



## Impacts of Child Development Accounts on maternal depressive symptoms: Evidence from a randomized statewide policy experiment



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### ABSTRACT

This study examines the impact of Child Development Accounts (CDAs)—asset-building accounts created for children at birth—on the depressive symptoms of mothers in a statewide randomized experiment conducted in the United States. The experiment identified the primary caregivers of children born in Oklahoma during 2007, and 2704 of the caregivers completed a baseline interview before random assignment to the treatment ( $n = 1358$ ) or the control group ( $n = 1346$ ). To treatment participants, the experiment offered CDAs built on the existing Oklahoma 529 College Savings Plan. The baseline and follow-up surveys measured the participants' depressive symptoms with a shortened version of the Center for Epidemiologic Studies Depression Scale (CES-D). In models that control for baseline CES-D scores, the mean follow-up score of treatment mothers is .17 lower than that of control mothers ( $p < .05$ ). Findings suggest that CDAs have a greater impact among subsamples that reported lower income or lower education. Although designed as an economic intervention for children, CDAs may improve parents' psychological well-being. Findings also suggest that CDAs' impacts on maternal depressive symptoms may be partially mediated through children's social–emotional development.

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Depressive symptoms among mothers of young children affect both the parent and the child (Horwitz et al., 2007). Children of mothers with severe depressive symptoms face higher risk of delay in cognitive, language, and social–emotional development than do counterparts whose mothers lack such symptoms (Sohr-Preston and Scaramella, 2006). The level of child development, the intensity of parenting stress, and the quality of mother–child interactions are among the predictors of maternal depressive symptoms (Gartstein and Sheeber, 2004; Horwitz et al., 2009; Lovejoy et al., 2000).

The observed associations among child development, parenting stress, and maternal depressive symptoms suggest that an effective, family-focused, early-childhood program could reduce those symptoms among mothers. An evaluation of Early Head Start, a program to serve infants and toddlers under the age of 3, provides a theoretical foundation and empirical evidence for the hypothesis that child development interventions can play an important role in supporting parents' psychological well-being (Chazan-Cohen et al., 2007). The current study tests the hypothesis with data from a

different early-childhood program: *SEED for Oklahoma Kids* (SEED OK), a randomized policy experiment of Child Development Accounts (CDAs) in Oklahoma. Opened for children, these potentially lifelong accounts offer an asset-building vehicle accompanied by information on saving and incentives to save. In short, CDAs offer households a structured opportunity to accumulate assets for children (Sherraden, 1991). Assets in CDAs are usually intended to finance postsecondary education (Meyer et al., 2010).

Maternal depressive symptoms may be affected by CDAs in several ways. The asset holding generated by the intervention may increase parents' perceived levels of economic safety, enhance optimism concerning long-term child development, and reduce maternal depressive symptoms. That is, the effects of accumulating assets may mediate the relationship between the intervention and depressive symptoms, such that holding assets for their children's futures improves mothers' self-concept, views of the world, and future outlook—components of the cognitive triad of depression (Beck et al., 1979). For example, SEED OK research has shown that, compared to the control group, the treatment group was significantly more likely to open an account (16% vs. 1%) during a 3-year period of program implementation (Nam et al., 2013). At \$47, the mean individual savings for all treatment participants is modest but

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significantly higher than that of participants in the control group (Nam et al., 2013). If the sums of total assets accumulated in CDAs include the financial incentives provided by the experiment, the treatment–control difference is highly significant at \$1040 (Nam et al., 2013). Thus, participants in the treatment group may be expected to have a better economic outlook for their children.

In addition, CDAs have the potential to positively affect parenting behaviors and parents’ educational expectations for their children. Research suggests that CDAs are positively associated with children’s educational outcomes, emotional well-being, and behavioral competencies (Huang et al., 2010; Kim and Sherraden, 2011; Sherraden, 1991; Williams Shanks et al., 2010; Zhan and Sherraden, 2003). Moreover, Sherraden hypothesized that holding assets has effects in such psychosocial areas as self-efficacy, future orientation, and hope (Sherraden, 1991). Support for that hypothesis can be found in the few existing studies (e.g., Bynner and Paxton, 2001; Yadama and Sherraden, 1996) and particularly in research from SEED OK. For example, the probability that parents with low education will have high educational expectations for their child is 10 percentage points greater among those participating in the SEED OK treatment than among counterparts in the control group (Kim et al., 2013). Another study shows that exposure to CDAs positively affects the social–emotional development of treatment participants’ children, influencing self-regulation, interactions with parents, and compliance (Huang et al., 2014). Thus, it is possible that CDAs reduce maternal depressive symptoms by improving parenting and child development.

Despite research on a number of beneficial outcomes associated with exposure to CDAs, no prior study has examined effects of the accounts on parental psychological well-being. The current study tests this association using experimental data from SEED OK. We focus on maternal depressive symptoms, hypothesizing that exposure to the intervention with CDAs reduces mothers’ depressive symptoms. To understand why CDAs might affect maternal depressive symptoms, we also examine the possibility that individual saving behaviors and children’s social–emotional development play mediating roles in the relationship between the intervention and depressive symptoms.

**1. Methods**

The purpose of the SEED OK experiment is to test a universal policy of asset building that begins at birth. The experiment aims to determine whether CDAs can be extended successfully to the full population, eventually promote asset accumulation among parents and children, and improve attitudes and behaviors of parents and children.

The experiment’s protocol was approved by the institutional review boards of all participating organizations, and all participants in the experiment provided informed consent in the baseline survey. This study uses information from both survey rounds: a baseline conducted from late 2007 through early 2008 and a follow-up conducted in the spring of 2011. Previous research details information on the design of the experiment (Nam et al., 2013).

**1.1. Participants**

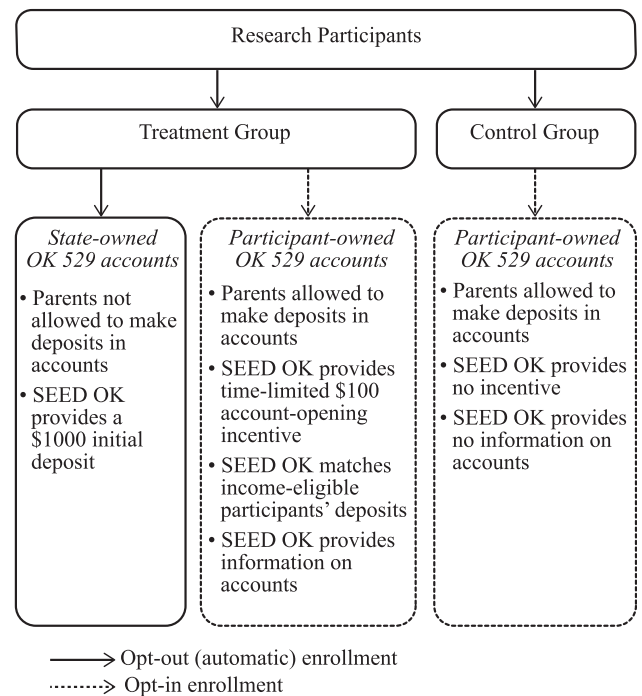
A probability sample of 7328 children was drawn in 2007 from all infants born in two 3-month periods in Oklahoma (April–June and August–October 2007). Caregivers of 2704 of these infants (37%) agreed to participate in the experiment and completed the baseline survey. Participants and nonparticipants did not differ significantly on most demographic and socioeconomic characteristics documented in birth records; nonresponse bias was minor (Nam et al., 2013). The experiment oversampled racial and ethnic

minorities, including those identified in birth records as African American, American Indian, and Hispanic. In early 2008, after the baseline survey, SEED OK randomly assigned 1358 participants to the treatment group and 1346 to the control group. In a packet sent to members of the treatment group, the Oklahoma treasurer’s office provided information about the Oklahoma 529 College Savings (OK 529) Plan and the SEED OK experiment. The packet also informed recipients of their assignment to the treatment status.

**1.2. The SEED OK experiment**

The SEED OK intervention was built on the existing OK 529 Plan. College savings plans are tax-advantaged initiatives designed by the federal government and operated by state governments to encourage saving for future college costs (Clancy and Sherraden, 2003; U.S. Department of the Treasury, 2009). In the OK 529 Plan, contributions up to \$10,000 per year (or \$20,000 for married couples filing jointly) are deductible on state income-tax returns, and investment earnings in the accounts are not subject to federal or state taxes unless accessed for purposes other than eligible educational purposes. The SEED OK experiment offered three financial incentives to treatment mothers (see Fig. 1). First, the state treasurer deposited \$1000 of SEED OK funds into a *state-owned* OK 529 account opened automatically for treatment children in January–May 2008. Of the 1358 treatment-group participants, only one opted out of the state-owned 529 account for her child; she cited religious reasons for doing so.

Second, treatment participants were encouraged to open and make deposits into their own *participant-owned* OK 529 accounts. The OK 529 Plan requires a \$100 minimum initial contribution to open a new account. To eliminate a financial barrier that might prevent treatment participants from opening their own account, SEED OK offered to make the required \$100 initial contribution for each participant-owned OK 529 account opened by treatment



**Fig. 1.** Study design, enrollment, and retention for SEED OK participants. Adapted from Huang et al., 2013, p. 6. Copyright 2012 by the American Council on Consumer Interests. Note: OK 529 accounts = Oklahoma 529 College Savings accounts; SEED OK = SEED for Oklahoma Kids.

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