests were conducted to examine statistical differences in demographic and household characteristics by account opening status.

<sup>a</sup> “>99” means  $100 > x \geq 99.5$ . “<1” means  $0 < x < 0.5$ .

<sup>b</sup> This category combines non-Hispanic Whites with the “Other” category (e.g., Asian) because an extremely small percentage of persons fall in the category “Other than White, African American, Hispanic, and Native American” due to the racial composition of Oklahomans. Accordingly, the non-Hispanic White and “Other” category in this data set consist predominantly of children who are White.

<sup>c</sup> Statistical association test was not conducted because about 99% of treatment participants are the child’s mother.

<sup>d</sup> Household received in the past year.

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

## Treatment Impacts of SEED OK

### *Analytical Reasoning and Method*

The SEED OK impact assessment uses data from a social experiment, with sampling from a total population. An experimental study assigns study participants randomly to treatment and control groups before the implementation of the intervention. The random assignment is intended to create a treatment group equivalent to the control group in both observed and unobserved characteristics, except for sampling variability in the random assignment process. In this way, an experiment aims to generate a condition where variation in access to an intervention is the only systematic difference between the treatment and control groups. Accordingly, differences in outcomes can be attributed to the intervention itself, not to individual, environmental, or other characteristics that may be associated with study participants (Orr, 1999).

An experiment, such as SEED OK, differs from a study without a control group, in that a non-experiment cannot separate effects caused by an intervention from effects caused by other observed or unobserved factors. For this reason, an experiment is viewed as the best method for estimating impacts of an intervention or policy on the target population (Manski & Garfinkel, 1992; Orr, 1999). Comparison of demographic and household characteristics in the SEED OK sample demonstrates that the treatment group is comparable to the control group in observed characteristics (Kim & Nam, 2009). This result suggests that random assignment in SEED OK was successful.

On this methodological foundation, we can estimate overall intervention impacts by comparing account opening rates and deposit amounts between the treatment and control groups. We run statistical tests that compare proportions of account openers (chi-square) and means of deposit amounts (t-test) between the two groups. A statistically significant difference between the treatment and control groups would suggest that SEED OK had an impact.

Since multiple accounts are available for each SEED OK child, we run separate analyses on various types of SEED OK accounts. First, we categorize SEED OK accounts into two broad types: (i) state-owned accounts and (ii) private accounts.

The main analysis on state-owned accounts addresses a simple question: Do participants accept a College Savings Plan account opened using public or philanthropic sources and "seeded" with a \$1,000 deposit for their child? Our hypothesis is that treatment participant acceptance of such an account—an Oklahoma College Savings Plan 529 Account in SEED OK—will be high. As explained earlier, SEED OK offered an opt-out option to treatment participants: SEED OK automatically opened a state-owned account on behalf of every SEED OK child randomly selected into the treatment group unless his/her parents declined the offer by notifying the State of Oklahoma.

Private accounts are those owned by participants or other family and friends on behalf of SEED OK children. Examining account opening and savings for private accounts evaluates the SEED OK treatment effect on participants themselves and on families and friends, excluding the direct effect of state-owned account opening and incentives deposited to the state-owned or participant-owned accounts. Since private accounts have two different types of ownership (participant and other private, as identified in Table 8), we analyzed each type separately.

Last, we create a summary measure that aggregates saving outcomes in every SEED OK account (both state-owned and private accounts). This analysis provides some insight into the total effects of the SEED OK treatment on savings across all accounts conceptually, as if the policy structure of one account per child were in effect in this experiment (the dual account structure in SEED OK is an artifact of testing CDAs in the absence of a simple policy with one account).

In addition, we run separate analyses with subgroups to see whether SEED OK has similar impacts on the treatment group by demographic and household characteristics.<sup>35</sup> It is plausible that study participants with discrete characteristics respond differently to the SEED OK intervention. For example, study participants' education level may affect the way the SEED OK intervention influences the target population because those with a higher level of education may understand the nature of the SEED OK intervention better and therefore take actions differently from their counterparts with a lower level of education.

#### *Impacts of SEED OK on OCSP Account Opening*

We compare OCSP account opening rates between treatment and control groups to estimate overall impacts of SEED OK on account opening. Table 22 summarizes results by account type.<sup>36</sup>

First, state-owned account opening rates show a very large difference between treatment and control groups (almost 100% versus 0%). The vast difference is expected because this type of account is not available to the control group, while being provided to the treatment group without requiring any action on their part.

Second, private account opening rates also show a big and statistically significant difference between the two groups. Over 17% of treatment participants opened private accounts while only about 2% of control participants did so, a 15 percentage-point difference. In contrast to state-owned accounts, private accounts require action to be opened. The 15 percentage-point difference in account opening rates between treatment and control participants indicates that SEED OK succeeded in encouraging participants to open an account.

The difference between treatment and control participants in private account opening rates comes mainly from the gap in participant-owned account opening rates. The account opening rate of participant-owned accounts among the treatment group is 18 times higher than that of the control group (16.4% versus 0.9%). It is likely that incentives (a \$100 account opening incentive deposit and the possibility of matches) and information motivated treatment participants to open accounts who would not have done so in the absence of SEED OK.

The account opening rate in other private accounts is very low among both treatment and control participants. The difference between these two groups is smaller than one percentage point and not significant. Low account opening rates and a small difference between the two groups were

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<sup>35</sup> Multivariate regression of SEED OK outcomes on demographic and household characteristics are planned for future study.

<sup>36</sup> This section reports results from 2,704 participants who completed the baseline survey. As explained earlier, four additional cases were randomly assigned to treatment and control groups although they did not complete the baseline survey. Since these four cases do not have survey data, we excluded them from impact assessment. For this reason, sample size reported in this section differs from that in earlier parts of this report.

expected since SEED OK targets participant-owned private accounts, and material incentives are not available to other private accounts.

The last row in Table 22 reports on the summary measure: opening rates of any type of accounts. The difference is statically significant and very large (98 percentage points) between treatment and control groups. Almost everyone in the treatment group has at least one account for her/his child as indicated by a 99.9% opening rate. The close to universal account opening rate is certainly due to state-owned accounts’ automatic and opt-out design. In contrast, only 2.3% of the control group has an OCSP account. Every account owned by a control participant is private since only this type is available to them. As noted earlier, all types of accounts can be conceptually combined, because a universal policy would ideally have only a single account for each child.

In summary, analysis results provide strong evidence for SEED OK’s impacts on OCSP account opening. As expected, the state-owned account opening rate is almost 100% among the treatment group and 0% among the control group. The difference in opening rates in private accounts is also large and statistically significant between the two groups, indicating the impact of the SEED OK treatment on OCSP account opening. As a total result, the account opening rate in the summary measure shows a very large difference between the groups.

Table 22. OCSP Account Opening Rates by Account Type (N=2,704)

Account Type	Treatment (%) (n=1,358)	Control (%) (n=1,346)	Difference in Account Opening Rates (percentage points)
State-owned accounts	99.9	0.0	99.9 ***
Private accounts	17.3	2.3	15.0 ***
Participant-owned	16.4	0.9	15.5 ***
Other <sup>a</sup>	1.8	1.4	0.4
All SEED OK accounts	99.9	2.3	97.6 ***

<sup>a</sup> “Other” refers to accounts owned by a participant’s friends and family with the child as beneficiary.

\* p<0.1; \*\* p<0.05; \*\*\*p<0.01

*Impacts of SEED OK on Participant-owned Account Opening by Demographic and Socioeconomic Characteristics*

In order to see whether SEED OK treatment effects on participant-owned account opening differ by demographic and socioeconomic characteristics, we run subgroup analyses. As shown in Table 23, SEED OK is estimated to be effective in increasing account opening rates in most sub-groups, as evidenced by significant differences between the treatment and control groups.

*Child characteristics.* Table 23 shows that the difference in account opening rates between treatment and control groups is statistically significant for every racial group and the Hispanic group. Among non-Hispanic Whites, the account opening rate is 21% among the treatment group and 1% among the control group, a 20 percentage-point difference. Differences in account opening rates between the treatment and control groups are also significant in racial and ethnic minority groups, suggesting that SEED OK effectively increased account opening among minority groups that historically have had more limited access to financial institutions and had lower saving rates than their White counterparts.

Subgroup analyses indicate that patterns of account opening are similar for both male and female children. SEED OK increased account opening rates to a similar extent in both genders (about a 15 percentage-point difference between control and treatment groups in both male and female children).

*Participant characteristics.* While the SEED OK effect on account opening is observed in every age group, the effect is stronger among older participants. The difference in opening rates between treatment and control group is largest among the oldest group (36%) and smallest among the youngest group (8%).

The impact of SEED OK is significant among every education group. Although effect size is largest among the most educated group (a difference of 38 percentage points), it is notable that SEED OK increased the account opening rates among other education groups in the treatment sample, even in education groups that had an opening rate of zero in the control sample.

Another large difference in account opening rate between treatment and control groups is found among married participants: 22% of married treatment participants opened an account for the child while only 1% of their counterpart in the control group did so. SEED OK impact is also significant among other participants with different marital status: SEED OK increased the account opening rate by five percentage points among widowed, divorced, or separated participants and by seven percentage points among never-married participants. It is somewhat surprising that the latter's account opening rate is higher than the former considering existing studies show that economic situations tend to be worse among never-married mothers than widowed, divorced, or separated mothers (Yamokoski & Keister, 2006).

SEED OK impact is also present across different household sizes and numbers of children in the household. More treatment participants, relative to controls, opened an account in both smaller and larger households. Furthermore, the account opening rate is consistently higher for treatment participants compared to controls across households with different numbers of children; among treatment participants, 16% of households with one child (versus 2% of controls), 18% of those with two children (versus <1% of controls), and 16% of those with three or more children (versus 0% of controls) opened an account.

*Income and income sources / Asset ownership.* Analysis results also demonstrate SEED OK intervention effects among groups with different levels of economic resources. Account opening rates are significantly higher among the treatment group than the control group regardless of income level, public assistance receipt status, asset ownership, and liability status. However, Table 23 also indicates that economically advantaged groups were more affected by the SEED OK treatment than their counterparts with fewer economic resources. Effect size measured by the difference in account opening rates between the treatment and control groups increases as income increases. The same associations are found in public assistance program participation status and the ownership status of various assets.

*Liabilities.* The associations between household liability and SEED OK effects are somewhat complicated. The treatment effect on account opening is larger among those with credit card debt than among those without (18 percentage points versus 14 percentage points). An opposite relationship exists among those with overdue bills: treatment effect is smaller among those with this type of debt (10 percentage points versus 18 percentage points). The treatment effect does not differ

greatly by medical bill status or by installment payment plan. Different impacts by distinct types of debt may be explained by different economic conditions of those carrying these debts. Economically disadvantaged households tend to have limited access to credit cards and, therefore, they are less likely to carry balances on them. Unpaid bills indicate economic hardship faced by families (Mayer & Jencks, 1989). Since the baseline survey was conducted just after families had births, it is not surprising that the majority of families had unpaid medical bills (see Table 7). Accordingly, medical bills may not be an indicator of the long-term economic condition of families.

SEED OK had bigger impacts on participants with direct deposits to bank accounts. The gap in account opening rates between treatment and control participants is 22 percentage points among those with direct deposit but only 9 percentage points among those without. This is expected since the former tend to be more financially sophisticated than the latter.

Those with a hopeful view of their families’ financial situations are more responsive to SEED OK, as shown in large treatment effects (16 percentage points versus 10 percentage points). As anticipated, those who expected their children to attend college were influenced by SEED OK to a larger extent than those who did not. It is of particular interest that SEED OK significantly increased account opening rates even among those who did not expect their children to attend college before they were assigned to the treatment group.

Table 23. Difference in Participant-owned Account Opening Rate by Treatment Group Status in Demographic and Socioeconomic Sub-groups (N=2,704)

Participant and Household Characteristics	Treatment Participants (%) <sup>a</sup> (n= 1,358)	Control Participants (%) (n= 1,346)	Difference in Account Opening Rates (percentage points)
<b>Child Characteristic</b>			
Race			
White and Other	21	1	20***
Black, African-American	10	0	10***
American Indian	8	1	7**
Hispanic	6	0	6***
Gender			
Male	17	2	15***
Female	15	0	15***
<b>Participant Characteristic</b>			
Age			
24 or under	8	0	8***
25 to 34	22	2	20***
35 or older	36	0	36***

*Table continues on next page*



Table 23 (continued). Difference in Participant-owned Account Opening Rate by Treatment Group Status in Demographic and Socioeconomic Sub-groups (N=2,704)

Participant and Household Characteristics	Treatment Participants (%) (n= 1,358)	Control Participants (%) (n= 1,346)	Difference in Account Opening Rates (percentage points)
<b>Education</b>			
Less than high school	3	0	3**
High school diploma or GED	9	0	9***
Some college or associate degree	18	0	18***
Bachelor's degree or more	43	5	38***
<b>Marital Status</b>			
Married	22	1	21***
Widowed/Divorced/Separated	5	0	5*
Never married	7	<1	7***
<b>Household Size</b>			
2-3	18	2	16***
4	17	<1	17***
5 or more	14	0	14***
<b>Number of Children</b>			
1	16	2	14***
2	18	<1	18***
3 or more	16	0	16***
<b>Income and Income Sources</b>			
<b>Household Income</b>			
Less than \$10,000	7	0	7***
\$10,000 to less than \$25,500	9	0	9***
\$25,500 to less than \$54,000	18	1	17***
\$54,000 or more	34	3	31***
Missing	3	0	3
<b>Welfare Income from TANF, SSI, or SSDI<sup>b</sup></b>			
Yes	11	<1	11***
No	18	1	17***
<b>SNAP<sup>b</sup></b>			
Yes	8	<1	8***
No	21	1	20***
<b>Poverty Status</b>			
Below 100% of poverty line	7	0	7***
100% or above 100% of poverty line	24	2	22***
<b>Asset Ownership</b>			
<b>Bank Account (either checking or savings)</b>			
Yes	20	1	19***
No	5	0	5***
<b>Investment Assets</b>			
Yes	36	3	33***
No	12	<1	12***

*Table continues on next page*

Table 23 (continued). Difference in Participant-owned Account Opening Rate by Treatment Group Status in Demographic and Socioeconomic Sub-groups (N=2,704)

Participant and Household Characteristics	Treatment Participants (%) (n= 1,358)	Control Participants (%) (n= 1,346)	Difference in Account Opening Rates (percentage points)
<b>Retirement Accounts</b>			
Yes	29	2	27***
No	8	<1	8***
<b>Home</b>			
Yes	27	2	25***
No	9	1	8***
<b>Vehicle</b>			
Yes	18	1	17***
No	4	0	4**
<b>Liabilities</b>			
<b>Home Mortgage</b>			
Yes	30	2	28***
No	9	1	8***
<b>Credit Card Debt</b>			
Yes	20	2	18***
No	14	<1	14***
<b>Overdue Bills</b>			
Yes	10	<1	10***
No	19	1	18***
<b>Medical Bills</b>			
Yes	16	<1	16***
No	17	2	15***
<b>Installment Loans for Major Items (e.g. furniture/appliances)</b>			
Yes	15	0	15***
No	17	1	16***
<b>Financial Management and Expectation</b>			
<b>Direct Deposits to Savings/Checking Accounts</b>			
Yes	24	2	22***
No	9	<1	9***
<b>Family Financial Situation Looks Hopeful</b>			
Hopeful	17	1	16***
NOT hopeful	11	1	10***
<b>Parent expects Child to go to College (at least)</b>			
Yes	17	1	16***
No	6	0	6**

<sup>a</sup> “>99” means 100>x≥99.5. “<1” means 0<x<0.5.

<sup>b</sup> Household received in the past year.

\* p<0.1; \*\* p<0.05; \*\*\*p<0.01

*Impacts of SEED OK on Deposits to OCSP Accounts*

We compare the amounts of savings for treatment and control groups using two different measures: (i) total amount of deposits in OCSP account(s), including SEED OK incentives as well as private savings by participants and others, and (ii) the amount of private deposits, excluding the SEED OK incentives.<sup>37</sup> Our interest lies in examining the effects of the SEED OK treatment (financial incentives and information on OCSP), so we focus on outcomes once the treatment began.

*Total deposit amount* is created by summing all deposits, less withdrawals, made after the SEED OK program started. Deposits include savings by private account owners (participants and others) and SEED OK incentives (the \$1,000 deposit into state-owned accounts, \$100 initial deposit into participant-owned private accounts, and matches). As noted earlier, examining deposits inclusive of SEED OK incentives measures the impact of the SEED OK treatment on both the institutional and individual level.

*Private deposit amount* is defined as total deposits exclusive of all SEED OK incentives, again excluding pre-SEED OK deposits. This second measure gives a clearer picture of how individual behavior is affected by SEED OK.

In analyzing these two saving measures, we use the full sample, which is the key experimental test.<sup>38</sup> As in the case of account-opening rates reported earlier, we run separate analyses of deposit account measures for each account type, comparing deposit measures for treatment and control groups in state-owned accounts and private accounts (participant-owned and other private), and all accounts combined.

*Total Deposit Amounts in SEED OK*

Table 24 presents results related to total deposit amount: mean deposit amount and results of the statistical test for difference between treatment and control groups (t-test), by account type.<sup>39</sup>

Results show SEED OK’s impact on total deposit amounts: Average deposit amounts are significantly higher in the treatment group than the control group for every type of account, except for other private accounts. In state-owned accounts, treatment participants have average deposits of \$1,002 (median \$1,000), while the average for control participants is zero. This large difference is the result of policy design. Every treatment participant, except one who declined the SEED OK offer, received at least a \$1,000 deposit, while control participants received no SEED OK incentives.

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<sup>37</sup> As described earlier, one treatment participant declined the state owned account, so the balance was withdrawn and the account closed. All savings measures for this case are set to \$0.

<sup>38</sup> Though not a measure of the key experimental test on the full sample, we also examine average deposits after limiting analysis samples to only private account openers. Private account openers in the treatment group (n=216) averaged \$449 (median \$100) in deposits per SEED OK child, or \$354 (median \$0) excluding incentives. Private account openers in the control group (n=26) had an average deposit of \$1,745 (median \$1,800) per child. Higher average deposits for control children with private accounts suggest that those who open an account without the influence of the SEED OK treatment (control account openers) tend to save more than those who would not have opened an account without the SEED OK intervention (most treatment account openers).

<sup>39</sup> The median and mode of deposits to state-owned accounts was \$1,000 (the initial “seed” deposit) and \$0 to private accounts, so we do not report these values in Tables 24 and 25.

We can also look at deposits excluding the \$1,000 seed deposit, which was made only for treatment participants as part of SEED OK. In private accounts, the treatment group has a significantly higher average deposit amount than the control group. The average deposit is \$78 among treatment participants and \$40 among controls, a \$38 difference. Analyses based on specific private account types produced somewhat contrasting results. The average deposit is higher among treatment participants in participant-owned accounts, but higher among control participants in other private accounts. In participant-owned accounts, treatment participants made deposits of \$63 on average and control participants \$13, a difference that is statistically significant. In other private accounts, the average deposit is \$15 for treatment group accounts and \$27 for control group accounts, but this difference is not statistically significant.

The average combined deposit in all OCSP accounts is higher for the treatment group. The difference (\$1,040) is large and statistically significant. When deposits in state-owned accounts and private accounts are combined, the treatment group has a high level of average savings (\$1,080), compared to the control group (\$40). The median is \$1,000 among treatment participants and \$0 among controls, respectively. These results show that deposits made for the treatment group are composed mostly of SEED OK incentives.

Table 24. Average Total Deposit Amounts in OCSP Accounts, by Treatment Status (N=2,704) (in \$)

Account Type	Treatment (n=1,358)	Control (n= 1,346)	Difference
State-owned accounts	1,002	0	1,002***
Private accounts	78	40	38**
Participant-owned	63	13	50***
Other	15	27	-12
All SEED OK accounts	1,080	40	1,040***

\* p<0.1; \*\* p<0.05; \*\*\*p<0.01

*Private Deposit Amounts in SEED OK*

Table 25 presents results related to private deposits. As defined earlier, private deposits include only those made by participants and other private individuals and exclude any incentives from SEED OK. We do not present results on state-owned accounts because all deposits in these accounts come from SEED OK. For this reason, we do not show results on combined deposits that sum state-owned and private accounts: private deposit amounts in the combined measure are the same as those in private accounts.

Table 25 shows that the average private deposit is \$21 higher for treatment participants than for control participants when we combine amounts deposited in participant-owned accounts and other private accounts. This difference is not statistically significant. Thus, SEED OK does not appear to have an impact on saving in private accounts (participant-owned and other accounts combined) when the \$100 account opening incentive deposit is not considered.<sup>40</sup>

<sup>40</sup> Table 24 shows that the average deposit to private accounts is \$38 higher for treatment participants than for control participants when we use a deposit measure that includes SEED OK incentives. The difference in private account

SEED OK does appear to have an impact on deposits to participant-owned accounts. The difference in deposits is significant: treatment participants have an average deposit of \$47 and control participants have \$13. In other private accounts, the average deposit amount is higher among control participants than among treatment participants, although the difference is not statistically significant. Statistics on deposits in other private accounts are the same as those in Table 24 because SEED OK does not provide incentives to these accounts.

In sum, treatment participants have, on average, significantly higher deposit amounts in participant-owned accounts than control participants, even when the SEED OK incentive is excluded. This finding implies that the SEED OK intervention may have encouraged participants to open accounts and to make deposits for their children’s college education.

Table 25. Average Private Deposit Amounts in OCSP Accounts, by Treatment Status (in \$)

Account Type	Treatment (n=1,358)	Control (n=1,346)	Difference
Private accounts <sup>a</sup>	61	40	21
Participant-owned	47	13	34**
Other	15	27	-12

<sup>a</sup> Average deposit amounts to “Participant-owned” and “Other” private accounts may not sum to the “Private accounts” value due to rounding.

\* p<0.1; \*\* p<0.05; \*\*\*p<0.01

*Impact of SEED OK on Being a Saver*

We examine SEED OK’s impact on being a saver. We define *saver* as one with positive private deposits in OCSP accounts. That is to say, we assigned a value of ‘1’ if a participant has one or more accounts with deposits made by private individuals (participant or others) and ‘0’ to others. Accordingly, those with deposits composed solely of SEED OK incentives are not defined as savers. We report only results for private accounts since this measure takes into account only private deposits, making state-owned account and combined deposit measures irrelevant.

Table 26 shows the percentage of savers in the treatment and control groups. When we take into consideration both types of private accounts, the proportion of savers is significantly higher among treatment participants than control participants (7.75% versus 2.00%, respectively). Analyses on participant-owned accounts produce similar results: the percentage of savers is significantly higher for treatment participants than control (6.82% versus 0.71%). The difference between saving and account opening rates (6.82% versus 16%) among treatment participants indicates that only 42% of account treatment openers also saved their own money. The difference in the percentage of savers in other private accounts is neither substantial nor statistically significant (1.58 % versus 1.32%).

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deposit amounts with or without incentives is caused by the \$100 account opening incentive deposit made into treatment participant-owned accounts.

Table 26. Savers by Treatment Group Status: Full Sample (N=2,704, %)

Account Type	Treatment (n= 1,358)	Control (n= 1,346)	Difference
Private accounts	7.75	2.00	5.75***
Participant-owned	6.82	0.71	6.11***
Other	1.59	1.32	0.27

\* p<0.1; \*\* p<0.05; \*\*\*p<0.01

*Limitations*

This report of a randomized, controlled experiment offers generally clear impact results, but is not free from limitations. First, the SEED OK sample is composed only of study participants who agreed to be in the study and completed the baseline survey. Participants who were located by RTI, the survey research firm, and were willing to spend time for telephone interviews for the baseline survey may differ from those who were not located or refused to participate in the survey. Accordingly, the SEED OK sample may not be representative of the target population of infants born in Oklahoma. Although SEED OK has an advantage over other experiments in terms of sampling frame (birth records provided by the state government of Oklahoma), this does not guarantee that the SEED OK sample is representative of the target population of every infant born in Oklahoma due to potential non-participation bias (Manski & Garfinkel, 1992; Orr, 1999). We have used a weight variable developed to take care of differences in study participation rates by key observed characteristics, although even this approach may not fully remedy non-participation bias.

Second, random assignment ensures that treatment and control participants do not differ systematically, but does not guarantee that they are identical in every aspect or rule out differences caused by sampling variability. Random assignment may produce treatment and control groups with different compositions by chance (Orr, 1999). For this reason, regression analyses are preferred to bivariate analyses in that the former is able to control for compositional differences, at least in observed characteristics (Orr, 1999). Future study based on regression analyses would improve SEED OK impact assessment of saving outcomes.

## Summary and Conclusions

The key summary points at this stage of SEED OK, through June 30, 2009, are as follows:

### *Random Assignment*

- Observed characteristics such as demographic and socioeconomic status do not significantly differ between treatment and control participants at baseline, suggesting that random assignment created treatment and control groups that are comparable to each other at least in terms of observed characteristics.

### *Impacts of SEED OK on OCSP Account Opening*

- Among those who agreed to participate in the study and were assigned to the treatment group, automatic account opening was successful. Only one out of 1,361 treatment participants declined the initial state-owned account.
- About 16% of treatment participants (parents or guardians) opened their own OCSP 529 account (a participant-owned account), compared to 1% of controls.
- Few treatment or control participants had other private accounts opened for their children by grandparents, family members other than the participant, or friends.
- The account opening rate for all private accounts (owned by participants or others) is 17% for the treatment group and 2% for the control group ( $p < .01$ ).
- The effect of SEED OK on any OCSP 529 account opening is very large, with a rate close to 100% for treatment participants in comparison to 2% for controls ( $p < .01$ ). As noted, this is due mostly to automatic opening of a state-owned account for treatment participants.
- The demographic and socioeconomic characteristics of treatment participant-owned account openers were different from those of non-openers. Account openers are more likely to be non-Hispanic White, have more education, own assets, or use direct deposit.
- SEED OK induced treatment participants with various demographic and socioeconomic characteristics to open private accounts (especially participant-owned accounts). Treatment participants' account opening rates were significantly higher than controls' regardless of race and Hispanic origin, gender, age, education level, marital status, household size, number of children in the household, income level, and asset and liability conditions. This pattern also held regardless of welfare receipt and poverty status.

### *Impacts of SEED OK on Deposits and Savings*

- Total SEED OK deposits were a little over \$1.4 million for treatment participants and under \$0.1 million for control participants. The difference is due largely to the initial \$1,000 “seed” deposit for treatment participants.
- The average total deposit amount in all types of accounts is \$1,080 for treatment participants and \$40 for controls ( $p < .01$ ).

- The average deposit into private accounts (including incentive payments) is \$78 for treatment participants and \$40 for control participants ( $p < .05$ ).
- Deposit amounts beyond the initial deposit were modest. Exclusive of incentives, the average private deposit (across all private accounts) is \$61 for treatment participants and \$40 for controls (not statistically significant). However, for the subcategory of private accounts owned by participants (parents or guardians), treatment participants deposited an average of \$47, versus \$13 for controls ( $p < .05$ ).
- Just under 8% of treatment children had family members or others who made private deposits into SEED OK accounts on their behalf. The comparable rate for children in the control group was 2% ( $p < .01$ ).

What is the meaning of these early results from SEED OK? Perhaps foremost, SEED OK has been implemented successfully as a well-functioning policy demonstration and a well-designed experiment. For future knowledge building, it is critically important that the policy test is effectively in place and randomization was successful.

What have we learned so far? By far the most important result in SEED OK is the 100% success of automatic account opening for treatment participants (one out of 1,361 declined the account). Why does this matter?

Broadly, research suggests that costs, in time to fill out forms and to learn about a program, may deter some people from using desirable policies and programs, and that these costs may be higher for low-income individuals (Currie, 2004). More specifically, for the SEED impact assessment in Michigan, treatment participants had to fill out the Michigan Education Savings 529 Plan and SEED program forms to receive an \$800 initial deposit, and 62% did so, many with considerable one-on-one attention (Williams Shanks, Johnson, & Nicoll, 2008). Turning to an example in Maine, eligible children must be enrolled in the NextGen 529 College Savings Plan within one year from birth to receive \$500 from the Harold Alfond College Challenge (Clancy & Lassar, 2010). The early overall program enrollment rate is 21% among all eligible children. Analysis suggests that financially sophisticated parents may better understand the program rules and benefits and navigate the application process with greater ease (Huang & Beverly, forthcoming).

Similarly, participation in 401(k) plans is much higher when enrollment is automatic than when employees must choose to enroll (Madrian & Shea, 2001). For instance, Madrian and Shea find that, for workers earning less than \$20,000, 401(k) enrollment jumps from 13% to 80% when enrollment becomes the default option. The 100% initial enrollment in SEED OK demonstrates that near universal enrollment is possible, if it is automatic.

In contrast, in order to open a participant-owned OCSP account, treatment participants must complete a four-page application form that requires information and the selection of an investment option. The need to decide between multiple investment choices can discourage people from saving for a long-term goal (Benartzi & Thaler, 2007), and this process may be especially difficult for individuals who are investing for the first time. New mothers may also feel overwhelmed with childrearing issues. Consequently, financial decisions like opening an account may be postponed when financial forms and investment choices are presented. If private OCSP account opening were



also automatic, SEED OK children would very likely have had a private OCSP account opened for them at a greater rate than the 17% observed. Similarly, automatic account opening of a single integrated account for both private and incentive deposits would produce higher opening rates and be easier for participants to understand.

Innovations that streamline 529 plan account opening exist currently in limited forms. One example is in Alaska, where residents can enroll in the State's 529 by checking off a box on the state's Permanent Fund Dividend application with no requirement to complete a 529 plan account enrollment form. Alaska's streamlined enrollment features include the check-box enrollment, implied consent to terms and conditions, and a pre-selected or default investment. A default investment, offered in the Alaska and Utah College Savings Plans, would benefit individuals who are unsure which investment option to select (Clancy, Lassar, & Miller, 2009; Lassar, Clancy, & McClure, 2010). These and other features might increase participation in College Savings Plans if used in conjunction with a matched savings structure as in SEED OK.

How should we understand the private account opening and savings amounts by treatment participants? First, the impacts of SEED OK on account opening and savings are statistically significant, but the proportion of participants opening accounts and the amounts of savings are modest. In a negative light, these could be interpreted as very small effects, perhaps not worth the trouble of setting up a new policy. In a positive light, the SEED OK demonstration provides clear evidence of the efficacy of automatic account opening, and on seeding college savings for people who might otherwise not begin saving for college. Perhaps they will save more in the future, or perhaps they will never save very much, we do not yet know.

If these individuals never save very much, would these levels of savings represent a failed policy demonstration? This too is not clear. We must remember that separate private OCSP accounts are an artifact of the demonstration. All SEED OK treatment children (save one) have the initial state-owned account. A universal CDA policy would (we hope) have a single, integrated account that would eliminate the need for potential savers to open their own account and reduce barriers to saving. It is possible that *just having an account* may lead to more positive outcomes.

As a first point on this, in the SEED Michigan impact assessment, participants expressed ownership of "our savings" even when the deposits had been made by others. On reflection, this is not very different from a typical 401(k) account owner who thinks of the entire balance as his or her savings, even though the accumulation has occurred with employer matches and tax deferrals. And a very clear finding in IDA research is that account owners are quite pleased to "own" their savings and feel good about it, even if they have not deposited all or any of the money (Sherraden & McBride, 2010).

A second point is that having an account may be about more than the money. A growing body of evidence suggests that savings and assets, in addition to their role as material resources, may affect outlook, expectations, and behavior. Much of the existing evidence relates to savings and educational achievement. A savings account, especially for college, may motivate children to study hard and prepare for college while increasing future orientation (Nam, Huang, & Sherraden, 2008; Oliver & Shapiro, 1997; Sherraden, 1991). Evidence suggests that household assets, especially financial assets, have a positive association with children's educational attainment, including college education and completion (Conley, 1999; Elliott & Beverly, 2010a, 2010b; Keister, 2000; Nam &

Huang, 2008; Williams Shanks & Destin, 2009; Zhan, 2006; Zhan & Sherraden, 2003, 2009, 2010). Especially, we note a recent study using the PSID, finding that, controlling for many other factors, *including savings amounts*, the presence of any savings account in a child's name is strongly associated with later fulfilling expectations to attend college. In other words, just the account itself, regardless of savings amounts, is associated with educational achievement (Elliott & Beverly, 2010a).

Overall, there is reason to be somewhat hopeful about the initial results in SEED OK. The initial impacts are clear and essentially positive. Whether these initial impacts on treatment participants are sustained and the extent to which they matter for child outcomes remains to be seen. As the experiment progresses, we will be able to investigate SEED OK's impact on parental attitudes and behaviors as well as children's own developmental outcomes. The experiment has a solid methodological foundation, and we will be able to determine whether SEED OK contributes to later increases in savings and the level of asset accumulation, parents' aspirations, home environment and parenting practices, and child development.

The second wave of SEED OK survey data will likely be collected in 2011, with a third wave in 2014. With good fortune, researchers will follow the SEED OK children for many years to come, perhaps even all the way through the college and young adult years.

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