

Assessing the Evidence for Children's Savings Accounts (CSAs) as an Effective Strategy for Improving Children's Postsecondary Outcomes.

THE CONTINUUM OF EVIDENCE OF EFFECTIVENESS

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Foreword

In this paper, I organize the history of our understanding of CSA's impact on college as a series of "evolutions" advancing the field. The objective is not to discuss every study on the topic, but to discuss enough so to allow the reader to make their own decision about where on the continuum of the strength of evidence the field currently lies. And just maybe for some, in doing this, they will be surprised at how far the field has come. Because it is not possible to discuss all the research within the body of the paper, there are more exhaustive tables included as appendices.

Similarly, it is nearly impossible within the scope of this paper to give all organizations and individuals the credit they deserve for getting the field to where it is today. So, here I want to point out some of the groups and people that played an especially important role but were either not discussed in the body of the paper or maybe did not get enough discussion.

Prosperity Now, formerly known as the Corporation for Enterprise Development (CFED), has played an important role in helping CSAs move along the continuum but their impact is not easily captured in the different evolutionary periods because really their impact spans the history of the field. Along with others, Prosperity Now, under the thoughtful leadership of Bob Friedman and Andrea Levere, helped establish the American Dream Demonstration (ADD)¹ and Saving for Education, Entrepreneurship, and Downpayment (SEED) demonstration.² These demonstrations laid the groundwork for investigating the relationship between CSAs and college outcomes. Prosperity Now also played an important role in helping CSA programs connect with each other and to understand itself as a cohesive field. This was achieved by producing a directory of all CSAs and an annual report on the state of the field.³ Regarding the continuum of evidence of

effectiveness, maybe their largest impact was on helping the field establish implementation guidance. Beyond consulting with many new startup programs, they created a variety of resources to help new programs get started including a manual for how to start a CSA.⁴

New America's (formerly called New America Foundation) asset building program was also highly influential. Under the leadership of Ray Boshara and Reid Cramer, for years they served as the predominate policy arm of the asset field. They helped ensure that research findings got in front of the media and policy makers. They helped bring the research and even the researchers themselves into policy and public debates through creating press releases, hosting media events, writing policy papers and op-eds, sharing findings with policy makers, and helping bring policy makers together to support asset proposals in Congress, and much more.

In addition to these think tanks, several foundations have played a substantial role in the asset field's growth and development.⁵ It would be hard to not mention the role of the Ford Foundation, particularly Melvin Oliver in his role as Vice President of the Asset Building and Community Development Program and Program Officer, Kilolo Kijakazi. The Ford Foundation thought outside the funding box and provided the Center for Social Development (CSD) an endowment that would help make them one of the most important centers in the asset field, giving them the necessary financial freedom, which provides the context for intellectual freedom, to become what it has become today in addition to providing financial support for many of the major demonstrations that have taken place in the field.

The support of Charles Stewart Mott Foundation under Education Program Director Benita

¹ To learn more about ADD see <https://prosperitynow.org/sites/default/files/resources/Evaluation%20of%20the%20American%20Dream.pdf>.

² To learn more about SEED see <https://prosperitynow.org/sites/default/files/resources/SEEDSynthesis.pdf>.

³ The map can be found at <https://prosperitynow.org/map/childrens-savings>.

⁴ You can find the manual at <https://prosperitynow.org/blog/interested-creating-csa-program-heres-how-get-started>.

⁵ The Asset Funders Network under the leadership of Joseph Antolin, should also be mentioned.



Melton has been particularly important to the research on CSAs and children's educational outcomes broadly (early education effects as well as college). Benita and the foundation were there at the start of the CSA field, not only as a funder but as a thought leader. They have helped fund most all the major research studies that have happened within the field and discussed in this paper in some form or another. The Charles Stewart Mott Foundation also helped bring together programs and researchers so they could learn from one another at critical points in the field's history, helping the field to accumulate, "professional insight, understanding, skill, and expertise" what Puddy and Wilkins (2011) refer to as experiential evidence (p. 3). There is really no way the field would have been able to continue to move along the continuum of evidence without the continued support of the Charles Stewart Mott Foundation and Benita Melton.

The Annie E. Casey Foundation also been a supporter of the field for many years generally but for the Center on Assets, Education, and

Inclusion (AEDI) specifically. In many ways, on a much smaller level, but no less important, the foundation has played the same role the Ford Foundation played for CSD. AEDI owes Senior Policy Associate at Annie E. Casey, Todd Llyod a particular thanks for not only his financial support, but for being a thought partner. Todd has doggedly sought support for the center within the foundation for several years now. Even though funding has been modest, it has been consistent, and absolutely critical to the center's ability to survive. Typically, foundations will only fund specific new research projects. Annie E. Casey, however, has provided AEDI general support that allows the flexibility to think outside of the box, to create and do things we could not do otherwise. Things such as starting a podcast, creating animations, or even just having an outside group help with the design of reports, infographics, and such. Endeavors that serve to greatly improve the appeal and reach of all our work.

The Friedman Family Foundation provided the center with \$10,000 annually for years (special

thanks to Bob Friedman). Even though this is not a large amount in the funding world, for a small-dollar center like AEDI, this money was critical to the work it has been able to do over the years. The foundation closed recently. But at its close, provided AEDI with a \$50,000 capstone grant (i.e., gift). This gift, while not in the form of an endowment, along with funding from Annie E. Casey, has been the backbone of the work the center has been able to put out over the last few years. You cannot think outside the box and push the envelope without such support.

I will end this section with a personal story that I think speaks to the fact that the people in these foundations and the role they have played in the field go beyond financial support. In many ways they are our friends, and have been our partners in moving the field, as well as our own careers, forward. I fondly remember when I was attempting to move from an assistant professor to the level of associate, I had a conversation with Benita Melton and Kilolo Kijakazi about how up until that point I had only received flow-through funding from them. That is, funding that went to another center that then provided me with a subgrant. This can make a lot of sense and be useful, but it can also be almost career dooming for a faculty member. Regarding promotions, it suggests you cannot get your own funding, that you are making your way on the coattails of others. Moreover, sometimes the work is attributed to the main grantee (i.e., the work you do is work on behalf of the grantee). This also can be career stunting. This is not a poke at those who provided me with subgrants. And depending on where you are in your career this can matter or not matter at all. Nonetheless, Benita and Kilolo appreciated this and saw the need at that moment to change the nature of our relationship and provide me with my own funding to help me become a tenured associate professor. Think about that. That is more than being a funder. That is caring about you as a person and the potential you have. In addition to helping me achieve tenure, this funding really allowed me to start what was then the Assets and Education Initiative, the precursor to the Center on Assets, Education, and Inclusion. In academia, regarding promotions and such, foundation funding can be minimized because of low indirect costs

universities are able to receive in comparison to federal grants. However, there seems to be something very important about these kinds of stories, what Charles Stewart Mott did for me, or what the Ford Foundation once upon a time did for CSD by providing it with an endowment.

Let me end by acknowledging, clearly there are many others who have contributed significantly to the evolution of this body of research. However, it is impossible to acknowledge everyone. In advance, I apologize to those who might feel as though they should have been mentioned.



Introduction

Children’s Savings Account (CSA) programs are typically long-range investments starting at a child’s birth or upon entry into kindergarten. As such, they do not come fully into fruition until a child reaches college age. They are asset building accounts that can facilitate transformative wealth transfers. CSAs have features specifically designed to encourage asset building among children who live in low-income families. Usually deposits are permitted from children, their parents, and other relatives, as well as from third parties, such as employers and scholarship programs. Ideally, these investments are leveraged with an initial “seed” deposit and/or matching funds that add public or philanthropic contributions to families’ savings. For low-income families, this can help offset meaningful incentives that are already available to higher-income households through tax benefits (e.g., retirement saving, charitable contributions, higher education, and home mortgage interest deductions) helping to level the playing field (Howard, 1997; Sherraden, 1991).

In *Assets and the Poor*, Sherraden (1991) imagined the possibility of both a multipurpose policy and an education specific policy among others (e.g., homeownership or retirement). In contrast to the multipurpose model, in

response to public opinion and what appeared as political desire, most programs today have adopted an education specific model of CSAs. For example, in a survey of 801 registered voters, 40% believed that making education more affordable should be the top priority of government. No other priority garnered favor from a larger proportion of study participants (Goldberg, Friedman, & Boshara, 2010). Similarly, 58% of registered voters in the study thought that the most effective use for CSAs would be to help families save for college.

However, the field initially had to adopt a small-dollar model of CSAs to get demonstrations and research funded and off the ground (Elliott, 2022, Oct.). Therefore, currently the most popular and widespread form of CSAs today are small-dollar accounts (\$5 to \$1,000 initial deposit with no additional deposits) designed to help families build assets for the purpose of increasing college enrollment and completion rates. CSAs are receiving growing interest as a tool for helping families begin to plan for how to pay for college starting when their child is at a young age. It appears the field is entering a very important stage of research on the relationship between CSAs and college enrollment and completion.



Method: Continuum of Evidence of Effectiveness

This paper uses the continuum of evidence of effectiveness to better assess the evidence on Children's Savings Account's (CSA) effectiveness at improving children's college outcomes.⁶ The version of the continuum of evidence of effectiveness used here as a guide was developed by the Center for Disease Control and Prevention's (CDC) National Center for Injury Prevention and Control and the Division of Violence Prevention (Puddy & Wilkins, 2011). This tool was created to help create a common lens for researchers, practitioners, and policymakers when trying to determine if an intervention can be understood to have well-supported effectiveness (Puddy & Wilkins, 2011).⁷

The continuum of evidence may be useful for understanding how strong existing research is for establishing that CSAs are an effective strategy for increasing college enrollment and completion. I have ranked research using four effectiveness areas using the continuum of evidence of effectiveness framework developed by Puddy and Wilkins (2011). I do not attempt to 100% adhere to their evidence continuum framework. Instead, it serves more as a guidepost for understanding the strength of the evidence for CSAs as a strategy for improving children's college outcomes. While they identify seven areas on the continuum from weakest evidence through strongest for understanding strategies related to violence prevention, for understanding CSA evidence I suggest four of the areas seem most fitting: emerging, promising direction, supported, and well-supported. Even still, as Puddy and Wilkins (2011) suggest, these areas are not meant to be exclusive, there is some crossover between the different areas.

In addition to using the four areas of effectiveness on the continuum, I also identify different,



what I am calling evolutionary moments in the field and research, that have helped move the field along the continuum ever closer to becoming a well-supported strategy. This does not mean that these are the most rigorous studies or best studies or even the only moments that could be identified. I look forward to hearing from others about different moments that they think have played such a role and modifying and adapting this over time. From my perspective, however, given what I know today, these moments seemed to have played an important role in moving the research from one stage to the next. Evolutionary moments are not part of Puddy and Wilkins (2011) framework. I am using them to help the reader visualize how research in the CSA field has changed over time, and how these changes helped catapult the field along the continuum. Kind of a story telling and visual aid for better understanding where the field has come and where it is currently with regard to being an effective strategy for improving children's college outcomes.

⁶ The term college is used broadly understanding that many CSA programs have as their goal improving postsecondary outcomes broadly and not simply attendance and completion of a four-year degree. However, many studies referenced here also use the term college. So, to be consistent with the research I am choosing to use college here.

⁷ To download the guide, go to https://www.cdc.gov/violenceprevention/pdf/understanding_evidence-a.pdf.

Emerging Evidence:

Effect: Expected to be effective

- **Internal Validity:** Sound theory only
- **Type of Evidence:** Exploratory studies
- **Replication:** Program replication, no evaluation replication
- **Implementation Action Guidance:** None
- **External and Ecological Validity:** Somewhat real world informed

Promising Direction Evidence:

Effect: Some evidence of effectiveness

- **Internal Validity:** Non-experimental design
- **Type of Evidence:** Single group design
- **Replication:** Program replication, no evaluation replication
- **Implementation Action Guidance:** Partial
- **External and Ecological Validity:** Real world informed

Supported Evidence:

Effect: Found to be effective

- **Internal Validity:** Quasi-experimental design
- **Type of Evidence:** Quasi-experimental design
- **Replication:** Program replication with evaluation replication
- **Implementation Action Guidance:** Comprehensive
- **External and Ecological Validity:** Applied studies similar settings

Well-Supported Evidence:

Effect: Found to be effective

- **Internal Validity:** True experimental design
- **Type of Evidence:** Randomized control trials, meta-analysis, systematic review
- **Replication:** Program with evaluation replication
- **Implementation Action Guidance:** Comprehensive
- **External and Ecological Validity:** Applied studies different settings

(Puddy & Wilkins, 2011, see p. 9)

Continuum of Evidence of Effectiveness Framework

Within each of the four areas identified by Puddy and Wilkins (2011), they provide five criteria (internal validity, type of evidence, replication, implementation action guidance, and external and ecological guidance) for determining what area along the continuum of evidence of effectiveness can be placed (i.e., for determining the strength of the evidence).

Use of Proxies in CSA Research

An important reason for why I state that Puddy and Wilkins (2011) continuum of evidence of effectiveness serves as a guidepost instead of following it 100% is because of how the research on CSAs and children's college outcomes has evolved over time compared to how research on violence prevention evolved. Research on CSA interventions differs from violence prevention intervention research in that much of the early research on CSAs relied on using proxies for CSA participation. A proxy is a variable used in a study that is meant to closely approximate the variable of interest that cannot be measured directly.

So, it seemed to me, the comparability of the proxy used in CSA research is an important factor in assessing the overall strength of the evidence. For example, research from the emerging area used family net worth as a proxy for participating in a CSA program or for having money saved for college. But how similar is this to participating in a CSA program? The field has moved from relying on a proxy that might be classified as loosely related to CSA participation (family net worth; liquid assets), to a proxy that is associated with having savings for college (parental savings for college), to a proxy that captures a child who has a bank account designating some of that money in the account for future schooling such as college (children who designated some savings for future schooling), to no longer needing a proxy and using data from children participating in a CSA program. While family net worth is an asset, it can be used for a variety of purposes that are not related to college. I suggest that having parental savings for college is more like a CSA,

but children may not know their parents have college savings for them. Savings designated by children in a savings account for future schooling both is known to exist by the child and is understood as money in an account specifically for future schooling. Further net worth amounts can be much more than amounts typically in CSAs and have far more diversified uses. Therefore, in attempting to identify strength of evidence, in this paper designated saving for future schooling by a child in a bank account is seen as a stronger form of evidence.

In this paper I rank proxies on a scale of 1 to

3. If the study uses program data, it is given a perfect score of 5. The lower the score the less comparable the variable is believed to be to participating in a CSA Program. More specifically, if a study uses family assets (e.g., net worth, liquid assets, etc.) it is given a score of 1; if it uses parental savings for college or children's basic savings account it is given a score of 2; and if it uses children's designated savings for future schooling it is given a score of 3. The strength of the proxy used is an important part of being able to assess the potential strength that a study has in this area of study.



Definitions of Criteria for Determining the Effectiveness of an Intervention

In this section I define the different criteria used to determine the effectiveness of evidence. The first criterion Puddy and Wilkins (2011) raise is effect. However, from my perspective, the effect is not so much a criterion but a characterization of the overall strength of effectiveness of evidence. Because the effect is the overall assessment of the strength of the criteria combined, I am going to describe the other criteria first

Internal validity is the extent to which the short-term and long-term outcomes of can be attributed to the intervention. According to Puddy and Wilkins (2011) an intervention has higher internal validity depending on the

soundness of the theory supporting it and the kind of study design used (e.g., quasi-experimental or experimental). Here is a point where I suggest the comparability of the proxy used, if a proxy is used, has a direct impact on the assessment of internal validity. The more a proxy is like participating in a CSA intervention (e.g., are we comparing apples to apples; they may be different kinds of apples but how similar are they) the more reasonable it is to conclude that CSA interventions are likely to produce the same findings among participants.

The type of evidence refers to the kind of research design used. The design helps set limits on the level of rigor (i.e., the strength of

the evidence) the study can be said to have. I rank types of evidence from 1 to 5: (1) non-experimental exploratory, (2) non-experimental explanatory, (3) quasi-experimental, (4) quasi-experimental impact evaluation, and (5) experimental (randomized control trial).

In this paper the use of the term exploratory is representative of the stage of development of the field at that point. And I should also point out that the use of the term field is being used loosely for this period. At the time there was not a clearcut answer to whether assets were associated with college outcomes, but even more importantly what a CSA program specifically was. For example, in a paper written in 2011 that focuses on net worth and several other measures of family assets, Kim and Sherraden (2011) said, “However, there is still no consensus on how assets may contribute to children’s educational attainment. Impacts of assets on educational attainment are unclear. Do diverse forms of assets and liabilities result in different impacts?” (p. 970). At this point, the goal was to uncover new insights and generate hypotheses about the asset/education relationship. These studies were not conducted to test the effectiveness of CSAs, they did not talk about CSAs, this is because the CSA field did not even exist yet as a field. This was in part because CSAs themselves were loosely defined. You see this even in the Saving for Education, Entrepreneurship, and Downpayment (SEED) demonstration where the 12 programs in the demonstration had very different notions of what a CSA was. Further, the launch of SEED for Oklahoma Kids (SEED OK) would not happen until 2007, Kindergarten to College (K2C) in San Francisco did not launch until 2011, and the MyAlfond Grant in Maine did not become what we know it as today, a statewide program with automatic enrollment, until 2013.

So, the goal of these early net worth papers was not to test hypotheses about CSA, it was to add to the conversation about the potential independent effects of assets (i.e., distinct from income) on educational outcomes. These studies were important to the CSA field, because they provided grounds for early researchers interested in studying CSAs to develop hypotheses about the potential effects that CSAs might have on children’s education outcomes,

and about what mechanisms (e.g., educational expectations) explained this relationship. In this very concrete sense, the early net worth studies, as they relate to CSAs were exploratory. They provided early CSA researchers with guidance on how best to proceed in developing hypotheses about the relationship between CSAs and children’s educational outcomes. And so, as researchers gathered information from these non-experimental exploratory studies on the effects of net worth, and the field of CSA came into clearer vision, the goal became to test and confirm hypotheses about CSAs and children’s educational outcomes. This is what explanatory research does, and why I use the phrase non-experimental explanatory research to describe the type of evidence used in these early studies whose goal it was to test hypotheses about CSAs and their relationship with children’s educational outcomes.

A note on how quasi-experimental might also be helpful. For a study using secondary data and a proxy to be classified as quasi-experimental, it must have used regression discontinuity, an instrumental variable estimation, difference in difference, or propensity score matching of some form. This allows groups to be matched on preexisting characteristics making the comparison group and treatment group more alike reducing the potential for selection bias (e.g., Reeves, Wells, & Waddington, 2017). However, of these quasi-experimental designs propensity score methods are the weakest and so I make a further distinction for the purpose of understanding strength of effectiveness only between quasi-experimental and quasi-experimental impact evaluations.

Replication. Puddy and Wilkins (2011) talk about the importance of both program replication and evaluation replication. Program replication occurs when a program is implemented similarly, for example, but in a different city. Programs can be partially implemented, which is a weaker form of replication. This occurs when the program is not implemented as intended (i.e., low fidelity). Evaluation replication occurs when another evaluation of a similar program is conducted and it uses similar methods but new data, and it produces the same results.

Implementation action guidance refers to

whether an intervention has in place implementation support, services, and materials to assure new programs have high fidelity. That is that the supports exist to help new programs very closely mirror the programs they are modeled after. Partial implementation is more likely to occur when support for starting up a program is not readily accessible.

External and Ecological Validity. According Puddy and Wilkins (2011), indicate that the amount of external and ecological validity a program has is determined by whether it has been administered in a community and has been demonstrated to work in a variety of different communities with different populations. In this paper, there are four classifications of external and ecological validity that are used. From weakest to strongest they are somewhat real world-informed, real world-informed, same settings, and different settings. However, regarding the CSA intervention only two of the four classifications apply, same settings and different settings.

Effect. Returning now to the effect, to better visualize the effect of a particular research study or where it fits in on the continuum, I provide a strength of evidence score. This score not only provides an easy way to visualize the strength of a study within the accompanying review tables, but also helps visualize which area of the continuum it fits into. The strength of evidence score is the sum of the proxy score and the type of design score (1 through 10, with 10 being strongest). Certainly, other factors could also be considered such as the type of analytic approach used (e.g., regression, logistic, SEM, HLM, etc.). However, within the CSA field, these seem to be the two key differentiating features of research studies that can be relatively easily assessed and that greatly impact the level of rigor a study can achieve. For example, if the proxy used for CSA participation is not very comparable to being a participant in a CSA program, then the analytic approach can do little to overcome this limitation however rigorous it might be. A way to think about this is, a proxy with weak comparability in a secondary data analysis study is like an experimental study being conducted in a setting very dissimilar to the real world setting it is meant to occur (e.g., like in a lab). This does not mean we cannot learn

from such studies; they just are not as strong.

Role of Short-Term and Long-Term Outcomes

While not one of the five criteria for determining the effectiveness of evidence, Puddy and Wilkins (2011) also emphasize that the most effective interventions, in addition to meeting the five criterion produce significant positive effects in the short-term as well as in the long-term. In the case of the CSA intervention there would need to be evidence, for example, that it has a positive effect on early childhood outcomes that are predictive of having increased odds of attending and enrolling in college.

However, reviews of research already exist on short-term outcomes and CSAs (e.g., Elliott & Harrington, 2016). So, here, they are not given a full discussion though previous reviews are updated in the tables included in this paper using the continuum of evidence of effectiveness framework. Further, the evolutionary path of research on short-term outcomes is placed on the continuum of evidence of effectiveness in Figure 1. It is necessary to present short-term and long-term outcomes' research separately in the figure, because they have taken two different paths in large part because CSAs designed to impact children's college outcomes start at birth. Moreover, these programs are relatively new, so few kids have reached college age in these programs. The focus of this paper is on evidence of the effectiveness of CSAs as a strategy for improving children's college enrollment and completion rates.

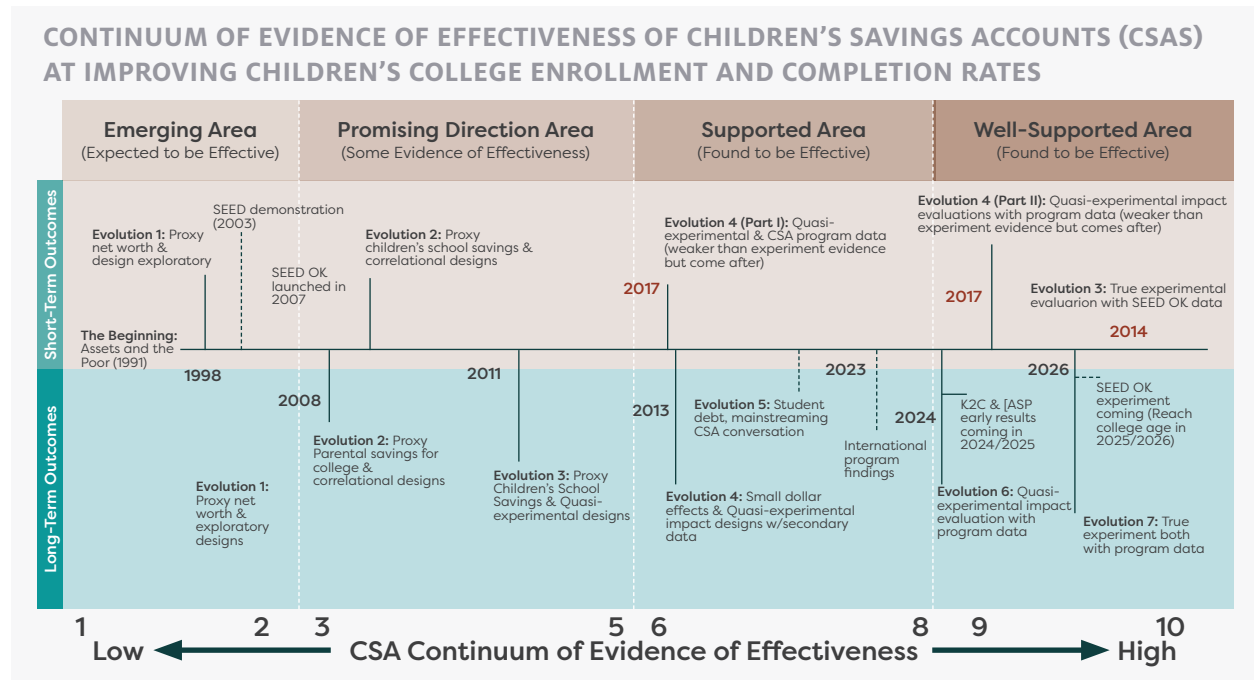
Overview of the CSA Continuum of Evidence of Effectiveness for College Outcomes

In Figure 1, an overview of the different areas on the continuum of evidence of effectiveness are provided along with a description of the different evolutionary moments and the time periods they occurred, both short-term and long-term outcomes. This is intended to provide the reader with a picture of where the field is in the continuum and to act as a guide for what will be discussed in the remainder of the paper. For example, in the case of short-term outcomes,

the figure illustrates that the field already has evidence that can be classified at the strongest level of well-supported evidence. Whereas, in the case of long-term outcomes, while the field has evidence that can be classified at the second highest level, supported evidence, it does not yet have evidence that can be classified as well-supported. A reason there is not well-supported data yet, is because CSA programs start from birth or kindergarten and so there is a lack of program data to investigate among college age participants. However, the figure also illustrates that the field is entering a period where

more programs will have children reaching college age soon. The programs illustrated in the figure are programs that already have quasi-experimental impact research underway for evaluating college outcomes among participants. In the case of San Francisco’s Kindergarten to College (K2C) and the Community Foundation of Wabash County’s Early Award Scholarship Program (EASP), they will have preliminary findings this year for their first cohorts, and SEED OK will have experimental evidence in the upcoming years as well.

FIGURE 1



The continuum of evidence of effectiveness presented in this paper illustrates that there are different levels of evidence and that each level serves as the foundation for moving to the next. As such, new evolutions in research do not nullify the importance of past evolutions and the research produced in it. Instead, the new periods of research build on past periods. No single research study regardless of its design or importance to the field can move the field up the continuum. Puddy and Wilkins (2011) in talking about the “accumulative effect” of ev-

idence, characterizes it this way, “each area is considered to uphold the standards of evidence described in the area to its right as well as the additional rigor and standards of evidence specified within its own area” (p. 8). It is the many different studies using a variety of methods and populations during these different evolutionary periods that together tilt the pendulum toward the CSA intervention being considered an effective and well-supported intervention for improving children’s college outcomes or not.

Assessing the Strength of Evidence of Effectiveness of CSAs for Improving Children’s College Outcomes

Here I use the continuum of evidence of effectiveness as a guidepost for identifying different evolutionary research periods that sought to test whether the CSA intervention is effective at improving children’s college outcomes. The four areas on the continuum identified here are the emerging evidence area, the promising direction area, and the well-supported area.

Effect: The evidence falls in the emerging area in the continuum and can be classified as expected to be effective using Puddy and Wilkins (2011) framework as a guidepost. Research in this area used nationally representative secondary data sets such as the Panel Study of Income Dynamics, Survey of Income and Program Participation, and National Longitudinal Survey of Youth to test the relationship between parental assets, primarily net worth, and college enrollment and completion. While there were research demonstrations starting and even an experimental study that was launched, findings were not yet readily available and so, the primary evidence was from studies using net worth as the primary proxy for participation in CSA programs. Studies in this area have a proxy and type of evidence score of 1. Therefore, their overall strength of evidence score is 2.

Internal Validity: Sherraden (1991) in his seminal book, *Assets and the Poor: A New American Welfare Policy*, put forward a theory of social welfare based on assets. In this book, he also provided the framework for an institutional theory of the determinants of asset building and a theory of asset effects which are important for how CSAs can positively affect short-term outcomes (also see Beverly & Sherraden, 1999; Sherraden, Schreiner, & Beverly, 2003). I believe at this point this theory has substantial enough evidence supporting it to be characterized as sound (e.g., Curley, Swewamala, & Sherraden, 2009; Schreiner & Sherraden, 2007), and thus will not spend time attempting to further support this claim here. However, in terms of re-

Emerging Evidence (Evolution 1)

Highlights

Net worth was the key proxy for CSAs during this time and they were a consistent and significant predictor of both college enrollment and completion.

Early net worth appears to be a strong predictor of college enrollment. This provides some evidence that starting CSA programs early in a child’s life may be important.

Low-wealth youth who experience significant asset accumulation over time, have similar college completion rates as youth born into high wealth households. Therefore, increasing assets over time might be a strategy for reducing the gap in college completion rates between low-wealth youth and high-wealth youth.

Net worth is a more consistent predictor of math outcomes than reading outcomes and the effects of wealth start to appear between ages 6 to 12.

Puddy and Wilkins (2011) Criteria Adapted for CSA Intervention Effectiveness:

Effect: Expected to be effective

- **Internal Validity:** Sound theory only
- **Type of Evidence:** Exploratory studies
- **Replication:** Program replication, no evaluation replication
- **Implementation Action Guidance:** None
- **External and Ecological Validity:** Somewhat real world informed

search design used to test the effectiveness of CSA to improve children's college outcomes, non-experimental exploratory studies are one of the weakest to use. Therefore, I classify internal validity during emerging evidence period as having sound theory only.

Type of Evidence: In this paper, in the emerging evidence area, which uses net worth as a primary proxy for participating in a CSA, evidence is categorized as non-experimental exploratory. This is because while research from this period is based on sound theory (e.g., Sherraden, 1991), the proxy is least like CSAs. Given this, these findings are the hardest to clearly attribute to the CSA intervention. In fairness, in many of these studies, the goal of the studies was not to find evidence of the potential effects of CSAs. Instead, the goal was to test whether assets were generally determinative of college outcomes, a question that had not been comprehensively answered previously (i.e., thus exploratory). Nonetheless, given the newness of the field, researchers used these findings as grounds for hypothesizing that CSAs, an asset building intervention, could be expected to be effective at improving children's college outcomes. That is, while net worth might not be a McIntosh apple, they still are an apple (i.e., also a form of assets).

Replication: During this period there was program replication, but it could be characterized as partial at best. This was because at the time there was not clear implementation guidance which resulted in low fidelity. An example illustrating that programs were beginning to be replicated but with low fidelity can be found in the Saving for Education, Entrepreneurship, and Downpayment (SEED) demonstration (Sherraden & Stevens, 2010). SEED started in 2003 and ran through 2008. There were 12 CSA programs started across the county including 1,171 children and their families. An explicit goal of SEED was to learn about how to create and run CSAs programs which indicates that the field had not yet established clear guidelines on how to implement these programs (see Sherraden & Stevens, 2010). Moreover, these 12 programs looked very different from one another from the goals they had for the programs, the age ranges children were enrolled, the types of organizations running them, how much money

was put into the accounts, the type of match available, the settings they were administered in, and many other differences.

Implementation Action Guidance: During this period there was very little easily accessible information on how to start and administer a CSA program (i.e., best practices). Moreover, the biggest lessons for what a CSA should look like and how to run them would not come until after the start of SEED for Oklahoma Kids (SEED OK) in 2008. It was a statewide experimental test of CSAs using Oklahoma's State 529 College Savings plan as a platform for administering the accounts. A reason SEED OK was so important for establishing key principles for running CSA programs was because it included a rigorous research design. This allowed for providing strong evidence on which features were key to the success for developing CSA programs. However, it was also not sufficient by itself for establishing how to implement CSA programs. This is because it only included about 1,300 kids in the treatment group. However, the field would see the start of the Harold Alfond College Challenge (HACC) during this period as well, now called My Alfond Grant. It first started as a demonstration in 2008, and then as a statewide opt in program in 2009. The program started with children and families at birth. With about 12,000 births each year, it provided states and other communities with the sense that this can be done within a state, at scale. Further, they became one of a couple often replicated programs (others are K2C and EASP? Or Promise Indiana) in the field over the years. President and CEO of the Alfond Scholarship Foundation, Colleen Quint, played a significant role in the field as an information source on how to start and run CSA programs during this time.

External and Ecological Validity: Regarding external and ecological validity within the SEED demonstration, for example, there were three CSA programs implemented in elementary schools among different populations. However, I would suggest that a condition for external and ecological validity to exist is that programs have high fidelity of implementation (i.e., do we have two or three programs when it is not clear to what degree they are the same programs). As discussed under implementation action,

high fidelity of implementation did not yet exist. Therefore, I suggest that external and ecological validity during the emerging evidence period could be characterized as weak even though there were programs implemented in different settings.

The review of research for this section can be found in Appendices A, B, and C (Tables 1-3).

Appendix A, Table 1 covers research in the emerging area on college enrollment. Of the 12 studies reviewed in Table 1, 10 use net worth as the primary proxy for CSA participation. Of those 10, six find that net worth is a significant predictor of college enrollment. Liquid assets is used three times, and all three times it is found to be a significant predictor of college enrollment. In addition, several studies find that net worth or assets in early childhood are a significant predictor of college enrollment. This provides some evidence for the importance of starting CSA programs early in a child’s life.

Appendix B, Table 2 covers research in the emerging area on college completion. Of the 9 studies reviewed in Table 2, 7 use net worth as the primary proxy for CSA participation. Of those 9, 6 find that net worth is a significant

predictor of college enrollment. Like findings on college enrollment, there is some evidence that finds that early net worth is a significant predictor of college completion as well. Interestingly, Loke (2013) finds evidence that youth living in lower-wealth households who experience significant asset accumulation over time, have similar college completion rates as youth born into high wealth households. Regarding CSAs, this provides some evidence that increased assets over time, not just a windfall, might be an effective strategy for reducing the gap in college completion rates between youth born into low-wealth households and youth born into high-wealth households.

Appendix C, Table 3 covers research in the emerging area on short-term outcomes. Of the 17 studies reviewed in Table 3, 14 use net worth as the primary proxy for CSA participation. Of those 9, 6 find that net worth is a significant predictor of college enrollment. Given the number of different short-term outcomes, for convenience they are listed in Table 4 along with the number of times a study included a particular outcome, and how often net worth was a significant predictor of the outcome.

TABLE 4

SUMMARY OF NET WORTH FINDINGS FOR SHORT-TERM OUTCOMES

OUTCOME	# OF TIMES STUDIED	# OF TIMES SIGNIFICANT
Reading	5	3
Math	6	6
Academic Achievement	2	0
High School Completion	3	0
Expulsion	2	2
Suspension	2	2
Repeated Grades	2	2
Interest in School Work	1	1

Note. Parental and children’s educational expectations are included in a number of studies. They are not included here because most of the time they are examined as a moderating variable. Look at review tables for results.



Evolution 1: Family Assets and Children's College Outcomes

Dalton Conley's work stands out to me in the research that examined the relationship between family assets and children's college outcomes. In his 1999 book *Being Black, Living in the Red* he seemingly burst onto the asset scene, as well as onto the public's radar. This is because of the book's broad impact not only in academia but across the asset field and in public discourse to include the media. In some ways, it seemed to feed off the extreme success that Melvin Oliver and Thomas Shapiro's 1995 book had, *Black Wealth/White Wealth*. While Sherraden (1991) had discussed the racial wealth gap in *Assets and the Poor*, Oliver and Shapiro's book brought attention to racial wealth inequality in America, in a way that might not have been previously seen. However, Conley's (1999) book had a much larger focus on the role family assets had on children's educational outcomes, setting it apart for understanding the evolution of research on assets and children's college outcomes here.

Regarding college completion Conley (1999) found that Black children are only 38% as likely as White children to have graduated from college. Further, when accounting for assets and other social class factors, he found Black children had a slight advantage over White chil-

dren in odds of having graduated from college. In 2001 he would go on to publish the paper, *Capital for College: Parental Assets and Post-secondary Schooling*. Importantly, he published the paper in the journal *Sociology of Education*, I will discuss the importance of publishing in education journals for moving CSAs forward later in this paper.⁸ He found that a doubling of net worth results in an 8.3% increase in the probability of attending college (Conley, 2001). Further, when net worth is included in the model, he found Black youth are more likely to attend college than White youth. This went counter to narratives at the time that suggested Black children were born less intelligent than White children raising the question if it even made fiscal sense to provide Black children with opportunities to attend college (e.g., Herrnstein & Murray, 1994).

However, the research on net worth and children's college attendance has been mixed. For example, Williams-Shanks and Destin (2009), and Haveman and Wilson (2007) found that net worth had a significant positive relationship with college enrollment. However, Jez (2008) and Nam and Huang (2009) found that net worth is not significantly related to college enrollment. More specifically, Jez (2008) found

⁸ I would suggest that publishing this paper in an education journal had less importance to the evolution of the CSA field because the CSAs were still pretty far away from being seen as a financial tool. And net worth, did not really look like a CSA.

that while net worth is significant in the basic model, once academic achievement is controlled for, net worth is no longer significant. In addition to net worth, Nam and Huang (2009) included liquid assets (sum of financial assets minus unsecured debt) and home ownership. They found that net worth is significant at the 0.10 level. However, once they controlled whether youth had ever been in a gifted program or ever repeated a grade, net worth became nonsignificant.

A key finding during this period is the importance of early wealth both for college outcomes as well as short-term outcomes (Destin, 2009; Huang, Guo, Kim, & Sherraden, 2010; Loke & Sacco, 2011). This suggests that interventions may be most impactful if started young. This is in line with mounting evidence that early investment in children is critical to how they perform in school (Cameron & Heckman, 2001; Cunha & Heckman, 2008; Votruba-Drzal, 2006). Similarly, research shows that the returns of interventions earlier in a disadvantaged child's life are higher than from interventions that start later in their lives (e.g., Cunha & Heckman, 2010; Heckman & Masterov, 2007). In addition, Yeung & Conly (2008) find that regarding math and reading, the effects of family assets do not show up until ages 6 to 12. This aligns with Votruba-Drzal (2006) research that finds parental investments are more important during earlier childhood (between ages birth to 5 to 6 years of age) for children's cognitive development (which primarily affects later academic achievement). That is, early investments are most likely to show up in children's academic outcomes. Further, they are not likely to show up before ages 6 or older. And some research suggests, in some cases, these early investments might not show up until adulthood (Duncan, Brooks-Gunn, & Smith, 1998; Pungello, Kupersmidt, Burchinal, & Patterson, 1996). So, nonsignificant findings early on do not mean no effect, in the case of CSAs it might take time before those effects can be seen in some cases.

It is also worth noting, a part of the notion of an evolution here is that what was done prior is usually not continued to be done after an evolution has taken place or once new developments in the field have occurred. That is, once the field had data on parental savings

for college and shortly after proxies that more closely matched participating in a CSA program (i.e., children with designated saving for future schooling), there is less to learn from family assets as they specifically relate to CSAs. The distance from what family assets and what CSAs are is much wider and thus less informative than the distance between parental savings, college or children designating savings for future schooling, or studies using data from CSA programs themselves. This does not diminish the prior work, but researchers hope to be able to build on prior research by strengthening using better data and methods. Finally, I should mention that there are researchers outside of the CSA field who continue to examine the relationship between family assets and children's college outcomes but much of it more in the realm of the effects of wealth inequality (e.g., Pfeffer, 2018), this continues to be an important area of research just as important for making the case of CSAs as an effective strategy for improving children's college outcomes.



Promising Direction Evidence (Evolutions 2 & 3)

Highlights

Field shifts from using net worth as the main variable of interest to using parental savings for college and children's designated savings for college. These proxies are more comparable to participation in CSA programs.

CSAs enter the education conversation.

In response to Sherraden's (1991) hypothesis that assets change the way people think the field saw an increased focus on testing whether CSAs effected educational expectations and whether educational expectations mediated the relationship between CSAs and children's outcomes.

SEED OK begins to release experimental findings on the causal relationship between CSAs and short-term outcomes (e.g., maternal depression, socioemotional development, parental educational expectations, parental practices, and others).

Puddy and Wilkins (2011) Criteria Adapted for CSA Intervention Effectiveness:

Effect: Some evidence of effectiveness

- **Internal Validity:** Strong evidence of internal validity
- **Type of Evidence:** Quasi-experimental for long-term outcomes and mix of quasi- and experimental evidence for short-term outcomes
- **Replication:** Program replication with evaluation replication
- **Implementation Action Guidance:** Comprehensive
- **External and Ecological Validity:** Applied studies different settings

Effect: The evidence falls in the promising directions area in the continuum and can be classified as some evidence of effectiveness using Puddy and Wilkins (2011) framework as a guidepost. The field moved from using net worth as the primary proxy to using parental college savings and children's designated savings for college as the primary proxies. Studies in this area have a proxy score ranging from 2 to 3, and type of evidence score ranging from 3 to 5. The overall average strength of evidence score is 4.6 for enrollment, 4 for completion (only one study), and 4.6 for short-term outcomes. During this evolution, net worth is used as a control rather than a primary variable of interest.

Internal Validity: In terms of research design used to test the effectiveness of CSA to improve children's college outcomes, the research moved from using non-experimental exploratory designs to using quasi-experimental designs in the case of the long-term college outcome effects. Quasi-experimental designs are considered rigorous designs (Puddy & Wilkins, 2011). They provide greater confidence that the effectiveness of the CSA intervention in improving college outcomes is stronger/more promising than it was in the emerging evidence period. The evidence in this period was built on proxies that were more comparable to CSA participation (i.e., designated savings for future schooling). However, at this point there still was no experimental research available on the long-term or short-term effects of the CSA intervention.

Type of Evidence: With the development proxies that more closely resembled CSA participation, and the use of quasi-experimental designs for studying long-term effects, findings from the promising direction period could be understood to be more attributable to the CSA intervention. Moreover, unlike previously, these studies were initiated to find evidence of the potential effects of CSAs.

Replication: During this period there was program replication occurring, but growth was still modest. It is not until after 2013 that program replication begins to happen at a rapid pace (Emrey-Arras, 2020, see p. 9). Evaluation replication at this point is also modest. In 2010 the final report on the SEED demonstration is re-

leased (Sherraden & Stevens, 2010). Rember, there were 12 CSA programs started across the county including 1,171 children and their families in SEED and evaluated in the final report.

Implementation Action Guidance: At this stage implementation action guidance was largely through word of mouth. New programs had to rely on conversations with existing programs to learn how to run a program. An example of this is when the U.S. Department of Education sought to determine the effectiveness of pairing federally supported CSAs with Gaining Early Awareness and Readiness for Undergraduate Program (GEAR UP) activities to improve college enrollment and completion. Even though they set aside funding and identified a research group to carry out the demonstration, this effort failed to get off the ground because there were not enough states that knew how to run a statewide CSA program. At the time the field did not have enough implementation guidance written down and easily accessible for administering a CSA program in 2012 for states to be able to make a quick decision about the feasibility of participating. After the GEAR UP failure there was a growing awareness in the field of the need to develop implementation materials. However, in response to this failure, the field drastically improves the availability of written implementation action guidance during evolutions 4 and 5. This will be discussed in the next section.

External and Ecological Validity: For similar reasons as in the previous section, I suggest that external and ecological validity during the promising direction area could also be characterized as weak even though there were programs implemented in different settings, fidelity remained relatively low and growth in the field remained modest.

The review of research for this section can be found in Appendices D, E, and F (Tables 5-7).

Appendix D, Table 5 covers research in the promising directions area on college enrollment. Of the 9 studies reviewed in Table 5, all 9 use parental savings for college as a primary proxy, 1 uses children's basic savings, and 5 use children's designated savings for future schooling. Of the 9 studies using parental savings for college, 3 find it is a significant predictor of college

enrollment. When controlling for children's designated savings for future schooling, parental school savings is not significant. It is significant in the case when state college savings plan is used in a study among students with disabilities (Cheatham & Elliott, 2013). It might be that state college savings plans are more like parental savings for college than having designated savings for college. In the case of designated savings for college it is significant 4 times out of the 5 times it is included and the only time it is not, is when state college savings plans are used in place of designated savings for future schooling among a sample of students with a disability (Cheatham & Elliott, 2013).

Appendix E, Table 6 covers research in the promising directions area on college completion. There is only one study, and it uses parental savings for college, it is not significant, but homeownership is.

Appendix F, Table 7 covers research in the promising directions area on short-term outcomes. Of the 9 studies reviewed, 3 include parents' savings for college, 1 includes children's basic savings, and 5 include children's designated savings for college. The outcomes examined are academic performance, math, reading, and children's educational expectations.



Evolution 2: Parental College Savings and Individual Development Accounts, a Precursor to CSAs

Moving from data on family assets such as net worth, the next evolution that occurred was the use of data from Individual Development Accounts (IDAs).⁹ IDAs were proposed as long-term accounts that would be automatically available to everyone in the United States, accrue earnings, and be restricted to specified uses such as homeownership, education, or starting a small business (See Sherraden, 1991, p. 297). However, IDAs became short-term asset building programs for low-income adults and were the precursor to CSAs (Elliott, 2022, Oct.). The money saved in IDAs was for helping pay for schooling.

One of the first studies on IDAs and participants college outcomes was conducted by Mills, Gale, Patterson, Engelhardt, Eriksen, and Apostolov (2008). They compared Assets for Independence (AFI) participants, a federally supported IDA program, with members of a comparison group drawn from secondary data in the Survey of Income and Program Participation (SIPP).¹⁰ They found that participating in an IDA program was associated with an increase in the likelihood of enrollment in postsecondary education. Using experimental data from the

learn\$ave IDA, researchers found a significant treatment effect on enrollment in community college and university programs as well as on educational program completion six months after the program ended (Leckie, Hui, Tattrie, Robson, & Voyer, 2010). Like CSAs, the main objective of *learn\$ave* was to increase participation in some form of educational training. Grinstein-Weiss, Sherraden, Gale, Rohe, Schreiner, & Key (2013), also using experimental data, found that participation in an IDA program was significantly associated with increased rates of college enrollment. However, while positively associated with college completion rates, the association did not rise to the level of statistical significance. Importantly, while Grinstein-Weiss and colleagues examined the long-term effects of IDAs, participants were only in the program for three years. Therefore, when Grinstein-Weiss et al. (2013) talk about long-term effects, they are speaking about the amount of time that had lapsed since participants left the program, about six years. Moreover, because it is an IDA program, participants could not enter the program until they were at least age 18. In this way IDA programs are very different than traditional CSAs which start at birth or kindergarten.



⁹ For more information on IDAs go to <https://csd.wustl.edu/ida/>.

¹⁰ For more information on AFI go to <https://www.acf.hhs.gov/ocs/programs/afi>.

Evolution 3: Use of Proxies for CSA, Designated Savings for Future Schooling

The third evolution in the research on the link between CSAs and children's college enrollment and completion rates identified here occurred when Elliott and Beverly (2011a, b) used data from the Panel Study of Income Dynamics (PSID), its Child Development Supplement (CDS), and its Transition into Adulthood (TA) supplement. Following past research (e.g., Elliott, 2009), they used the CDS to create a proxy for having a CSA. The proxy was derived from questions in the CDS that asked children if they had a conventional savings account and whether they had designated some of the savings in that account for future schooling. They were then able to measure college enrollment and completion by linking the CDS data to the TA data which followed children from the CDS into young adulthood.

Elliott and Beverly (2011a) examined the relationship between having savings designated for future schooling and college progress (i.e., on course). College progress included both children who were enrolled in college and those who had graduated from a 2-year or 4-year college. They found that children who designated savings for future schooling were about two times more likely to be on course than those who did not. In hindsight, use of the outcome college progress, and talking about children as being on course did not allow the us to tease out separate effects on enrollment and completion, concepts more familiar to the public and more often discussed among academics, policymakers, and funders. This may have limited the impact this paper had in comparison to the wilt paper discussed next. It seems to me, understanding narratives that exist in society and that can serve as potential roadblocks to advancement of the field, has also been part of what has contributed to whether research has led to what is being called here, evolutionary. Figuring out what research questions need to be answered that would provide evidence that challenges narratives that stand in the way of progress and presenting it in a way that resonates not only in academia but within policy circles and in public discourse seems to be part of what makes some research stand out as

having moved the field in a different way. For example, it was not only that Sherraden (1991) in *Assets and the Poor*, provided evidence that assets were important, but the accessible way in which he presented the evidence that made you reconsider how you saw the importance of assets for social policy. The same can be said of Oliver's and Shapiro's (1995) *Black Wealth/White Wealth* or even Conley's (1999) *Being Black, Living in Red*. It was not that we were being presented for the first time with evidence that the racial wealth gap was important, but the way it was presented captured the mind.

It is also worth pointing out here that another significant contribution of this paper was where it was published. It is one of the earliest research papers to be published in an education journal, the *American Journal of Education*. A part of changing narratives is entering spaces where those narratives exist. Up until this point, the CSA discussion had made very little entry into education conversations or education spaces. Later in 2013, while not included on the timeline because it was not focused on college enrollment and completion, the field was able to get a special issue in the journal, *Economics of Education Review*. Getting a special issue in a respected education journal was very intentional by the field.

In 2006, the Advisory Committee on Student Financial Access (ACSFA) examined the paradox between high expectations and low college enrollment rates among low-income, high-achieving children. ACSFA (2006) referred to the difference between the percentage of children who expect to attend a four-year college and the percentage who do attend as "melt." The committee found that 70% of low-income children planned in 10th grade to enroll in college, but only 54% enrolled upon graduating from high school. Thus, by ACSFA's calculation, 23% of low-income children experienced melt. Returning to the discussion on research that resonates, melt is something that made sense to people, that just seemed shocking to the American conscious to know that high achieving low-income children did not have the same access to college that low achieving high

income children did. However, ACSFA did not consider children's savings for college or assets more broadly.

Inspired by the work of ACSFA, Elliott and Beverly (2011b) set out to conduct a study that would examine whether having savings designated for future schooling reduced melt. However, instead of calling this paradox "melt," Michael Sherraden suggested it would be more suitable to call it "wilt," which "conjures up a more fitting image that of a growing plant losing vitality due to a lack of resources" (Elliott & Beverly, 2011b, p. 167). Time spent on thinking how best to capture the paradox itself has proven to be an important contribution. Twelve years later wilt is an image that is still used to understand the potential power of CSAs.¹¹

However, most important were the findings themselves. Having savings designated for future schooling was associated with higher rates of enrollment reducing the incident of wilt. These findings proved to be very important to the evolution of the field and its increased focus on CSAs as a potential intervention for increasing college enrollment, in particular. Maybe most notably with regard to the impact of the paper, was when Mayor Newsom when introducing the Kindergarten to College (K2C) program in San Francisco, CA, the first citywide program and one of the oldest CSA programs in the country, cited the wilt findings as part of the hope that CSAs promised and the rationale for starting the program.¹² Importantly, K2C, under the leadership of Jose Cisneros and Leigh Phillips, would become the model for many other CSA programs, particularly citywide and other local programs across the country whose goal it was to increase college enrollment in their communities.

Though miscited, the U.S. Department of Education also used findings from this paper as part of the evidence for proposing a CSA demonstra-

tion.¹³ Through the demonstration they hoped to determine the effectiveness of pairing federally supported CSAs with the GEAR UP as a strategy for improving college enrollment and completion.¹⁴ They exhibited strong interest in CSAs as a potential strategy when they set aside \$8.7 million for the demonstration.

KC Scholars in Kansas City comes closest to a CSA program designed to reduce wilt. This is because it is one of the only programs that has a grade point average requirement (2.5 cumulative unweighted GPA). Further, they have a family income requirement (Student Aid Index calculation on the Federal Student Aid Estimator must be 12,000 or less). Lastly, it starts in 9th grade. Since 2021 KC Scholars CSA program provides 250 students with (prior to 2021 it was 50 students) a 4:1 match (match not to exceed \$5,000). These students could receive an additional \$2,000 if in the remainder of the high school years they met college preparation milestones. Prior to 2021, KC Scholars also included a separate group of children who only received a 529 account with a seed. Maybe, programs that start with older ages of children would be better to target reducing wilt because there is not the same opportunity for children to benefit from the social, psychological, and educational effects that can lead to children not qualifying for college.

However, while findings from this study made important contributions to the field, they only focused on a subset of children who had received either a high school diploma or a General Equivalency Diploma (GED) and expected to attend college while in high school. This is not the only population most CSA programs aspire to serve. Elliott and Beverly (2011b) chose this population because they felt that the expect-

¹¹ For example, see <https://aedi.ssw.umich.edu/sites/default/files/documents/Infographics/tangible-hope-infographic.pdf?v=1.2> and <https://youtu.be/olhHB4QUgsk>.

¹² For example, see <https://www.sfgate.com/education/article/Newsom-seeks-college-accounts-for-kindergarteners-3262982.php>

¹³ For more information on this proposed demonstration see <https://www.federalregister.gov/documents/2012/06/01/2012-13232/proposed-priorities-gaining-early-awareness-and-readiness-for-undergraduate-programs-college-savings>.

¹⁴ For more information on GEAR UP see <https://www2.ed.gov/programs/gearup/index.html>.



tation paradox provided a unique opportunity to better isolate the school saving effect. It did this by ruling out through sampling desire as reasons for why this subset of children did not attend college while controlling family income and academic achievement (i.e., math and reading scores). This seemed particularly important to them because lack of desire was often attributed to children living in low-income families for why they did not attend college.

However, it is also the case that this subset of children, who were academically capable and expected to attend college, were some of the most likely to attend college. Nonetheless, clearly this population is also important and, as shown in the ACSFA (2006) data, it is a population whose outcomes also lag far behind their peers. Somewhat surprisingly, it appears for this population having savings designated for future schooling really mattered. But, in retrospect this makes some sense. Because, again, these children are children for whom the one thing that might stand most in their way is lack of funding for college. Therefore, when they have design-

ated saving for future schooling, it greatly impacts the chances they enroll in college.

While designating saving for future schooling is not the same as participating in a CSA program, it was clear how this more closely represented having money in a CSA account. As such, it might be said that these findings provided a stronger level of evidence for what we could expect the impacts of CSAs to be, than we had to this point. They allowed for theory development and hypothesis testing. These findings also had the strength that they come from large nationally represented data sets, and as such were not constrained to a specific geographic location. However, while these findings have helped the CSA field to evolve in ways that was not possible using variables like net worth, a stronger level of evidence was still possible that used data from children and families who were part of a CSA program. Given the age of most children in CSA programs at the time, however, researchers had to continue to identify ways to move the field forward using proxies and secondary data sets.

Supported Evidence (Evolution 5)

Highlights

Research tests the effectiveness of small-dollar CSAs (\$500 or less) for improving children's college outcomes among different groups (aggregate, low- and moderate-income children, and Black children)

There is evidence that suggests that children having assets specifically for schooling might have a stronger effect on their college outcomes than if they just having general savings.

For some students it appears that simply having an account is enough to produce effects, for others it appears some form of engagement with the program is needed to produce effects.

CSA programs start to grow by leaps and bounds 2013 =18; 2014 = 27; 2015 = 37; 2016 = 45; 2017 = 54; 2018 = 65 and by 2023 = 128 (see Government Accountability Office, 2020; Prosperity Now, 2023). Number of accounts grew even faster during this period.

The launching of key statewide programs in Pennsylvania, Nebraska, and California, along with New York City's *Kids RISE* program going citywide.

Puddy and Wilkins (2011) Criteria Adapted for CSA Intervention Effectiveness:

Effect: Found to be effective

- **Internal Validity:** Strong evidence of internal validity
- **Type of Evidence:** Quasi-experimental for long-term outcomes and mix of quasi- and experimental evidence for short-term outcomes
- **Replication:** Program replication with evaluation replication
- **Implementation Action Guidance:** Comprehensive
- **External and Ecological Validity:** Applied studies similar settings

Effect: The evidence during these evolutions falls in the supported area in the continuum and can be classified as found to be effective using Puddy and Wilkins (2011) framework as a guidepost. Studies in this area have a proxy score ranging from 2 to 5, and type of evidence score ranging from 3 to 5. The overall average strength of evidence score is 7 for enrollment, 6.2 for completion, and 6 for short-term outcomes. It should be noted in the case of short-term outcomes stronger evidence existed during this time period, but it rose to the level of well-supported and so is not included/discussed here, it is included in the next section. This is why in Figure 1, evolution 4 is broken into two parts.

Internal Validity: In terms of research design, researchers moved from using non-experimental explanatory designs primarily to using quasi-experimental impact evaluation designs (better accounting for potential selection bias) in the case of the long-term college outcome effects.

Type of Evidence: During this period there was an increased use of program data from programs not SEED OK. Further, as stated above, the field shifted toward using analytic techniques like propensity score matching and weights to better address potential concerns around selection bias.

Replication: During this period there was program and evaluation replication was occurring. Further, clear, and accessible implementation guidance had emerged (see next section). This helped to provide the context for replication to take place. There is clear evidence of program replication during this period. For example, Kindergarten to College (K2C) a citywide program in San Francisco, CA and the My Alford Grant program, a statewide program in Maine became models for programs to replicate across the country. At the end of 2022, there were close to five million children with a CSA account in 38 states (Prosperity Now, 2023). In addition to being available for consultation with states, organizing numerous events for states interested in starting a statewide CSA program, they used evidence from four states who created statewide CSAs (Connecticut, Maine, Nevada, and Rhode Island), to identify ten key design elements (Clancy & Beverly, 2017). More recent-

ly, they developed sample legislation (Clancy, Sherraden, & Beverly, 2019). In this publicly available document, they provide example language from Pennsylvania, Nebraska, Illinois, and California for states interested in replicating the CSA programs in these states. Currently, among the 38 states with a CSA program, there are seven states that have a statewide program (California, Illinois, Maine, Nebraska, Nevada, Pennsylvania, and Rhode Island) (Sherraden & Clancy, 2021). Among the 38 states with a CSA program, there are seven states that have a statewide program (California, Illinois, Maine, Nebraska, Nevada, Pennsylvania, and Rhode Island) that share these design features (Sherraden & Clancy, 2021). Supported replication is not only happening at the state level but also at the local level. An example of this can be found in the evolution of the Wabash County, Indiana program which came to be known as Promise Indiana (see Elliott & Lewis, 2015).

There was also growing evaluation replication taking place within the field at that time. This was strongest within the short-term outcomes area (see Table 10). However, there was replication at the long-term level in the case of quasi-experimental designs using secondary data with stronger proxies than what were used in the emerging evidence period (see Tables 8 & 9). This is because of a lack of children in CSA interventions who had reached college age. However, maybe the strongest evidence of growing interest in replication evaluation of CSAs is the Government Accountability Office (GAO) report by Emrey-Arras (2020). According to the report, “A Senate Appropriations Committee report on a fiscal year 2019 appropriations bill for the Departments of Labor, Health and Human Services, and Education (among others) included provisions for GAO to examine various aspects of college savings account programs and their effectiveness” (p. 2). Given the existence of evaluation evidence at both the short-term and long-term levels, using Puddy and Wilkins (2011) framework this era can be categorized as program replication with evaluation replication. However, because only quasi-experimental data exists at the long-term level this is not

the strongest evidence possible.

Implementation Action Guidance: One of the things the field achieved during this evolution is a high effectiveness regarding implementation action guidance. Some of the institutionalizing of implementation guidance specific to Indiana was discussed in the replication section above. However, nationally, Prosperity Now, formerly known as the Corporation of Enterprise Development (CFED), has played a significant role in helping CSA programs connect with each other and to understand itself as a cohesive field. A way they did this was by producing a directory of all CSAs and an annual report on the state of the field.¹⁵ Maybe their largest impact was on helping the field establish implementation guidance. Beyond consulting with many new startup programs, they created a variety of resources to help new programs get started to include creating a manual for how to start a CSA.¹⁶ The Center for Social Development had also done a lot to help make information readily available to states to making starting programs easier as discussed in the replication section (see Clancy & Beverly, 2017; Clancy, Sherraden, & Beverly, 2019).

The field also saw the development of CSA consortiums. The first of these to my knowledge was the New England CSA Consortium under the leadership of the Federal Reserve Bank of Boston and the MyAlfond Grant director Colleen Quint (to learn more read Lewis & Elliott, 2015). Today, there are several CSA consortiums across the country, another effort that was supported significantly by the Charles Stewart Mott Foundation and its leadership. These consortiums had and continue to be institutional structures where new and old programs in different regions of the country can come together and share ideas, learn about what is working, and what isn't in the field. It seems fair to say, by this point, there was mounting evidence that CSAs could be categorized as being comprehensive with respect to implementation action guidance for new programs.

External and Ecological Validity: Evidence was already presented in the replication and

¹⁵ The map can be found at <https://prosperitynow.org/map/childrens-savings>.

¹⁶ You can find the manual at <https://prosperitynow.org/blog/interested-creating-csa-program-heres-how-get-started>.

implementation sections that showed the CSA intervention had been administered in a community and had been demonstrated to work in a variety of different communities with different populations. Therefore, at this stage, the CSA field can be categorized as having applied studies in different settings. This is the strongest form of external and ecological validity.

The review of research for this section can be found in Appendices G, H, and I (Tables 8-10).

Appendix G, Table 8 covers research in the supported evidence area on college enrollment. Of the 5 studies reviewed in Table 8, all 4 of the 5 use children's designated savings for future schooling and it is a significant predictor of college enrollment in all 4 studies. Evidence from these studies suggested that children having assets specifically for schooling might have a stronger effect on their college outcomes than just having basic savings in a bank account. This aligns with research on mental accounting. Behavioral economists suggest that people use

mental accounting techniques to think about different pots of money in ways that affect when and how they use the money (e.g., Thaler, 1985). This also played into the decision to give parental savings for college and children's basic savings a similar proxy score in this paper.

Appendix H, Table 9 covers research in the supported evidence area on college completion. Of the 5 studies reviewed in Table 9, all 4 of the 5 use children's designated savings for future schooling and it is a significant predictor of college completion in all 4 studies.

Appendix I, Table 10 covers research in the supported evidence area on short-term outcomes. There are 6 studies reviewed and all 6 use program data and thus received the highest possible proxy score of 5. The outcomes examined are attendance, math, reading, parental perception of math and reading ability; parental perception of academic performance; parental educational expectations, and children's educational expectations.



Evolution 4: Small Amounts of Assets in a CSA Can Matter

What might be called the next evolution was research examining whether even small amounts of assets in an account could have positive effects on children's college outcomes. This was significant because the most widespread form of CSAs were CSAs that provided small initial deposits of anywhere between \$5 to \$1,000, and at the time did little to leverage the power

of CSAs to facilitate multiple streams of assets flowing into them beyond personal contributions (Elliott, 2023, March). However, the small initial deposits raised the question of whether such accounts could be an effective strategy for improving children's educational outcomes. To test whether small amounts of money in an account could have a meaningful impact on

children's college outcomes, using data from the PSID and its supplements, Elliott and colleagues created five groups which represented different CSA dosages: (a) children with no savings; (b) children with basic savings only; (3) children with school savings of less than \$1 saved (mimic just having an account); (d) children with school savings of \$1 to \$499; and (e) children with school savings of \$500 or more. Findings from this research indicated that having savings designated for future schooling was associated with both college enrollment and college completion:

- Elliott (2013): Aggregate findings
 - **Enrollment:** Children who have \$1 to \$499 in designated savings for future schooling are about 3x more likely to enroll in college.
 - **Graduation:** Children who have \$1 to \$499 in designated savings for future schooling are about 2.5x more likely to complete college.
- Elliott, Song, & Nam (2013): Low- and moderate-income (below \$50,000) findings
 - **Enrollment:** Low- and moderate-income children who have \$1 to \$499 in designated savings for future schooling are about 3x more likely to enroll in college.
 - **Graduation:** Low- and moderate-income children who have \$1 to \$499 in designated savings for future schooling are about 2.5x more likely to complete college.
- Friedline, Elliott, & Nam (2013): Black children's findings
 - **Enrollment:** Black children who have \$1 to \$499 in designated savings for future schooling are about 6x more likely to enroll in college.
 - **Graduation:** Black children who have \$1 to \$499 in designated savings for future schooling are about 4x more likely to complete college.

These findings were highlighted in *Bridges*, an online publication produced by The Community Development Department of the Federal Reserve Bank in St. Louis (Elliott, Winter 2013).

Around the time the series of papers was re-



leased, the student debt issue was consuming public discourse related to attending and completing college. To garner any attention and remain relevant as a type of financial aid strategy during this period, CSAs had to enter the student debt conversation. However, the small-dollar version of CSAs just did not seem to fit in this conversation to many. This can be illustrated through the process of publishing an article in *Change: The Magazine of Higher Learning*. *Change* is largely read by teachers, administrators, and policy makers interested in higher education. Elliott (2014) wrote an article for the magazine with the title, *Student Loans: Are We Getting Our Money's Worth*. CSAs did not enter the title and did not play a big role in the printed article even though they had a more prominent role in early drafts of the article. The back story to this is that the editor at the time pushed back on the idea of including CSAs because of their small-dollar nature. The only way the editor was willing to include mention of CSAs was if they were discussed as a platform for larger deposits. It just so happened that the year prior, the College Board (2013) recommended supplementing the Pell Grant program by opening savings accounts for low-income children who qualified for Pell as early as age 11 or 12. This provided the avenue for including CSAs in the paper. This story also leads us into the next evolution, the idea that CSAs could be part of a solution for solving student debt.

Evolution 5: Student debt, Extending the Conversation

The fifth evolution identified here that took place in the CSA field related to college outcomes was the introduction of assets, and more specifically CSAs as a potential alternative to financing college with student loans. While the focus of this paper is on college enrollment and completion, research has shown that student loans can both affect whether students enroll in college (Campaigne & Hossler, 1998; Perna, 2000), and whether they complete college (Dwyer, McCloud, and Hodson, 2012; Kim, 2007). But even more important to why they are included is because of the seeming important role this research has played in helping to bring CSAs into the larger higher education conversation as a potential alternative to student loans.

In reference to the discussion in the last section on *Change* magazine, the magazine approached Elliott (2014) in large part because of an earlier study he conducted with Ilsung Nam in 2013. The study was first presented at a symposium sponsored by the Federal Reserve Bank of St. Louis's and Washington University in St. Louis. The title of the paper was, *Is Student Debt Jeopardizing the Short-Term Financial Health of U.S. Households?* As with the initial studies that provided evidence for the link between CSAs and children's college outcomes, this study also examined the relationship between net worth and student debt. However, unlike previous studies, this study asked whether student debt was associated with household net worth among four-year college graduates. That is, they sought to compare the net worth of college graduates with student debt to those without student debt. They found that median 2009 net worth (\$117,700) for households with no student debt was nearly three times higher than for households with outstanding student loan debt (\$42,800) (Elliott & Nam, 2013). Initially when the findings were reported at the conference in February of 2013, they came under some attack because the economists in attendance had not yet approached student loans from an equity lens comparing graduates with loans to graduates without loans. The question that was primarily focused on within those studying higher education was whether college paid off. To answer this question, researchers would compare the outcomes of col-

lege graduates to the outcomes of high school graduates. Examining what had become at this time a significant issue, rising student debt, this research helped lay the groundwork for making the case that how children paid for education mattered.

What followed was a study that attempted to make the link between CSAs and reducing student loans. Given that CSAs programs in the U.S. did not yet have college aged participants, Elliott, Lewis, Grinstein-Weiss, and Nam (2014) used parental savings for college as a proxy for savings in a CSA. They found that students who had parents with savings for college had less student debt than their counterparts who had parents with no college savings. Similarly, a recent study from Employment and Social Development Canada (2023) found that children who participated in the Canadian governments national CSA program (Canada Education Savings Plan/CESP) and received a Canada Education Savings Grant (CESG) (i.e., savers) were less likely (29% vs. 38%) to have taken out a student loan than those who did not. Low-income and middle-income families received the grant (20% or 10%, respectively) on the first \$500 of contributed each year.

Another contribution investigating the student debt/asset relationship brought to the field was growing interest in the potential for an asset approach to financing college to positively impact the return on degree. Like in the case of *wilt*, a paper by Carnevale, Hanson, & Gulish (2013) called, *Failure to Launch: Structural Shift and the New Lost Generation* served as a source of inspiration to examine return on degree from an asset perspective. Carnevale and colleagues examined why it was taking longer for young people to reach independence (i.e., full-time employment), what they referred to as failure to launch. With this inspiration, Elliott and Rauscher (2018) asked from an asset/student debt perspective, "When does my future begin?" More specifically, they examined whether student debt was associated with taking a longer time to achieve median net worth. They found that acquiring even the small amount of \$10,000 in student loans was associated with an 18% decrease in the rate of achieving medi-



an net worth. Similarly, Zhan and Xiang (2018) found that having student loans was negatively associated with net worth for both Hispanic and Black adults aged 30. These findings together suggested that it does take longer for students who graduate with student loans to launch into adulthood.

Maybe more importantly, these findings raised a fairness question about financing college with student loans when research had shown that low-income students (Huelsman, 2015) and minority students (Grinstein-Weiss, Perantie, Taylor, Guo, & Raghavan, 2016) were more likely to rely on student loans to pay for college. This evolution of the CSA field brought attention to the idea that how families pay for college matters as much as whether they have the money to pay for college. Further, it provided an avenue for CSAs to enter the student debt conversation as a potential strategy for reducing reliance on student loans. Elliot and Rauscher (2018) concluded,

If a key role of education is to create greater economic mobility and equity, we suggest that financial aid policies should augment, not undermine, education's capacity to function as an equalizer. As asset-based approaches to financial aid, Children's Savings Ac-

counts (CSAs) may be one such intervention. (p. 198)

Some benefits of a CSA approach to financing education in comparison to other approaches was that it also supported children being prepared to enroll in college, improved their chances of completing college, and strengthened their potential for a strong return on their degree by reducing student debt but also by severing as a potential gateway to accumulating different types of assets in adulthood (Friedline & Elliott, 2013; Friedline, Johnson, & Hughes, 2014).

It seems appropriate to end the discussion of these evolutionary periods with at least a brief mention of some of the significant CSA programs launched during this period. While there are a lot of programs that launched during this period, four strike me as uniquely important to the field's development. Three of these programs are statewide CSA programs: Pennsylvania's *Keystone Scholars* launched in 2019, Nebraska's *Meadowlark Program* launched in 2020, and California's *CalKIDS* launched in 2022. The other is a large citywide program in one of the most influential cities in the country, New York City's *Kids RISE*, it launched citywide in 2021.

Well-Supported Evidence (Evolutions 6 & 7)

Highlights

There is substantial evidence that the effects of CSAs are strongest for families who are low-income and for families without a college educated head of household.

Research studies are underway in K2C and EASP to evaluate the effectiveness of CSAs as a strategy for improving children's college outcomes. Preliminary results are expected sometime between summer of 2024 and winter 2025. These studies have both a quantitative and qualitative component.

SEED OK children will start to reach college age in 2025 or 2026.

Canada's national CSA program released findings that showed participating in a CSA program improved college outcomes (enrollment, completion, and reduction of student debt)

The CSA intervention as a strategy for improving college outcomes is founded on a sound body of evidence that can be characterized as having long-term evidence that is found to be effective (i.e., supported) and short-term evidence that is well-supported.

Puddy and Wilkins (2011) Criteria Adapted for CSA Intervention Effectiveness:

Effect: Found to be effective

- **Internal Validity:** Experimental design
- **Type of Evidence:** Quasi-experimental impact evaluation and true experimental
- **Replication:** Program with evaluation replication
- **Implementation Action Guidance:** Comprehensive
- **External and Ecological Validity:** Applied studies different settings

Given that most of the criteria were met in the previous section, I only discuss noteworthy differences here. The big difference between supported and well-supported is the availability of both quasi-experimental impact evaluation data and experimental data.

Effect: The evidence during these evolutions falls in the well-supported area in the continuum and can be classified as found to be effective using Puddy and Wilkins (2011) framework as a guidepost. Studies in this area have a proxy score of 5, and type of evidence score ranging from 9 to 10. There were 11 studies reviewed. The overall average strength of evidence score is 9.9 for short-term outcomes. There currently are no studies from college enrollment or completion that provide evidence that would fall into the well-supported area.

Internal Validity: Regarding the internal validity of short-term outcomes, recently released findings from the Oakland Promise experiment which started in 2016 helped to increase the internal validity of the CSA intervention. This experiment also finds among parents in the CSA only group (received a 529 College Savings account seeded with \$500), most like CSA programs and SEED OK, had higher parental educational expectations and the children had improved communication and personal-social skills (Hernandez et al., 2023). Having two or more experiments that find similar results in different settings and with different populations increases the internal validity of the CSA intervention's effectiveness. When considering both the advancements in CSA research with respect to both short-term and long-term findings, the strength of internal validity can be characterized as being strong.

The review of research for this section can be found in Appendices G, H, and I (Tables 8-10).

Appendix J, Table 11 covers research in the supported evidence area on short-term outcomes. There are 11 studies reviewed and all 11 use program data and thus received the highest possible proxy score of 5.

TABLE 12

SUMMARY OF CSA PROGRAM FINDINGS FOR SHORT-TERM OUTCOMES

OUTCOME	# OF TIMES STUDIED	# OF TIMES SIGNIFICANT
Reading	3	2
Math	3	3
Social-Emotional Development	4	4
Maternal Depression	1	1
Parental Educational Expectations	3	3
Absences	2	2
Parenting Practices	1	1
Improved Communications	1	1

Evolution 6: Quasi-Experimental Impact Evaluation Using Data from CSA Programs

While using a proxy such as designated savings for future schooling for testing the potential of CSAs to have a positive effect on children’s college outcomes provided stronger evidence than, for example, family net worth, it still is not the strongest evidence possible. In evolution six direct evidence from CSAs program participants for long-term effects emerge. The first program we know of that was able to provide evidence directly from a CSA program regarding college outcomes, was in Italy. Like KC Scholars, the ACHAB experiment started with older students. In their case they started with students in their last two years of high school. However, while KC Scholars focused on assisting those more likely to succeed (e.g., had grade point average of 2.5 or higher), ACHAB focused on the students in the middle. That is students who could either be classified as certainly enrolling in college or certainly not enrolling. Further, to participate in the program students had to sign up for the program and save between about \$5 to \$54 U.S. dollars per month to stay in the program. Like most current CSA programs, the money could only be spent for education expenses. But in contrast to most programs, participants could spend some of the money for high school educational expenses as well as college. They were given two different match rates depending on whether the money was spent on high school expenses (2:1) or college expenses

(4:1). This program also required that parents and their children attend financial education classes. Findings from the experiment provided evidence that the CSA program had statistically significant impact on college enrollment (Azzolini, Martini, Romano, & Vergolini, 2018). Findings were stronger for enrollment in vocational schools than they were for enrollment in college.

Evidence has also emerged from the Canadian national CSA program (Canada Education Savings Program – CESP) and participants’ post-secondary outcomes. CESP uses a very similar account architecture to many CSA programs in the U.S. What they call the Registered Education Savings Plan (RESP) is like American State 529 College Savings Plans. RESP is a tax-preferred college savings account. Contributions are not tax-deductible, but disbursements are taxed at the beneficiary’s rate. Beyond the account structure, another thing that makes CESP like CSAs in the U.S., is that they start young, at birth. As stated in the previous section when discussing the findings on student loans, low- and middle-income children in Canada are eligible to receive the CESG. The CESG is like match incentives in U.S. programs. In addition, Canada has created the Canada Learning Bond (CLB). CLB pays \$500 for the first year of eligibility and \$100 for each subsequent year of eligibility until the participant turns 15 (max of \$2,000). Eligi-

bility is determined by the number of qualifying children and adjusted family income.

Research conducted by Employment and Social Development Canada in 2023 found that the CESG had a positive influence on postsecondary enrollment and completion.¹⁷ Enrollment rates of CESG recipients were about 30 percentage points higher than for non-recipients. Importantly, enrollment rates were higher for low- and middle-income families than for youth in similar families but who did not participate in CESG. Regarding postsecondary completion, the probability of completing a postsecondary degree within 5 years of enrollment was 7.0 percentage points higher for CESG recipients than for non-recipients (Employment and Social Development Canada, 2023).

While CESP resembles CSA programs in the U.S., there are many social and political differences between Canada and the U.S. So, while these findings help build the case for CSAs as an effective strategy for improving college outcomes, they represent the start of what appears to be the next evolution in CSA research, not the conclusion. At the same time, if we think of research evidence existing on a sort of continuum, it might also be true that the field has traveled a good way along the evidentiary continuum.

Here in the U.S., some of the most recognizable and often replicated CSA programs now have children nearing college age. This opens a whole new frontier in research on CSAs and college enrollment and completion which should allow researchers, practitioners, and policymakers to determine whether CSA programs are achieving higher enrollment and completion rates. As we move further into the period of evolution six, more compelling research is possible with data now being available from participants in some of the oldest and most well-known CSA programs from across the country. Further, the programs that will be discussed below, which will likely take centerstage during the early stages of this period, have accumulated professional insight, understanding, and skill into how to run

CSA programs.

K2C. Kindergarten to College (K2C) is the nation's first universal CSA that automatically provided a dedicated account for higher education saving to every kindergarten student. It is the oldest citywide CSA programs in the country. It is funded by the city of San Francisco and some philanthropic partners and is administered by the city's Office of Financial Empowerment. K2C was rolled out in three phases to kindergarten students: 18 schools in 2010–11 (Phase I), 18 additional schools in 2011–12 (Phase II), and 36 additional schools in 2012–13 (Phase III).

Here are some of the main research questions that will be examined:

1. What are the family savings patterns of students in the K2C inaugural cohort through Grade 12?
2. What is the impact of K2C on high school outcomes, including:
 - a. Attendance?
 - b. Academic performance?
 - c. College preparation?
 - d. Progress in high school?
 - e. High school graduation?
3. What is the impact of K2C on postsecondary enrollment

This will use a quasi-experimental design. Preliminary analysis using school district data and program savings data on the first 18 schools will be conducted and ready by the end of summer or early fall 2024. A final report for this three-year study is expected to be completed by December 2026.

Early Award Scholarship Program. The Early Award Scholarship Program (EASP), administered by the Community Foundation of Wabash County, is a Children's Savings Account (CSA) program that uses the motivational power of assets to encourage post-secondary attainment. The EASP provides scholarships to students in grades 4 through 8 based on completion of in-school work, of college-going activities, and

¹⁷ The uses post-secondary education instead of the term college. The term college is used in this paper for consistency.

¹⁸ To learn more about K2C go to <https://sfgov.org/k2c/>.

regular savings in a CollegeChoice 529 Direct Savings Account. The Early Award scholarships are accumulated in the student’s Early Award Fund and are available up to the age of 26 to help pay for the students’ post-graduation educational expenses at a qualified college or vocational school.

The main research questions are:

1. What is the impact of enrollment and participation in EASP on the following postsecondary outcomes?
 - a. Enrollment in a postsecondary educational institution in the year following Grade 12
 - b. Completion of a postsecondary degree (associate or bachelor’s degree) within four years
2. To what extent do the impacts of enrollment and participation in EASP vary for students from lower-income households (i.e., receiving free/reduced-priced lunch)?

This will also be a quasi-experimental study. It will compare students who enrolled in EASP with their counterparts who did not, focusing on three cohorts of students—the graduating classes of 2023, 2024 and 2025, which respectively had exposure to EASP scholarship opportunities for 3 (Grades 6-8), 4 (Grades 5-8) and 5 (Grades 4-8) years starting in 2016-17. An inverse-propensity weighting design will be used to adjust for baseline differences in characteristics between students who did enroll in EASP (treatment) and students who did not enroll in the program (comparison). Ongoing data intake, processing and analysis will take place for college enrollment outcomes from fall 2023 through fall 2026 and from fall 2023 through fall 2029 for on-time degree completion. A comprehensive report for college enrollment is expected by December 2026 and college completion by December 2029.

The two CSA programs discussed in this section are some of the oldest and most well known in the U.S. They are positioned to provide the data

needed for moving the field along the evidence continuum to a point at which CSAs are found to be effective at improving children’s college enrollment and completion rates. Programs like K2C and the Early Awards Scholarship Program which plan to use a quasi-experimental impact study design (i.e., cohort study with inverse propensity score weighting) are the second highest form of evidence of effectiveness according to Puddy’s and Wilkins’s (2011) framework. These studies will start to produce early results in the next year(s). It is important to note, that this type of design also exceeds the recommended thresholds by the U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance (NCEE) evidence standards (see What Works Clearinghouse, 2022).

Lastly here, it is worth pointing out, while the author does not know of a college outcomes research study currently being planned or conducted on Maine’s statewide CSA program (now called MyAlfond Grant), it is the oldest statewide program in the U.S.¹⁹ As a result, its kids are also nearing college age (some will be turning 16 in 2024) and could provide another opportunity to farther establish the effectiveness of CSAs. Given that the MyAlfond Grant program will be the first statewide CSA program to have children reach college age, and because it is one of the prime models used by other CSA programs across the country, it might make sense to support research on it as well.



¹⁹ For more information on My Alfond Grant go to <https://www.haroldalfondfoundation.org/impacts/grantee/alfond-scholarship-foundation/>.

Evolution 7: True Experimental Data from CSA Programs

Research from SEED for Oklahoma Kids (SEED OK) program is the gold standard in the field, and any examination of CSA findings and their implications must take SEED OK evidence into account where relevant. The SEED OK intervention and evaluation are designed and led by the Center for Social Development (CSD) at Washington University in St. Louis. It is a large CSA experiment with random assignment and probability sampling from a full state population (Clancy, Beverly, Sherraden, & Huang, 2016). As a result, it has the potential to provide the most rigorous evidence of effectiveness of CSA interventions for improving children's college outcomes. Students in SEED OK will reach college age during the 2025/2026 school year. Given this, SEED OK findings will come after those from K2C and the Early Award Scholarship Program findings. This seems fitting in the context of research following an evolutionary sequencing, and SEED OK findings being the most methodologically rigorous.

Short-Term Outcomes: Given that the short-term outcomes evolution took a different path, on an accelerated time schedule, it is hard to find where best to include a discussion of the importance of this body of research to understanding where the CSA field is at in the continuum of evidence of effectiveness. Given that evolution 3 and part two of evolution 4 fall within the well-supported area of the continuum, and because of just the significance of the SEED OK experiment to the field's development, it seems most appropriate to give the experimental evaluations on short-term outcomes attention here.

The work of the Center Social Development at Washington University in St. Louis under the direction of Michael Sherraden on the SEED OK experiment has been pivotal in providing evidence that clearly supports CSAs having a positive effect on short-term outcomes that have been shown to be predictive of children's college outcomes. For example, rigorous research from the SEED OK randomized control trial found that receiving a CSA can influence family

dynamics in ways that support children's early social and emotional development, including by reducing maternal depression (Huang, Sherraden, & Purnell, 2014), mitigating the effects of material hardship (Huang, Kim, & Sherraden, 2016), by supporting more positive parental practices (Huang, Nam, Sherraden, and Clancy, 2019). These experimental findings reveal that CSAs may mitigate as much as 50% of the effects of material deprivation on children's social and emotional development (Huang, Kim, & Sherraden, 2016) and as much as 90% of the difference in social and emotional competency between children in single-mother versus two-parent households (Huang, Kim, Sherraden, & Clancy, 2017). These are particularly significant findings given the importance of social and emotional development for determining how well children perform in a variety of academic contexts and their ability to take advantage of other educational inputs (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). Also notable from this research, is the fact that CSAs not only impact children's outcomes, but also parents.²⁰ These findings indicate that CSAs have a strong positive impact on children's short-term outcomes. It is also important to note before moving on, that in addition to the social and psychological impacts that CSAs can have when started early, asset researchers have also suggested that starting early can have positive impacts on families' and children's ability to build wealth (e.g., Boshara & Emmons, 2015). Evidence from CSA programs has supported this contention. For example, with an initial deposit of \$1,000 at birth in SEED OK, by age 14 the average treatment child had about \$4,373 dollars in their account (Clancy, Beverly, Schreiner, Huang, & Sherraden, 2022, June). If they took the extra step and opened their own OK 529 to save in, the average balance is \$14,045 (Clancy et al., 2022, June).²¹

It is also worth pointing out that even with findings from SEED OK not yet available, the CSA intervention as a strategy for improving college outcomes can already be characterized as hav-

²⁰ For a review of research on the relationship between CSAs and children's educational outcomes, see Elliott and Harrington (2016).

²¹ Also see Elliott (2018) for information on other CSA programs savings outcomes.

ing evidence that is found to be effective (i.e., supported). This is a high evidentiary threshold to have crossed in a relatively short period of time. But research underway on K2C and EASP provides the opportunity to further strength the evidence of effectiveness of CSAs, moving them into the well-supported area on the continuum. And then with SEED OK evidence on the horizon, the field could reach the strongest level of evidence of effectiveness in about the next five years.

To close this section, I think one more experiment that has started recently requires some discussion because of its potential for moving the field into a new frontier, one where income strategies are linked together with asset strategies and where small-dollar CSA strategies are linked together with strategies to overcome wealth inequality (e.g., Baby Bonds strategies). That is, Saint Paul, MN's CollegeBound Boost experiment. It provides families who have a CollegeBound CSA in Saint Paul and who are low-income (300% of the federal poverty guideline) with a guaranteed income payment along with a quarterly deposit (mimicking large dollar CSA proposals or Baby Bond type proposals). More specifically, the experiment consists of the following groups:

- No-treatment control condition – CSA only
- Quarterly deposits (\$250 per quarter for total of \$1,000) – CSA and quarterly deposits
- Guaranteed income payments (GI - \$500 per month) and quarterly deposits – CSA, GI, and quarterly deposits

It truly will be interesting to see where the CSA field goes in the next five to 10 years, although clearly there is more work to be done, the field has grown immensely since Sherraden wrote *Assets and the Poor* over three decades ago. But it does appear the field rests on a solid foundation of evidence that is only growing stronger through the efforts of many, not nearly all of which have been mentioned in this paper.



Discussion

I would like to make some overall observations in the discussion on things that stood out to me, and that I have heard deliberated on in the field. Again, these are not exhaustive but merely some issues that I think need more discussions. Among children living in lower income families, it appears from the evidence that having an account can be enough to produce effects for some (e.g., Elliott & Beverly, 2011a), while others might have to be engaged for effects to occur (e.g., Elliott, Kite, O'Brien, Lewis, & Palmer, 2018; Elliott, Lewis, O'Brien, LiCalsi, Brown, Tucker, & Sorensen, 2017). When it comes to families with less income, there also appears to be less evidence that the amount saved matters or at least it is not necessary to have large amounts of assets to produce short-term effects (e.g., Elliott, 2013; Elliott, Kite, O'Brien, Lewis, & Palmer, 2018). Even though, we can still agree having money in the account still matters for the child being able to actually pay for college when they reach college age. So, this is not to suggest that building assets in accounts is not critical, just it might be less important particularly for producing social and psychological effects. The opposite seems to be true of families with higher incomes. Having large sums of money in an account for college seems to matter more for children living in high income households when college completion is the outcome of interest (Elliott, Song, & Nam, 2013), but when enrollment is the outcome of interest small amounts appear fine (e.g., Elliott, Song, & Nam, 2013). This might be in line with findings from Hamilton (2013) that suggest that parental financial contributions matter more for completion than performance in school. The difference between whether amounts matter for children living in low-income families compared to high-income families, may not be all that surprising given where they start. For example, just having an account might be a significant change in the child's life who is living in poverty whereas for the child living in a higher income family not much of a change at all.

More generally, when having an account alone is not enough, it appears that it is less about how much families can contribute and more

about whether they are engaged (whether that means contributing, meeting requirements for incentives, or even talking to their children about the program). This might also have implications outside of the CSA field for asset building strategy more generally where the only objective is to provide money (e.g., Baby Bonds). However, more research is needed to identify, among other things, under what conditions engagement may be more important than simply owning an account and to understand the determinants of effective engagement.

Further, I have heard from time to time, and even have thought it myself, why give everyone access, these programs should just be for families who are poor. Rauscher, Elliott, O'Brien, Callahan, & Steensma (2017) examine the effects of opening a 529 account and being exposed to the aspects of a CSA program (i.e., distinguish between account ownership and program participation) on parental education expectations. They found that the effects of having an account and exposure to the program, are stronger when combined. Further, there is some evidence that for parents with no college themselves, having both account ownership and access to the program is important. However, for high-income families the program elements appear more important than the account (Rauscher, Elliott, et al., 2017). It might also be, that these accounts only matter to high-income families where there is more money in them (Elliott, song, & Nam, 2013a). However, previous studies in the CSA field have consistently shown stronger effects for low-income families and children (e.g., Elliott, Constance-Huggins, & Song, 2012; Huang, Sherraden, Kim, & Clancy, 2014; Huang, Sherraden, & Purnell, 2014; Zheng, Starks, Ellis, O'Brien, & Elliott, 2020). These findings can lead some to believe that CSA programs should only be for the more disadvantaged in society. However, some of the evidence discussed here does suggest that there might be a benefit to providing everyone access. Further, it might also suggest that policies that seek to give everyone access but provide additional funding to the more disadvantaged might be a better use of funds.

While I think this review paints a relatively promising picture of the evidence of the effectiveness of CSAs as a strategy for improving children's college outcomes, there is more work to be done. Using the Puddy and Wilkins (2011) continuum of evidence of effectiveness framework, an area where the CSA field needs additional research is the case of evaluation replication. This is particularly challenging when it comes to replicating experimental studies such as SEED OK. This is because many of the programs use automatic enrollment and since experimental studies must start years in advance in the case of CSAs, which typically start at birth or kindergarten, even if the field decided to replicate SEED OK, it would take years to produce evidence. This is something that would have had to be planned out much earlier. There is the case of the Brilliant Baby experiment discussed in this paper. And while it provides a type of replication, small sample size and the fact that it is a program within a city and not statewide, limits its value as a replication study of SEED OK. This does not mean that it is not valuable on its own, it just is not able to exactly fill the role of being an evaluation replication of SEED OK. A statewide program would appear to make the best replication candidate for SEED OK. But given that most use automatic enrollment, it leaves very little opportunity for fully replicating

SEED OK. Despite these limitations, I think if a regression discontinuity design could be used for evaluating a statewide program, while it would not be the absolute best evidence, it would be very close, close enough under the circumstances. Regression discontinuity is a form of random assignment that can be done from non-random selection (i.e., after programs are started) (Lee, 2008).

All and all, given the findings discussed in this paper, and the opportunity to do additional research on CSA programs where kids are now reaching college age, it seems reasonable to suggest that the CSA field is about to squarely settle into an era where evidence for CSAs' impact on college enrollment is no longer something talked about as emerging, but hopefully as a well-supported intervention. However, while research from the sixth and seventh evolutionary periods (quasi-experimental impact and true experimental) are underway, it is important to once again highlight the fact that the field has already passed through several research evolutions that provide support for the hypothesis that CSAs are an effective intervention for increasing college enrollment and completion. This is no longer a field or an intervention that has low evidence of its effectiveness for improving children's college enrollment and completion rates.

Conclusion

While more research is needed, it is clear the field is no longer at the beginning of the process of learning if the CSA intervention is an effective strategy for improving college enrollment and completion rates. Instead, considerable progress has been made in establishing CSAs as a well-supported intervention. The field should

be both excited and proud of how far it has come, many are responsible for the evolution of the field. Given this, it is not time to quit or pull back, the fact that the finish line is now in sight should only inspire supporters to push harder at this moment than at any other time in the history of the CSA field.

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TABLE 1

REVIEW OF EMERGING AREA RESEARCH ON THE EFFECTIVENESS OF CSAS FOR IMPROVING COLLEGE ENROLLMENT RATES (STRENGTH OF EVIDENCE OF EFFECTIVENESS SCORES 1 – 2)

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
1. Conley, D. (2001). Capital for college: Parental assets and postsecondary schooling. <i>Sociology of Education</i> , 74(1), 59–72.	Proxy (level 1) Net worth	Analytic Approach: Regression analysis; Logistic regression Source of Data: Secondary Panel Study of Income Dynamics (PSID); Race comparisons include black, Latino, and Other Type of Data: Baseline measured in 1984; Outcome measured at ages 19 to 30 in 1995; N = 545 Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	Any college enrollment	Full Sample: • Doubling of net worth results in an 8.3% increase in the probability of attending college Race: • When net worth is included in the model, Black children are more likely to attend college than White children
2. Mazumder, B. (2003). Family resources and college enrollment. <i>Economic Perspectives</i> , 27(4), 30–34.	Proxy (level 1) Net worth Liquid assets Home equity	Method: Regression analysis Type of Data: Secondary Baseline measured at 11th and 12th grade; Outcome measured two years after the baseline survey; N = 4,123 Data: SIPP; Race comparisons include Black and White Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	2-year college enrollment	Full Sample: • Net worth is significantly associated with 2-year enrollment. • Compared to the first net worth quartile, being in the second quartile of net worth raises the probability of college enrollment by three percentage points. • The larger jumps take place at the top two quartiles. • A similar pattern is found when using liquid assets and housing equity.
3. Haveman, R., & Wilson, K. (2007). Economic inequality in college access, matriculation, and graduation. In S. Dickert-Colin & R. Rubenstein (Eds.), <i>Economic inequality and higher education access, persistence, and success</i> (pp. 20–59). New York: Russell Sage Foundation.	Proxy (level 1) Net worth Negative net worth	Method: Logistic regression Type of Data: Secondary Baseline measured in 1968; Outcome measured at ages 25 to 29 in 1985; N = 1,202 Source of Data: Panel Study of Income Dynamics (PSID) and census data on neighborhood poverty; No race comparisons were included Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	College enrollment	Full Sample: • Positive net worth is a significant predictor of college enrollment. • Negative net worth is not significant.
4. Jez, S. J. (2008). The influence of wealth and race in four-year college attendance (Research and Occasional Paper Series CSHE 18.08). Berkeley, CA: University of California Berkeley, Center for Studies in Higher Education.	Proxy (level 1) Net worth	Method: Binary logistic regression Type of Data: Secondary Baseline measured in 1997; Outcome measured at ages 23 to 27 in 2005; N = 8,984 Source of Data: NYLSY:97 and the Integrated Postsecondary Education Data System (IPEDS); Race comparisons include Black, White, Hispanic/Latino, and Asian Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	4-year college enrollment	Full Sample: • Children whose families have greater net worth are more likely to attend a 4-year college (i.e., before entering academic achievement in the model) Race: • Net worth is not a significant predictor across all racial/ethnic groups (White, Blacks, Asians, or Latinos) when controlling for academic achievement

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
5. Destin, M. (2009). Assets, inequality, and the transition to adulthood: An analysis of the panel study of income dynamics (Issue Brief). New York: Aspen Institute, Initiative on Financial Security.	Proxy (level 1) Net worth during early childhood Categorical net worth	Method: Logistic regression Type of Data: Secondary Baseline measured at ages 2 to 5 in 1989; Outcome measured at ages 17 to 21 in 2005; N = 745 Source of Data: Panel Study of Income Dynamics (PSID); Transition into Adulthood (TA) supplement; Race comparisons include Black, White, Native American, Asian, Pacific Islander, and Other Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	College enrollment	Full Sample: • Net worth is significant, meaning that early household net worth leads to a significantly greater chance of college enrollment
6. Nam, Y., & Huang, J. (2009). Equal opportunity for all? Parental economic resources and children's educational achievement. <i>Children and Youth Services Review</i> , 31(6), 625-634.	Proxy (level 1) Net worth Categorical net worth (negative, modest, high) Liquid assets	Method: Logistic regression; Probit regressions; OLS regression Type of Data: Secondary Baseline measured at ages 15 to 17 in 1994; Outcome measured at ages 26 or 27 in 2003 or 2005; N = 365 Source of Data: Panel Study of Income Dynamics (PSID); No race comparisons were included Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	College enrollment (13 or more years of schooling)	Full Sample: • Liquid assets are significant. • After controlling for cognitive skill indicators, net worth is no longer a significant predictor of college enrollment • Children from modest- and high-liquid-asset families are more likely to attend college than are those from zero- and negative-liquid families
7. Williams Shanks, T., & Destin, M. (2009). Parental expectations and educational outcomes for young African American adults: Do household assets matter? <i>Race and Social Problems</i> , 1(1), 27-35.	Proxy (level 1) Net worth Categorical net worth (median of \$3,502 used to divide sample into low net worth and high net worth)	Method: Logistic regression Type of Data: Secondary Baseline measured in 1994; Outcome measured at ages 18 or older in 2005; Sample size for logistic regression is not specified (Black children only) Source of Data: Panel Study of Income Dynamics (PSID); Transition into Adulthood (TA) supplement; Race comparisons include Black Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	Any college enrollment	Race: • For Black children, household net worth is a significant, positive predictor of college enrollment
8. Huang, J., Guo, B., Kim, Y., & Sherraden, M. (2010). Parental income, assets, borrowing constraints and children's post-secondary education. <i>Children and Youth Services Review</i> , 32, 585-594.	Proxy (level 1) Net worth Liquid assets Early assets Late assets	Method: Structural Equation Modeling (SEM) Type of Data: Secondary Baseline measured in 2002 or earlier; Outcome is measured at ages 18 to 21 in 2005; N = 650 Source of Data: Panel Study of Income Dynamics (PSID); Transition into Adulthood (TA) supplement; Race comparisons include Black and White Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	Any college enrollment	Full Sample: • There is support for direct and indirect effects of early liquid assets on college enrollment • In the simultaneous model of early and late liquid assets, late liquid assets have significant effect on college enrollment but model fit is poor, providing some support for short-term effects of liquid assets • Net worth findings are like liquid assets

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
9. Kim, Y., & Sherraden, M. (2011). Do parental assets matter for children's educational attainment? Evidence from mediation tests. <i>Children and Youth Services Review</i> , 33(6), 969-979.	Proxy (level 1) Net worth Financial assets Nonfinancial assets Home ownership Unsecured debt Secured debts	Method: Logistic regression; Baron & Kenny Type of Data: Secondary Baseline measured at 9th and 10th grades in 1996 or 1998; Outcome measured in 1996-2004 or 1998-2006; N = 632 Source of Data: NLSY79; NLSY79 Child/Young Adults (Child/YA); Race comparisons include Black, Hispanic/Latino, and non-Hispanic/Latino/non-Black Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	College enrollment	Full Sample: • Financial and nonfinancial assets are marginally significant. • Homeownership is significant
10. Zhan, M., & Sherraden, M. (2011b). Assets and liabilities, race/ethnicity, and children's college education. <i>Children and Youth Services Review</i> , 33(11), 2168-2175.	Proxy (level 1) Financial assets Nonfinancial assets Secured debts Unsecured debts	Method: Logistic regressions Type of Data: Secondary Baseline measured at ages 11 to 17 in 1994; Outcome measured at ages 23 to 29 in 2006; N = 1,162 Source of Data: NLSY; Race comparisons include Black, White, Hispanic/Latino, and Other Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	College enrollment	Full Sample: • Financial and nonfinancial assets are significant. • Secured debts are positively significant. • Unsecured debts are negative and significant Race/Ethnicity: • Black: Black-White gap is eliminated once assets are included in model. • Latino: Latino-White gap is eliminated before assets are added • Whites: Financial assets are significant • Blacks and Latinos: Financial assets are not related to college enrollment.
11. Huang, J. (2013). Intergenerational transmission of educational attainment: The role of household assets. <i>Economics of Education Review</i> , 33(1), 112-123.	Proxy (level 1) Financial asset Net worth	Method: Binary logistic regression Type of Data: Secondary Baseline measured at ages 13 to 20 in 1984 or 1994; Outcome measured in 1996 or 2007; N = 2,466; 1984 Cohort (N = 1,335); 1994 Cohort (N = 1,134) Source of Data: Panel Study of Income Dynamics (PSID) 1984 and 1994 cohorts; Race comparisons include Black and White Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	College enrollment	Full Sample: • All economic resources (income, financial assets, and net worth) do not have a significant impact on the intergenerational transmission of college enrollment (i.e., the impact of mother's college enrollment on children's college enrollment).
12. Loke, V. (2013). Parental asset accumulation trajectories and children's college outcomes. <i>Economics of Education Review</i> , 33(1), 124-133.	Proxy (level 1) Net worth (changes in net worth from 1987 to 2000) Four types of net worth accumulation trajectories: LS = low and stable (reference group) LA = low and accumulation HS = high and stable HA = high accumulation	Method: Structural Equation Modeling (SEM); Barron & Kenny Source of Data: Secondary NLSY and National Longitudinal Survey of Youth, Children and Young Adults (NLSY79CYA); Race comparisons include Black, Hispanic/Latino and non-Hispanic/Latino/non-Black Type of Data: Secondary Baseline measured at ages 13 or 14 in 2002; Outcome measured at ages 21 or older in 2010; N = 761 Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	College enrollment	Full Sample: • Children from HS and HA are significantly more likely to attend a college than are children from the LS group • There is no significant difference between LA and LS

Note 1. Articles are listed from oldest to newest.

Note 2. The strength rating of types of proxies goes from 1 to 3 with use of program data given a 5. The lower the score the less comparable the variable is believed to be to participating in a Children's Savings Account Program: 1 = family assets (e.g., net worth, liquid assets, etc.); 2 = parental savings for college & children's basic savings account; 3 = children's designated savings for future schooling.

Note 3. The strength rating for types of evidence goes from 1 to 5. They are (1) non-experimental exploratory, (2) non-experimental explanatory, (3) quasi-experimental, (4) quasi-experimental impact evaluation, and (5) experimental (randomized control trial).

Note 4. The strength of evidence score is the sum of the proxy score and the type of design score (1 through 10, with 10 being strongest). This score is to give the reader an idea of the strength of a particular study specifically within the CSA field.

Appendix B

Emerging Area Research, College Completion (Strength of Evidence of Effectiveness Scores 1 – 2)

TABLE 2

REVIEW OF EMERGING AREA RESEARCH ON THE EFFECTIVENESS OF CSAS FOR IMPROVING COLLEGE COMPLETION RATES (STRENGTH OF EVIDENCE OF EFFECTIVENESS SCORES 1 – 2)

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
1. Conley, D. (1999). <i>Being black, living in the red</i> . Berkeley, CA: University of California Press.	Proxy (level 1) Net worth Liquid assets Illiquid assets Net value of parents' business	Method: Logistic regression Type of Data: Secondary Baseline measured in 1984; Outcome measured at ages 18 to 30 in 1995; N = 1,113 Source of Data: Panel Study of Income Dynamics (PSID); Race comparisons include Black and White Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	College completion	Full Sample: • Net worth is significant • Liquid assets are the second-best predictor when different forms of assets are examined Race: • Black children are only 38% as likely as White children to have graduated from college • When accounting for assets and other social class factors, Black children have a slight advantage over White children in odds of having graduated from college
2. Conley, D. (2001). <i>Capital for college: Parental assets and postsecondary schooling</i> . <i>Sociology of Education</i> , 74(1), 59–72.	Proxy (level 1) Net worth	Method: OLS regression; Logistic regression Type of Data: Secondary Baseline of measured in 1984; Outcomes measured at ages 22 to 30 in 1995; Completion (N = 223); Years of post-high school education (N = 1,126) Source of Data: Panel Study of Income Dynamics (PSID); Race comparisons include Black, Latino, and Other Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	College completion Years of post-high school education	Full Sample: • Net worth is significant. • A doubling of net worth is associated with an increase in the number of post-high school years of formal education
3. Haveman, R., & Wilson, K. (2007). <i>Economic inequality in college access, matriculation, and graduation</i> . In S. Dickert-Colin & R. Rubenstein (Eds.), <i>Economic inequality and higher education access, persistence, and success</i> (pp. 20–59). New York: Russell Sage Foundation	Proxy (level 1) Net worth Negative net worth	Method: Longitudinal regression Type of Data: Secondary Baseline measured in 1968; Outcome measured at ages 25 or 29 in 1985; N = 1,202 Source of Data: Panel Study of Income Dynamics (PSID) and census data on neighborhood poverty; No race comparisons were included. Type of Evidence (level 1): Non-experimental exploratory	College completion	Full Sample: • Positive net worth is significant • Negative net worth is not significant
4. Nam, Y., & Huang, J. (2009). <i>Equal opportunity for all? Parental economic resources and children's educational achievement</i> . <i>Children and Youth Services Review</i> , 31(6), 625–634.	Proxy (level 1) Net worth Categorical net worth: Negative, Modest, and High Liquid assets	Method: Logistic regression; Probit regression; Multiple OLS regression Type of Data: Secondary Baseline measured at ages 15 to 17 in 1994; Outcome measured at age 26 or 27 in 2003 or 2005; N = 218 Source of Data: Panel Study of Income Dynamics (PSID); No race comparisons were included. Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	College completion	Full Sample: • Net worth is significant • Liquid assets are not significant • Negative liquid assets have significant negative effects on college graduation

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
5. Kim, Y., & Sherraden, M. (2011). Do parental assets matter for children's educational attainment? Evidence from mediation tests. <i>Children and Youth Services Review</i> , 33(6), 969-979.	Proxy (level 1) Net worth Financial assets Nonfinancial assets Home ownership Unsecured debts Secured debts	Method: Logistic regression; Baron & Kenny (1986) tests Type of Data: Secondary Baseline measured at 9th and 10th grades in 1996 or 1998; Outcome measured in 1996-2004 or 1998-006; N = 632 Source of Data: NLSY79; NLSY79 Child/Young Adults (Child/YA); Race comparisons include Black, Hispanic/Latino, and non-Hispanic/Latino/non-Black Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	College completion	Full Sample: • Nonfinancial assets are significantly associated with college completion • Other types of assets are not significant Race: • After controlling for other variables, there is not a significant completion gap between White and non-White students
6. Zhan, M., & Sherraden, M. (2011a). Assets and liabilities, educational expectations, and children's college degree attainment. <i>Children and Youth Services Review</i> , 33(6), 846-854.	Financial assets Nonfinancial assets Secured debts Unsecured debts	Method: Logistic regression; OLS regression Type of Data: Secondary Baseline measured at ages 11 to 14 in 1994; Outcome measured at ages 23 to 26 in 2006; N = 750 Source of Data: NLSY79; Race comparisons include Black, White, Hispanic/Latino, and Other Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	College completion	Full Sample: • Financial assets and nonfinancial assets are significant. • Unsecured debt is negative and significant. • Secured debt is not significant. • Even after controlling for children and parents' expectations, the significant associations between assets and college completion remain Race: • Controlling for other variables, the Black-White gap is not significant • The Latino-White gap is significant
7. Zhan, M., & Sherraden, M. (2011b). Assets and liabilities, race/ethnicity, and children's college education. <i>Children and Youth Services Review</i> , 33(11), 2168-2175.	Proxy (level 1) Financial assets Nonfinancial assets Secured debts Unsecured debts	Method: Logistic regressions Type of Data: Secondary Baseline measured at ages 11 to 17 in 1994; Outcome measured at ages 23 to 29 in 2006; N = 1,162; White (N = 447); Black (N = 468); Latino (N = 247) Source of Data: NLSY79; Race comparisons include Black, White, Hispanic/Latino, and Other Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	College completion	Full Sample: • Financial and nonfinancial assets are positive and significant. • Secured debt is positively significant, but the significance disappears after financial and nonfinancial assets are added • Unsecured debt is negative and significant Race: Black-White gap is eliminated once assets are included in model • White: Financial assets and income are significant. • Black: Nonfinancial assets and secured debts are significant • Latino: Unsecured debts are negative and significant

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
8. Huang, J. (2013). Intergenerational transmission of educational attainment: The role of household assets. <i>Economics of Education Review</i> , 33(1), 112–123.	Proxy (level 1) Financial asset Net worth	Method: Binary logistic regression Type of Data: Secondary Baseline measured at ages 13 to 20 in 1984 or 1994; Outcome measured in 1996 or 2007; N = 2,466; 1984 Cohort (N = 1,335); 1994 Cohort (N = 1,134) Source of Data: Panel Study of Income Dynamics (PSID); 1984 and 1994 cohorts, Race comparisons include Black and White Type of Evidence (level 1): Non-experimental exploratory	4-year college completion	Full Sample: • No significant moderate effects of net worth and financial assets on the association between mother's graduation and their children's graduation Female in the 1994 Cohort: • Net worth and liquid assets significantly moderate the effect of mother's college graduation on children's college graduation
9. Loke, V. (2013). Parental asset accumulation trajectories and children's college outcomes. <i>Economics of Education Review</i> , 33(1), 124–133.	Proxy (level 1) Net worth (changes in net worth from 1987 to 2000) Four types of net worth accumulation trajectories: LS = low and stable (reference group) LA = low and accumulation HS = high and stable HA = high accumulation	Modeling (SEM); Barron & Kenny Type of Data: Secondary Baseline measured at ages 13 or 14 in 2002; Outcome measured at ages 21 or older in 2010; N = 761 Source of Data: NLSY and National Longitudinal Survey of Youth, Children and Young Adults (NLSY79CYA); Race comparisons include Black, Hispanic/Latino and non-Hispanic/Latino/non-Black Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	College completion	Full Sample: • Youth born into households that had asset holdings significantly higher than zero have better college completion rates compared to youth born into households with lower levels of net worth that did not increase significantly over time • However, when lower-wealth households experience significant asset accumulation over time, youth from these households have similar completion rates as youth from wealthier households

Note 1. Articles are listed from oldest to newest.

Note 2. The strength rating of types of proxies goes from 1 to 3 with use of program data given a 5. The lower the score the less comparable the variable is believed to be to participating in a Children's Savings Account Program: 1 = family assets (e.g., net worth, liquid assets, etc.); 2 = parental savings for college & children's basic savings account; 3 = children's designated savings for future schooling.

Note 3. The strength rating for types of evidence goes from 1 to 5. They are (1) non-experimental exploratory, (2) non-experimental explanatory, (3) quasi-experimental, (4) quasi-experimental impact evaluation, and (5) experimental (randomized control trial).

Note 4. The strength of evidence score is the sum of the proxy score and the type of design score (1 through 10, with 10 being strongest). This score is to give the reader an idea of the strength of a particular study specifically within the CSA field.

TABLE 3

REVIEW OF EMERGING AREA RESEARCH ON THE EFFECTIVENESS OF CSAS ON IMPACTING SHORT-TERM PREDICTORS OF CHILDREN'S COLLEGE OUTCOMES (STRENGTH OF EVIDENCE OF EFFECTIVENESS SCORES 1 – 2)

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
1. Phillips, M., Brooks-Gunn, J., Duncan, G. J., Klebanov, P., & Crane, J. (1998). Family background, parenting practices, and the black-white test score gap. In C. Jencks, & M. Phillips (Eds.), <i>The black-white test score gap</i> (pp. 273–317). Washington, DC: Brookings Institution Press.	Proxy (level 1) Categorical net worth: ((1) < \$0; (2) \$0–\$2,184; (3) \$2,185–\$10,194; (4) \$10,194–\$34,011; (5) > \$34,012)	Method: Regression analysis Type of Data: Secondary Baseline measured at birth between 1980 and 1987; Outcome measured at ages 5 to 6 in 1986, 1988, 1990, or 1992; N = 1,626 Source of Data: Children of the National Longitudinal Survey of Youth (CNLSY) and the Infant Health and Development Program (IHDP); Race comparisons include Black and White Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	Reading	Full Sample: • Net worth is not significant Race: • Net worth does not improve the Black-White test score gap
2. Conley, D. (1999). <i>Being black, living in the red</i> . Berkeley, CA: University of California Press.	Proxy (level 1) Net worth Liquid assets Net value of parents' business Primary residence equity	Method: Logistic regression Type of Data: Secondary Baseline measured in 1984; Outcomes measured at ages 18 to 30 in 1995; N = 1,113 Source of Data: Panel Study of Income Dynamics (PSID); Race comparisons include Black and White Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	High school completion Expulsion Suspension Repeated grade	Full Sample: High School Completion: • Net worth is not significant • Liquid assets are positively significant Expulsion and Suspension: • Net worth and liquid assets are negatively significant Repeated Grade: • Net worth, parents' business equity, and liquid assets are negatively significant
3. Pandey, S., & Zhan, M. (2000). The effects of urban poverty on parents' expectations of their children's achievement. <i>Advances in Social Work, 1</i> (1), 107–125.	Proxy (level 1) Savings amount Savings account Investment income Retirement account Pension plan Home ownership	Method: One-way analysis of variance (ANOVA); Hierarchical regression Type of Data: Secondary No baseline was reported; Measured for parents who have children under 18 in 1986 to 1987; N = 604 Source of Data: A survey of inner-city residents in Chicago collected by the National Opinion Research Center in 1986–1987; Race comparisons include Black, Hispanic/Latino, and White Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	Parents' educational expectations	Full Sample: • None of the asset variables is significant
4. Orr, A. (2003). Black-white differences in achievement: The importance of wealth. <i>Sociology of Education, 76</i> (4), 281–304	Proxy (level 1) Net worth Nonincome-generated assets	Method: Regression analysis Type of Data: Secondary No baseline was reported; Outcomes measured at ages 5 to 14 in 1996; N = 2,098 Source of Data: NLSY79; Race comparisons include Black and White Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	Math	Full Sample: • Net worth is significant. Net worth has the largest effect on a child's math scores compared to other indicators in the model • Income-generated assets are significant predictors of test scores in math, but nonincome-generated assets are not Race: • Net worth reduces the Black-White test score gap in math • After controlling for other variables, Blacks score significantly lower than Whites

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
5. Campbell, L. A. (2006). <i>The effect of parents' wealth on child achievement in mathematics and reading</i> . Columbus, OH: Ohio State University.	Proxy (level 1) Net worth	Method: OLS regression Type of Data: Secondary Baseline measured in 1979; Outcome measured at ages 10 to 11 between 1985 and 2000; N = 5,789 Source of Data: National Longitudinal Survey of Youth Mother-Child file (NLSY79); Race comparisons include White and non-White (Black and Latino) Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	Math	Full Sample: • Net worth is positive and significant and explains about 7% of the variation in math test scores
6. Zhan, M. (2006). Assets, parental expectations and involvement, and children's educational performance. <i>Children and Youth Services Review</i> , 28(8), 961-975.	Proxy (level 1) Net worth	Method: Regression analysis; Baron & Kenny Type of Data: Secondary Baseline measured at ages 5 to 12 in 1998; Outcomes measured at ages 7 to 14 in 2000; N = 1,370 Source of Data: National Longitudinal Survey of Youth Mother-Child file (NLSY97); Race comparisons include Black, White, and Other Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	Math Reading Mother's educational expectations for child	Full Sample: • Net worth is a significant predictor of math and reading scores Mediation: • The net worth/math and reading relationship is partially mediated by mother's college expectations • Net worth is significantly associated with mother's expectations
7. Easton-Brooks, D., & Davis, A. (2007). Wealth, traditional socio-economic indicators, and the achievement debt. <i>Journal of Negro Education</i> , 76(4), 530-541.	Proxy (level 1) Income-generated assets Nonincome-generated assets Liquid assets Illiquid assets	Method: Regression analysis Type of Data: Secondary Baseline measured at 10th grade in 1990; Outcomes measured at 12th grade in 1992; N = 7,664; Blacks (N = 1,302); Whites (N = 6,362) Source of Data: National Education Longitudinal Study (NELS:88); Race comparisons include: Black and White Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	Academic achievement (combined math and reading scores)	Race: • Income generated assets and liquid assets are significantly associated with Blacks' achievement; however, confidence intervals cross zero • None of the asset variables are significant for Whites • The effect size for race decreases when asset variables are added to the models
8. Williams Shanks, T. (2007). The impacts of household wealth on child development. <i>Journal of Poverty</i> , 11(2), 93-116.	Proxy (level 1) Net worth Cash accounts Debt/credit cards Stocks/IRA	Method: Regression analysis; Hierarchical regression Type of Data: Secondary Baseline measured in 1994; Outcomes measured at ages 3 to 12 in 1997; Math (N = 1,466); Reading (N = 1,473) Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Race comparisons include Black, White, and Hispanic/Latino Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	Math Reading	Math: • Net worth is positive and significant • Debt/credit cards are negatively significant • Asset variables are not significant for reading Race: • Black children score higher when someone in their household owns stocks/IRAs • White children score higher when someone in their household has cash accounts and debts/credit cards • No interaction effect between Latinos and net worth for math scores

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
9. Yeung, W. J., & Conley, D. (2008). Black-white achievement gap and family wealth. <i>Child Development</i> , 79(2), 303-324.	Proxy (level 1) Net worth Categorical net worth Liquid assets Illiquid assets Debt	Method: Stepwise regressions Type of Data: Secondary No baseline was reported; Outcomes measured at ages 3 to 12 in 1997 (Preschool ages 3 to 5 and school ages 6 to 12); N = 1,177 Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Race comparisons include Black and White Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	Math Reading	Math - Sample by Age: • For ages 3 to 5, debt is negative and significant • For ages 6 to 12, net worth, the value of liquid assets, and stocks/mutual funds are positive and significant • Debt is negative and significant. Reading - Sample by Age: • For ages 3 to 5, debt is negative and significant • For ages 6 to 12, liquid assets (p < .10) and stocks/mutual funds are significant.
10. Grinstein-Weiss, M., Yeo, Y. H., Irish, K., & Zhan, M. (2009). Parental assets: A pathway to positive child outcomes. <i>Journal of Sociology and Social Welfare</i> , 36(1), 61-85.	Proxy (level 1) Net worth	Method: Logistic regressions; Baron & Kenny Type of Data: Secondary No baseline was reported. Outcomes measured at ages 5 to 17 in 2002 and 2003; N = 7,235 Source of Data: 2001 Survey of Income and Program Participation (SIPP; core wave 6 and topical module wave 7); Race comparisons include Black, White, Hispanic/Latino, and Other Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	Repeated a grade Expelled Suspended Interest in schoolwork	Full Sample: Repeated a Grade: • Net worth is negative and significant Expelled or Suspended: • Net worth is negative and significant Interest in Schoolwork: • Net worth is positive and significant. After adding parents' college expectations, net worth is no longer significant Mediation: • The effect of assets on all school outcomes measured in this study are mediated by parental educational expectations
11. Nam, Y., & Huang, J. (2009). Equal opportunity for all? Parental economic resources and children's educational achievement. <i>Children and Youth Services Review</i> , 31(6), 625-634.	Proxy (level 1) Net worth Categorical net worth: Negative Modest Liquid assets	Method: Logistic regression; Probit regressions; OLS regression Type of Data: Secondary Baseline measured at ages 15 to 17 in 1994; Outcome measured at ages 26 or 27 in 2003 or 2005; N = 365 Source of Data: Panel Study of Income Dynamics (PSID); No race comparisons were included. Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	High school completion	Full Sample: • Liquid assets are significant • Net worth is not significant
12. Williams Shanks, T., & Destin, M. (2009). Parental expectations and educational outcomes for young African American adults: Do household assets matter? <i>Race and Social Problems</i> , 1(1), 27-35.	Proxy (level 1) Net worth Categorical net worth (use median of \$3,502 to divide sample into low net worth and high net worth)	Method: Logistic regression Type of Data: Secondary Baseline measured in 1994; Outcome measured at ages 18 or older in 2005; Sample size for logistic regression is not specified. Source of Data: Panel Study of Income Dynamics (PSID); Transition to Adulthood (TA) supplement; Race comparisons include Black Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	Parents' college expectations	Full Sample: • Net worth is significant Race: • Black families with high assets have higher parent expectations, regardless of whether they are in a low-income or high-income household

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
13. Huang, J., Guo, B., Kim, Y., & Sherraden, M. (2010). Parental income, assets, borrowing constraints and children's post-secondary education. <i>Children and Youth Services Review</i> , 32, 585-594.	Proxy (level 1) Net worth Liquid assets Early assets Late assets	Method: Structural Equation Modeling (SEM) Type of Data: Secondary Baseline measured in 2002; Outcome measured at ages 18 to 21 in 2005; N = 650 Source of Data: Panel Study of Income Dynamics (PSID); Transition into Adulthood (TA) supplement; Race comparisons include Black and White Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	Academic achievement (Combined math and reading scores)	Full Sample: • Early liquid assets are significant • Net worth is not significant
14. Kim, Y., & Sherraden, M. (2011). Do parental assets matter for children's educational attainment? Evidence from mediation tests. <i>Children and Youth Services Review</i> , 33(6), 969-979.	Proxy (level 1) Net worth Financial assets Nonfinancial assets Home ownership Unsecured debt Secured debts	Method: Logistic regression; Baron & Kenny Type of Data: Secondary Baseline measured at 9th and 10th grades in 1996 or 1998; Outcome measured in 1996-2004 or 1998-006; N = 632. Source of Data: NLSY79; NLSY79 Child/Young Adults (Child/YA); Race comparisons include Black, Hispanic/Latino, and non-Hispanic/Latino/non-Black. Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	High school graduation Children's educational expectations	Full Sample: • Financial assets and homeownership are significantly associated with high school completion Baron & Kenny Findings: • Children's expectations fully mediate the association between financial assets and high school graduation • There is no evidence of mediation with college attendance and graduation
15. Loke, V., & Sacco, P. (2011). Changes in parental assets and children's educational outcomes. <i>Journal of Social Policy</i> , 40(2), 351-368.	Proxy (level 1) Initial net worth Changes in net worth (1994 to 2002)	Method: Latent growth curve modeling (LGCM) Type of Data: Secondary Baseline measured at ages 5 and 6 in 1994; Outcomes measured at ages 11 and 12 in 2000; N = 541 Source of Data: National Longitudinal Survey of Youth, Children and Young Adults (NLSY79CYA) and the NLSY79 Race comparisons include Black, Hispanic/Latino, and non-Black/non-Hispanic/Latino Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	Math Reading	Math: • Initial net worth is positively and significantly related to initial math scores • Changes in net worth are not associated with changes in math scores • Initial net worth has no effect on changes in math scores Reading: • Initial net worth amounts are not significant • Higher rates of initial net worth are associated with final scores • There is a significant relationship between changes in net worth and slower rate of decline in reading outcomes
16. Zhan, M., & Sherraden, M. (2011b). Assets and liabilities, race/ethnicity, and children's college education. <i>Children and Youth Services Review</i> , 33(11), 2168-2175.	Proxy (level 1) Financial assets Nonfinancial assets Secured debts Unsecured debts	Method: Logistic regressions; Baron & Kenny Type of Data: Secondary Baseline measured at ages 11 to 17 in 1994; Outcome measured at ages 23 to 29 in 2006; N = 1,162; White (N = 447); Black (N = 468); Latino (N = 247) Source of Data: NLSY79; Race comparisons include Black, White, Hispanic/Latino, and Other Type of Evidence (level 1): Non-experimental exploratory Strength of Evidence Score = 2	Parents' college expectations	Baron & Kenny Findings: • There is no evidence of mediation, meaning that the effects of financial assets are not reduced when expectations are included in the model

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
17. Loke, V. (2013). Parental asset accumulation trajectories and children's college outcomes. <i>Economics of Education Review</i> , 33(1), 124-133.	<p>Proxy (level 1) Net worth (changes in net worth from 1987 to 2000)</p> <p>Four types of net worth accumulation trajectories: LS = low and stable (reference group) LA = low and accumulation HS = high and stable HA = high accumulation</p>	<p>Method: Structural Equation Modeling (SEM); Barron & Kenny</p> <p>Type of Data: Secondary Baseline measured at ages 13 or 14 in 2002; Outcome measured at ages 21 or older in 2010; N = 761</p> <p>Source of Data: NLSY and National Longitudinal Survey of Youth, Children and Young Adults (NLSY79CYA); Race comparisons include Black, Hispanic/Latino and non-Hispanic/Latino/non-Black</p> <p>Type of Evidence (level 1): Non-experimental exploratory</p> <p>Strength of Evidence Score = 2</p>	Mothers' educational expectations	<p>Baron & Kenny Findings:</p> <p>Attendance:</p> <ul style="list-style-type: none"> • For HA and HS, mother's college expectations partially mediate the relationship between assets and college attendance <p>Graduation:</p> <ul style="list-style-type: none"> • For HA mother's college expectations partially mediate the relationship between assets and college graduation • For HS mother's college expectations fully mediate the relationship between assets and college graduation

Note 1. Articles are listed from oldest to newest.

Note 2. The strength rating of types of proxies goes from 1 to 3 with use of program data given a 5. The lower the score the less comparable the variable is believed to be to participating in a Children's Savings Account Program: 1 = family assets (e.g., net worth, liquid assets, etc.); 2 = parental savings for college & children's basic savings account; 3 = children's designated savings for future schooling.

Note 3. The strength rating for types of evidence goes from 1 to 5. They are (1) non-experimental exploratory, (2) non-experimental explanatory, (3) quasi-experimental, (4) quasi-experimental impact evaluation, and (5) experimental (randomized control trial).

Note 4. The strength of evidence score is the sum of the proxy score and the type of design score (1 through 10, with 10 being strongest). This score is to give the reader an idea of the strength of a particular study specifically within the CSA field.

TABLE 5

REVIEW OF PROMISING DIRECTION AREA RESEARCH ON THE EFFECTIVENESS OF CSAS FOR IMPROVING COLLEGE ENROLLMENT RATES (STRENGTH OF EVIDENCE OF EFFECTIVENESS SCORES 3 – 5)

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
1. Charles, C., Roscigno, V. J., & Torres, K. (2007). Racial inequality and college attendance: The mediating role of parental investments. <i>Social Science Research</i> , 36, 329–352.	Proxy (level 2) Parents' savings for college Amount of parents' savings for college	Method: Multinomial logistic regression Type of Data: Secondary Baseline measured at 8th grade in 1988 to 12th grade in 1992; Outcomes measured at 2 years out of high school in 1994; N = 13,699 Source of Data: NELS:88; Race comparisons include Black, White, Latino, Asian, and Native American Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 4	2-year college enrollment 4-year college enrollment	Full Sample (2-Year College): • Parental savings accounts are significant predictors of 2-year college enrollment • Savings amount is not significant Full Sample (4-Year College): • Parental savings accounts are significant predictors of 4-year college enrollment • Amount of parental savings for college is significant predictor
2. O'Connor, N., Hammack, F. M., & Scott, M. A. (2010). Social capital, financial knowledge, and Hispanic student college choices. <i>Research in Higher Education</i> , 51, 195–219.	Proxy (level 2) Parents' school savings	Method: Logistic regression; Oaxaca decomposition Type of Data: Secondary Baseline measured before 2000; Outcome measured by 2000; Logistic regression: White (N = 4,213); Black (N = 340); Latino (N = 436); Oaxaca decomposition: White (N = 2,421); Latino (N = 248) Source of Data: NELS:88-2000; Race comparisons include Black, White and Latino Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 4	Likelihood of 4-year college enrollment compared to 2-year college enrollment	Full Sample: • Parental savings are not significant. Both parents' and children's actions to find out about financial aid are significant Latinos: • The effect of expected returns on parents' school savings significant in explaining the gap in enrollment between Whites and Latinos. • Latinos experience a greater penalty related to enrollment when their parents do not have school savings on their behalf
3. Elliott, W., & Beverly, S. (2011a). Staying on course: The effects of savings and assets on the college progress of young adults. <i>American Journal of Education</i> , 117(3), 343-374.	Proxy (level 3) Net worth Parents' school savings for children Children's designated savings for future schooling	Method: Logistic regression Type of Data: Secondary Baseline measured at mean age of 17 in 2002; Outcome measured mean age of 20 in 2007; N = 1,003 Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Transition into Adulthood (TA) supplement; Race comparisons include Black and White Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 5	College progress (Whether youth are currently enrolled in or have a degree from any college or graduate school)	Full Sample: • Net worth is not significant • Parents' school savings are significant before controlling for children's educational expectations • Children's designated savings for future schooling are significant
4. Elliott, W., & Beverly, S. (2011b). The role of savings and wealth in reducing "wilt" between expectations and college attendance. <i>Journal of Children and Poverty</i> , 17(2), 165-185.	Proxy (level 3) Net worth Categorical net worth: Negative, Modest, and High Parents' savings for children Children's savings (Children's basic account; designated savings for future schooling; no account)	Method: Logistic regression Type of Data: Secondary Baseline measured at a mean age of 15 in 2002; Outcome measured at a mean age of 18 in 2005; N = 333; Sample was restricted to children who expect to go to college. Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Transition into Adulthood (TA) supplement; Sample restricted to black and white children who expected to graduate from a 4-year college; Race comparisons include Black and White Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 5	4-year college enrollment	Full Sample: • Net worth is not significant • Parental school savings are not significant • Children with basic savings are 6 times more likely to attend a 4-year college than are children with no account • Children who designated savings for future schooling are 3 times more likely to attend a 4-year college than are children with no account

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
5. Song, H., & Elliott, W. (2011). The role of assets in improving college attainment among Hispanic immigrant youth in the U.S. <i>Children and Youth Services Review</i> , 33(11), 2160-2167.	Proxy (level 2) Homeownership Parental school savings	Method: Binary logistic regression Type of Data: Secondary Baseline measured at ages 12 or older in 1992-1993; Outcome measured at ages 23 or older in 2001-2003; N = 717 Source of Data: Children of Immigrants Longitudinal Study (CILS); Race comparisons include Latino Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 4	Any college enrollment	Latino Children: <ul style="list-style-type: none"> • Homeownership is significant • Parental school savings are not significant
6. Elliott, W., Constance-Huggins, M., & Song, H. (2012). Improving college progress among low- to moderate-income (LMI) young adults: The role of assets. <i>Journal of Family and Economic Issues</i> , 34, pp. 382-399. doi:10.1007/s10834-012-9341-0	Proxy (level 3) Net worth Parents' savings for children Children's designated savings for future schooling	Method: Logistic regression Type of Data: Secondary Baseline measured at ages 12 to 17 in 2002; Outcome measured at ages 17 to 23 in 2007; N = 1,017; LMI (N = 495); HI (N = 508) Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Transition into Adulthood (TA) supplement; Race comparisons include Black and White Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 5	College progress	Low-to-Moderate Income Sample: <ul style="list-style-type: none"> • High net worth is significant • Parental savings are not significant • Children with designated savings for future school are 3x more likely to be on course than those with savings but did not designate any for future schooling High-Income Sample: <ul style="list-style-type: none"> • None of the asset variables significant
7. Elliott, W., & Nam, I. (2012). Direct effects of assets and savings on the college progress of Black young adults. <i>Educational Evaluation and Policy Analysis</i> , 34(1), 89-108.	Proxy (level 3) Net worth Parents' school savings Children's designated savings for future schooling	Method: Multigroup SEM Type of Data: Secondary Baseline measured at ages 16 to 19 in 2002; Outcome measured at ages 17 to 23 in 2007; N = 1,003; white (n = 534); black (n = 469) Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Transition into Adulthood (TA) supplement; Race comparisons include Black and White Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 5	College progress	Whites: <ul style="list-style-type: none"> • Net worth is significant • Parental savings are not significant • Children's designated savings for future schooling is significant Blacks: <ul style="list-style-type: none"> • Net worth is significant • Both children and parents' savings are not significant
8. Song, H., & Elliott, W. (2012). The effects of parents' school savings on college expectations and Hispanic youth's four-year college attendance. <i>Children and Youth Services Review</i> , 34(9), 1845-1852.	Proxy (level 2) Parents' college savings	Method: HLM Type of Data: Secondary Baseline measured at ages 17 in 2002; Outcomes measured at ages 21 in 2006; N = 2,273 Source of Data: ELS:2002; Race comparisons include Latino Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 4	4-year college enrollment	Latinos: <ul style="list-style-type: none"> • Parental college savings are significant. Mediated by parent and child expectations

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
9. Cheatham, G., & Elliott, W. (2013). The effects of college savings on postsecondary school enrollment rates of students with disabilities. <i>Economics of Education Review</i> , 33(1), 95-111.	Proxy (level 3) Parents' savings accounts, stocks, child investment funds, whether parents plan to mortgage their home, college bonds, and state college savings plans State college savings plan	Method: Logistic regressions Type of Data: Secondary Baseline measured at ages 17 or 18 in 2002; Outcomes measured at ages 21 or older in 2006; N = 756 Source of Data: ELS:2002; Children in special education programs; Race comparisons include Black, White, Hispanic/Latino, and Asian Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 5	Any college enrollment; 4-year college enrollment	Students with Disabilities: <ul style="list-style-type: none"> Parents' who have college bonds are significant Parents' savings accounts, stocks, child investment funds, whether parents plan to mortgage their home, and state college savings plans are not significant

Note 1. Articles are listed from oldest to newest.

Note 2. The strength rating of types of proxies goes from 1 to 3 with use of program data given a 5. The lower the score the less comparable the variable is believed to be to participating in a Children's Savings Account Program: 1 = family assets (e.g., net worth, liquid assets, etc.); 2 = parental savings for college & children's basic savings account; 3 = children's designated savings for future schooling.

Note 3. The strength rating for types of evidence goes from 1 to 5. They are (1) non-experimental exploratory, (2) non-experimental explanatory, (3) quasi-experimental, (4) quasi-experimental impact evaluation, and (5) experimental (randomized control trial).

Note 4. The strength of evidence score is the sum of the proxy score and the type of design score (1 through 10, with 10 being strongest). This score is to give the reader an idea of the strength of a particular study specifically within the CSA field.

TABLE 6

REVIEW OF PROMISING DIRECTION AREA RESEARCH ON THE EFFECTIVENESS OF CSAS FOR IMPROVING COLLEGE COMPLETION RATES (STRENGTH OF EVIDENCE OF EFFECTIVENESS SCORES 3 – 5)

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
1. Song, H., & Elliott, W. (2011). The role of assets in improving college attainment among Hispanic immigrant youth in the U.S. <i>Children and Youth Services Review</i> , 33(11), 2160-2167.	Proxy (level 2) Parental school savings Homeownership	Method: Binary logistic regression Type of Data: Secondary Baseline variables measured ages 12 or older in 1992-1993; Outcome measured at ages 23 or older in 2001-2003; N = 730 Source of Data: CILS; Race comparisons include Latino Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 4	College completion	Full Sample: • Homeownership is significant. • Parental school savings are not significant.

Note 1. Articles are listed from oldest to newest.

Note 2. The strength rating of types of proxies goes from 1 to 3 with use of program data given a 5. The lower the score the less comparable the variable is believed to be to participating in a Children's Savings Account Program: 1 = family assets (e.g., net worth, liquid assets, etc.); 2 = parental savings for college & children's basic savings account; 3 = children's designated savings for future schooling.

Note 3. The strength rating for types of evidence goes from 1 to 5. They are (1) non-experimental exploratory, (2) non-experimental explanatory, (3) quasi-experimental, (4) quasi-experimental impact evaluation, and (5) experimental (randomized control trial).

Note 4. The strength of evidence score is the sum of the proxy score and the type of design score (1 through 10, with 10 being strongest). This score is to give the reader an idea of the strength of a particular study specifically within the CSA field.

Appendix F

Promising Directions Area Research for Short-Term Outcomes (Strength of Evidence of Effectiveness Scores 3 – 5)

TABLE 7

REVIEW OF PROMISING DIRECTIONS AREA RESEARCH ON THE EFFECTIVENESS OF CSAS ON IMPACTING SHORT-TERM PREDICTORS OF CHILDREN'S COLLEGE OUTCOMES (STRENGTH OF EVIDENCE OF EFFECTIVENESS SCORES 3 – 5)

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
1. Zhan, M., & Sherraden, M. (2003). Assets, expectations, and children's educational achievement in female-headed households. <i>The Social Service Review</i> , 77(2),191-211.	Proxy (level 2) Parental Savings Amount in Savings Homeownership	Method: Regression analysis; Hierarchical regression; Baron & Kenny Type of Data: Secondary Baseline measured at ages 12 to 18 in 1987 to 1988; Outcomes measured at ages 18 to 26 in 1992 to 1995; N = 406 Source of Data: NSFH in 1987-1988; Female-headed households only with at least one dependent child ages 12 to 18; Race comparisons include White, Black, Hispanic/ Latino, and Other Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 4	Academic performance (mother's report of grades) High school graduation Mother's educational expectations for child	Full Sample: Academic Performance: • Parental savings are not significant • Homeownership is significant High School Graduation: • Parental savings are significantly related to high school completion • Homeownership is not significant Mediation: • Relationship between mothers' savings and high school completion is partially mediated by mother's college expectations Relationship between home ownership and mother's report of grades is partially mediated by mother's college expectations
2. Elliott, W. (2009). Children's college aspirations and expectations: The potential role of children's development accounts (CDAs). <i>Children and Youth Services</i> , 31, 274-283.	Proxy (level 3) Net worth Categorical net worth: ((1) < \$4,564; (2) \$4,564 to \$47,742; (3) \$47,743 to \$153,700; and (4) > \$153,700) Children's savings account (CSA) (reported conventional savings account in child's name) Children's designated savings for future schooling (under \$401; over \$401)	Method: Regression analysis; Baron & Kenny; Sobel Test; Bootstrap Type of Data: Secondary No baseline was reported; Outcome measured at ages 12 to 18 in 2002; N = 1,065 Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS) in 1997, 2001, and 2002; Race comparisons include Black and White Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 5	Math Children's educational expectations	Full Sample: • Net worth is not significant • Children's school savings is significant • Children's school savings is associated with a 4.57 increase in math Baron & Kenny Findings: • The effect of children's savings on math achievement is reduced significantly when college expectations are included in the model (i.e., college expectations act as a mediator) Sobel Test Findings: • The total effect of children's school savings on math scores is reduced significantly Bootstrap Findings: • Children's school savings are indirectly related to math achievement through their college expectations

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
3. Elliott, W., Jung, H., and Friedline, T. (2010). Math achievement and children's savings: Implications for Child Development Accounts. <i>Journal of Family and Economic Issues</i> , 31(2), 171-184.	Proxy (level 2) Net worth Homeownership (owns home or does not own home) Children's basic savings account (have an account or do not have an account) Children's basic savings amount (amount between \$0.01 and \$9,997.99)	Method: HLM Type of Data: Secondary No baseline was reported. Outcome measured at ages 12 to 18 in 2002; N = 1,063 Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Race comparisons include Black and White Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 4	Math	Full Sample: <ul style="list-style-type: none"> Homeownership and income are not significant Net worth is only significant when children's savings are excluded from the model Children's basic savings are significant Children's basic savings accounts fully mediate the relationship between net worth and math. There is a significant cross-level interaction between children's savings and net worth on math scores Children's basic savings amount is not significant
4. Elliott, W., Jung, H., Kim, K., & Chow, G. (2010). A multi-group structural equation model (SEM) examining asset holding effects on educational attainment by race and gender. <i>Journal of Children and Poverty</i> , 16(2), 91-121.	Proxy (level 3) Net worth Children designated savings for future schooling	Method: Multigroup SEM; race and gender used as grouping variables; Bootstrapping Type of Data: Secondary No baseline was reported; Outcomes measured at ages 12 to 18 in 2002; N = 1,063; Blacks (N = 487); Whites (N = 576) Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Race comparisons include Black and White Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 5	Math Reading	The effects of school savings and net worth on math and reading scores are not mediated by college expectations regardless of race or gender. Math: <ul style="list-style-type: none"> Net worth has a positive, significant relationship with Black male children, negative with Black female children, and negative with White male children Designated savings for future schooling for White children but not Black children Reading: <ul style="list-style-type: none"> Designated savings for future schooling is significant for Black male children
5. Elliott, W., Kim, K. H., Jung, H., & Zhan, M. (2010). Asset holding and educational attainment among African American youth. <i>Children and Youth Services Review</i> , 32(11), 1497-1507.	Proxy (level 3) Net worth Homeownership Children's designated savings for future schooling	Method: Path analysis using SEM; Bootstrapping Type of Data: Secondary No baseline was reported; Outcome measured at ages 12 to 18 in 2002; Blacks (N = 487); Whites (N = 576) Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Race comparisons include Black and White Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 5	Math Children's educational expectation	No direct effects of net worth or homeownership on children's math or reading scores regardless of race White: <ul style="list-style-type: none"> Find that school savings have a direct relationship to math scores but not reading scores <ul style="list-style-type: none"> Math scores partially mediated by college expectations School savings is a full mediator between homeownership and children's math scores but not reading Black: <ul style="list-style-type: none"> Find school savings is directly related to reading scores but not math scores

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
6. Elliott, W., Choi, E. H., Destin, M., & Kim, K. (2011). The age old question, which comes first? A simultaneous test of young adult's savings and expectations. <i>Children and Youth Services Review</i> , 33(7), 1101-1111.	Proxy (level 2) Children's savings (have conventional savings or not) in 2002 Young adults' savings (have conventional savings or not) in 2007	Method: Path analysis Type of Data: Secondary Baseline measured at ages 12 to 17 in 2002; Outcomes measured at ages 17 to 23 in 2007; <i>N</i> = 592 Source of Data: Panel Study of Income Dynamics (PSID); Restricted to children who have graduated high school or received a GED and are not enrolled in a four-year college and have not graduated from a four-year college; Race Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 4	Children's educational expectations in 2002 and 2007	Full Sample: • Children's savings have a significant effect on college expectations and college expectations have a significant effect on children's savings (Virtuous circle)
7. Elliott, W., & Beverly, S. (2011a). Staying on course: The effects of savings and assets on the college progress of young adults. <i>American Journal of Education</i> , 117(3), 343-374.	Proxy (level 3) Net worth Parents' school savings for children Children's designated savings for future schooling	Method: Logistic regression; Baron & Kenny tests; bootstrapping Type of Data: Secondary Baseline measured at mean age of 17 in 2002; Outcome measured mean age of 20 in 2007; <i>N</i> = 1,003 Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Transition into Adulthood (TA) supplement; Race comparisons include Black and White Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 5	Children's educational expectations	Baron & Kenny Tests: • Children's expectations fully mediate the relationship between parent's savings and college progress • Children's expectations partially mediate the relationship between children's savings and college progress Bootstrapping: • Children's expectations carry the mediating effect of parents' and children's school savings on to college progress
8. Elliott, W., Jung, H., & Friedline, T. (2011). Raising math scores among children in low-wealth households: Potential benefit of children's school savings. <i>Journal of Income Distribution</i> , 20(2), 72-91.	Proxy (level 3) Net worth Homeownership Children's designated savings for future schooling Savings amounts (\$0.01-\$9,997.99)	Method: HLM; Baron & Kenny (1986) tests; Sobel's test Type of Data: Secondary No baseline was reported. Outcome measured at ages 12 to 18 in 2002; <i>N</i> = 1,071 Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Race comparisons include Black and White Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 5	Math	Full Sample: • Net worth and homeownership are not significant • Designated savings for future schooling are significant • Savings amounts are not significant Baron & Kenny Findings: • If children's savings are excluded from the model, net worth is significant. Children's savings fully mediates the association between net worth and math in the fixed slope model. • In the random slope model, school savings partially mediate the effects of school savings on math scores Sobel's Test Findings: • There is a significant mediating effect of school savings between net worth and math

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
9. Song, H., & Elliott, W. (2012). The effects of parents' school savings on college expectations and Hispanic youth's four-year college attendance. <i>Children and Youth Services Review, 34</i> (9), 1845-1852.	Proxy (level 2) Parents' college savings.	Method: Hierarchical linear modeling (HLM); Baron & Kenny tests Type of Data: Secondary Baseline measured at ages 17 in 2002; Outcomes measured at ages 21 in 2006; N = 2,273 Source Data: ELS:2002; Race comparisons include Latino Type of Evidence (level 2): Non-experimental explanatory Strength of Evidence Score = 4	Children's educational expectations	Baron & Kenny Findings: <ul style="list-style-type: none"> • Children's college expectations partially mediate the relationship between parents' college savings and Latino children's four-year college enrollment • Parents' college expectations fully mediate the relationship between parents' college savings and Latino children's four-year college enrollment

Note 1. Articles are listed from oldest to newest.

Note 2. The strength rating of types of proxies goes from 1 to 3 with use of program data given a 5. The lower the score the less comparable the variable is believed to be to participating in a Children's Savings Account Program: 1 = family assets (e.g., net worth, liquid assets, etc.); 2 = parental savings for college & children's basic savings account; 3 = children's designated savings for future schooling.

Note 3. The strength rating for types of evidence goes from 1 to 5. They are (1) non-experimental exploratory, (2) non-experimental explanatory, (3) quasi-experimental, (4) quasi-experimental impact evaluation, and (5) experimental (randomized control trial).

Note 4. The strength of evidence score is the sum of the proxy score and the type of design score (1 through 10, with 10 being strongest). This score is to give the reader an idea of the strength of a particular study specifically within the CSA field.

TABLE 8

REVIEW OF SUPPORTED AREA RESEARCH ON THE EFFECTIVENESS OF CSAS FOR IMPROVING COLLEGE ENROLLMENT RATES (STRENGTH OF EVIDENCE OF EFFECTIVENESS SCORES 6 – 8)

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
1. Elliott, W., Chowa, G., & Loke, V. (2011). Toward a children's savings and college-bound identity intervention for raising college attendance rates: A multilevel propensity score analysis. <i>Sociology Mind</i> , 1(4), 192-205.	Proxy (level 3) Net worth Children's savings (Four different doses are estimated: (1) no savings/uncertain; (2) savings only; (3) certain only; (4) combined (savings and certain))	Method: Propensity score weighting; Logistic regression Type of Data: Secondary Baseline measured in 2002 or earlier; Outcome measured at ages 17 to 23 in 2007; N = 1,003 Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Transition into Adulthood (TA) supplement; Race comparisons include Black and White Type of Evidence (level 4): Quasi-experimental impact evaluation Strength of Evidence Score = 7	4-year college enrollment	Full Sample: • Net worth is significant for all models • Among the 4 doses, the combined treatment group is significant (children with both college expectations and savings are more likely to attend a 4-year college than are children with no savings and uncertain college expectations)
2. Elliott, W. (2013). Small-dollar children's savings accounts and children's college outcomes. <i>Children and Youth Services Review</i> , 35(3), 572-585.	Proxy (level 3) Net worth Children's school savings (Five doses were created: [1] children with no savings, [2] children with basic savings only, [3] children with school savings of less than \$1, [4] children with school savings of \$1 to \$499, and [5] children with school savings of \$500 or more)	Method: Propensity score weighting with multi-treatments; Logistic regression Type of Data: Secondary Baseline measured in 2002; Outcome measured at ages 21 to 26 in 2009; N = 857 Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Transition into Adulthood (TA) supplement; Race comparisons include Black and White Type of Evidence (level 4): Quasi-experimental impact evaluation Strength of Evidence Score = 7	College enrollment	Full Sample: • Net worth is positive and significant • Liquid assets are not significant • Compared to no savings account, having basic savings is negatively associated with college enrollment, while school savings of less than \$1 is a statistically significant predictor of college enrollment
3. Elliott, W., Song, H-a, & Nam, I. (2013). Small-dollar children's saving accounts and children's college outcomes by income level. <i>Children and Youth Services Review</i> , 35(3), 560-571.	Proxy (level 3) Net worth Liquid assets Children's school savings (Five doses were created: [1] children with no savings, [2] children with basic savings only, [3] children with school savings of less than \$1, [4] children with school savings of \$1 to \$499, and [5] children with school savings of \$500 or more);	Method: Propensity score weighting; Multinomial logistic regression Type of Data: Secondary Baseline measured at ages 14 to 19 in 2002; Outcome measured at ages 21 to 26 in 2009; N = 857; LMI (N = 512); HI (N = 345) Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Transition into Adulthood (TA) supplement; Race comparisons include Black and White Type of Evidence (level 4): Quasi-experimental impact evaluation Strength of Evidence Score = 7	College enrollment	Low-to-Moderate Income (LMI): • Net worth is significant • Liquid assets are not significant • A low- and moderate-income child who has designated savings for future schooling of \$1 to \$499 is 3x more likely to enroll in college High-Income (HI): • Net worth is significant • Having designated savings for future schooling of less than \$1 is significant

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
4. Friedline, T., Elliott, W., & Nam, I. (2013). Small-dollar children's savings accounts and children's college outcomes by race. <i>Children and Youth Services Review</i> , 35(3), 548-559.	Proxy (level 3) Net worth Liquid assets (log) Children's school savings (Five doses were created: [1] children with no savings, [2] children with basic savings only, [3] children with school savings of less than \$1, [4] children with school savings of \$1 to \$499, and [5] children with school savings of \$500 or more)	Method: Propensity score weighting with multitreatments/doses; Logistic regression Type of Data: Secondary Baseline measured at ages 14 to 19 in 2002; Outcome measured at ages 21 to 26 in 2009; N = 857; black (N = 404); white (N = 453) Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Transition into Adulthood (TA) supplement; Race comparisons include Black and White Type of Evidence (level 4): Quasi-experimental impact evaluation Strength of Evidence Score = 7	College enrollment	Blacks: • Net worth is significant. • Having school savings of \$1 to \$499 is a strong predictor of college enrollment Whites: • Net worth is positively significant • No school savings amount is significant
5. Grinstein-Weiss, M., Sherraden, M., Gale, W. G., Rohe, William M., Schreiner, M., & Key, C. (2013). Long-term effects of individual development accounts on postsecondary education: Follow-up evidence from a randomized experiment. <i>Economics of Education Review</i> , 33(1), 58-68.	Proxy (level 2) A structured saving (IDA) (eligibility to participate in IDA program) (i.e., parental savings for college; don't start saving until adulthood)	Method: Propensity score weighting; Logistic regression; Bivariate comparisons Type of Data: Participant Wave 4 data measured after 10 years from the baseline survey; N = 824 Source of Data: Data from the Tulsa IDA experimental program (Baseline and wave 4); Race comparisons include Black, White, and Other Type of Evidence (level 5): Experimental Strength of Evidence Score = 7	College enrollment	Full Sample: • Multivariable analysis indicates a statistically significant impact of participating in IDA on college enrollment

Note 1. Articles are listed from oldest to newest.

Note 2. The strength rating of types of proxies goes from 1 to 3 with use of program data given a 5. The lower the score the less comparable the variable is believed to be to participating in a Children's Savings Account Program: 1 = family assets (e.g., net worth, liquid assets, etc.); 2 = parental savings for college & children's basic savings account; 3 = children's designated savings for future schooling.

Note 3. The strength rating for types of evidence goes from 1 to 5. They are (1) non-experimental exploratory, (2) non-experimental explanatory, (3) quasi-experimental, (4) quasi-experimental impact evaluation, and (5) experimental (randomized control trial).

Note 4. The strength of evidence score is the sum of the proxy score and the type of design score (1 through 10, with 10 being strongest). This score is to give the reader an idea of the strength of a particular study specifically within the CSA field.

TABLE 9

REVIEW OF SUPPORTED AREA RESEARCH ON THE EFFECTIVENESS OF CSAS FOR IMPROVING COLLEGE COMPLETION RATES (STRENGTH OF EVIDENCE OF EFFECTIVENESS SCORES 6 – 8)

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
1. Elliott, W. (2013). Small-dollar children's savings accounts and children's college outcomes. <i>Children and Youth Services Review</i> , 35(3), 572-585.	Proxy (level 3) Net worth Liquid assets Children's school savings (Five doses were created: [1] children with no savings, [2] children with basic savings only, [3] children with school savings of less than \$1, [4] children with school savings of \$1 to \$499, and [5] children with school savings of \$500 or more)	Method: Propensity score weighting with multitreatments/doses; Logistic regression Type of Data: Secondary Baseline measured at ages 14 to 19 in 2002; Outcome measured at ages 21 to 26 in 2009; N = 857 Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Transition into Adulthood (TA) supplement; Race comparisons include Black and White Type of Evidence (level 3): Quasi-experimental Strength of Evidence Score = 6	College completion	Full Sample: • Net worth is positive and significant. • Compared to no savings account, having school savings with \$1 to \$499 is a statistically significant predictor of college graduation.
2. Elliott, W., Song, H-a, & Nam, I. (2013a). Small-dollar children's saving accounts and children's college outcomes by income level. <i>Children and Youth Services Review</i> , 35(3), 560-571.	Proxy (level 3) Net worth Liquid assets Children's school savings (Five doses were created: [1] children with no savings, [2] children with basic savings only, [3] children with school savings of less than \$1, [4] children with school savings of \$1 to \$499, and [5] children with school savings of \$500 or more)	Method: Propensity score weighting with multitreatments/doses; Logistic regression Type of Data: Secondary Baseline measured aged 14 to 19 in 2002; Outcome measured at ages 21 to 26 in 2009; LMI (< \$50,000; n = 512); HI (≥ \$50,000; n = 345) Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Transition into Adulthood (TA) supplement; Race comparisons include Black and White Type of Evidence (level 3): Quasi-experimental Strength of Evidence Score = 6	College completion	Low-to-Moderate Income (LMI): • Net worth is positive and significant. • A LMI child who has designated savings for future schooling of \$1 to \$499 is more likely to complete college. • A LMI child who has designated savings for future schooling of \$500 or more is more likely to complete college. High-Income (HI): • Liquid assets are significant. • A HI child who has designated savings for future schooling of \$500 or more is more likely to complete college.
3. Friedline, T., Elliott, W., & Nam, I. (2013). Small-dollar children's savings accounts and children's college outcomes by race. <i>Children and Youth Services Review</i> , 35(3), 548-559.	Proxy (level 3) Net worth Liquid assets Children's school savings (Five doses were created: [1] children with no savings, [2] children with basic savings only, [3] children with school savings of less than \$1, [4] children with school savings of \$1 to \$499, and [5] children with school savings of \$500 or more)	Method: Propensity score weighting with multitreatments/doses; Logistic regression Type of Data: Secondary Baseline measured at ages 14 to 19 in 2002; Outcome measured at ages 21 to 26 in 2009; Black (N = 404); White (N = 453) Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Transition into Adulthood (TA) supplement; Race comparisons include Black and White Type of Evidence (level 3): Quasi-experimental Strength of Evidence Score = 6	College completion	Black: • Net worth and liquid assets are significant. • Black children are 3x more likely to enroll in college when they have designated savings for future schooling of less than \$1 • They are six times more likely when they have designated savings for future schooling of \$1 to \$499 White: • No asset variables are significant.

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
4. Elliott, W., Song, H-a, & Nam, I. (2013b). Small-dollar accounts, children's college outcomes and wilt. <i>Children and Youth Services Review</i> , 35 (3), 535-547.	Proxy (level 3) Net worth Liquid assets Children's school savings (Five doses were created: [1] children with no savings, [2] children with basic savings only, [3] children with school savings of less than \$1, [4] children with school savings of \$1 to \$499, and [5] children with school savings of \$500 or more)	Method: Propensity score weighting with multi-treatments/doses; Logistic regression Type of Data: Secondary Baseline measured at ages 14 to 19 in 2002 or earlier; Outcome measured at ages 21 to 26 in 2009; N = 668 Source of Data: Panel Study of Income Dynamics (PSID); Child Development Supplement (CDS); Transition into Adulthood (TA) supplement; Children who had college graduation expectations only; Race comparisons include Black and White Type of Evidence (level 3): Quasi-experimental Strength of Evidence Score = 6	College graduation	Full Sample: • Children who expect to graduate college prior to leaving high school (high-expectation children) and who designate savings for future schooling of \$500 or more are about 2x more likely to complete college than high-expectation children with no account. • High-expectation low- and moderate-income (LMI) children who designate savings for future schooling of \$1 to \$499 and \$500 or more are about 3x more likely to graduate college than LMI children with no account. Race: • High-expectation black children who have designated saving for future schooling of \$500 or more are about 2.5x more likely to graduate from college than their counterparts with no savings account. White: • Liquid assets are significant.
5. Grinstein-Weiss, M., Sherraden, M., Gale, W. G., Rohe, William M., Schreiner, M., & Key, C. (2013). Long-term effects of individual development accounts on postsecondary education: Follow-up evidence from a randomized experiment. <i>Economics of Education Review</i> , 33(1), 58-68.	Proxy (level 2) IDA (eligibility to participate in IDA program) (i.e., parental savings for college; don't start saving until adulthood)	Method: Propensity score weighting; Logistic regression; Bivariate comparisons Type of Data: Participant Wave 4 data measured after 10 years from the baseline survey; N = 824 Source of Data: Data from the Tulsa IDA experimental program (Baseline and wave 4); Race comparisons include Black, White, and Other Type of Evidence (level 5): Experimental Strength of Evidence Score = 7	College completion	Full Sample: • Impact of IDAs have a positive but nonsignificant impact on degree completion.

Note 1. Articles are listed from oldest to newest.

Note 2. The strength rating of types of proxies goes from 1 to 3 with use of program data given a 5. The lower the score the less comparable the variable is believed to be to participating in a Children's Savings Account Program: 1 = family assets (e.g., net worth, liquid assets, etc.); 2 = parental savings for college & children's basic savings account; 3 = children's designated savings for future schooling.

Note 3. The strength rating for types of evidence goes from 1 to 5. They are (1) non-experimental exploratory, (2) non-experimental explanatory, (3) quasi-experimental, (4) quasi-experimental impact evaluation, and (5) experimental (randomized control trial).

Note 4. The strength of evidence score is the sum of the proxy score and the type of design score (1 through 10, with 10 being strongest). This score is to give the reader an idea of the strength of a particular study specifically within the CSA field.

Appendix I

Supported Area Research for Short-Term Outcomes (Strength of Evidence of Effectiveness Scores 6 – 8)

TABLE 10

REVIEW OF SUPPORTED AREA RESEARCH ON THE EFFECTIVENESS OF CSAS ON IMPACTING SHORT-TERM PREDICTORS OF CHILDREN'S COLLEGE OUTCOMES (STRENGTH OF EVIDENCE OF EFFECTIVENESS SCORES 6 – 8)

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
1. Rauscher, E., Elliott, W., O'Brien, M., Callahan, J., & Steensma, J. (2017). Examining the relationship between parental educational expectations and a community-based children's savings account program. <i>Children and Youth Services Review, 77</i> , 96-107.	<p>Proxy (level 5) Opened 529 Account</p> <p>Promise Plus (Lived in county where exposure to marketing campaign, school activities related to college and career preparation, information about engaging champions, trip to a university, and the opportunity to enroll into the Promise was available)</p> <p>Note. This study does not have access to whether families participated in CSA, they do have if they opened up 529 and if they lived in country where exposure to the program was likely)</p>	<p>Method: Logistic regression</p> <p>Type of Data: Participant</p> <p>This study uses repeated cross-sectional data. That is, this study compares survey results from two cross-sectional samples, rather than a longitudinal design; that is, they do not track the same individuals over time but instead collect information from the population of interest before and after the Promise intervention.</p> <p>Source of Data: Promise Indiana (now called the Early Awards Scholarship Program) participant data</p> <p>Final analytic sample consists of 3,060 families.</p> <p>Type of Evidence (level 3): Quasi-experimental</p> <p>Strength of Evidence Score = 8</p>	Parental Educational Expectations	<p>Full Sample (Rural Community):</p> <ul style="list-style-type: none"> Parents who were both exposed to the additional aspects of the Promise Indiana program and have a 529 account are over 3x more likely to expect their child to attend college than others <p>Parental Education level:</p> <ul style="list-style-type: none"> Among parents exposed to the additional aspects of the Promise and have a 529 account, it increased to 13x more likely among parents with no college education <p>Income level:</p> <ul style="list-style-type: none"> Among high-income families, having the 529 account through Promise Indiana does not seem to alter their expectations for their children's college attainment, while the Promise Plus intervention does
2. Elliott, W., Kite, B., O'Brien, M., Lewis, M. and Palmer, A. (2018). Initial elementary education findings from Promise Indiana's Children's Savings Account program. <i>Children and Youth Services Review, 85</i> , 295-306.	<p>Proxy (level 5) Received CSA (treatment) did not receive CSA (comparison)</p> <p>CSA save (i.e., made at least one contribution)</p> <p>Amount saved in CSA</p>	<p>Method: Regression analysis</p> <p>Type of Data: Participant</p> <p>Source of Data: Promise Indiana savings data from CollegeChoice 529 and school administration data</p> <p>Final analytic sample consists of 738 aggregate who were in 3rd and 4th grades at the end of the 2014-2015 school year</p> <p>Type of Evidence (level 3): Quasi-experimental</p> <p>Strength of Evidence Score = 8</p>	Attendance Math Reading	<p>Full Sample (Rural Community):</p> <ul style="list-style-type: none"> CSAs and amount saved were not significant predictors of attendance Having CSA is not significantly associated with reading and math The amount saved is significantly associated with reading and math scores <p>Low-Income Sample :</p> <ul style="list-style-type: none"> CSAs and amount saved were not significant predictors of attendance Having CSA is significantly associated with reading and math scores Being a saver is significantly associated with reading scores but not math scores

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
3. Chen, Z., Elliott, W., Wang, K., Zhang, A., and Zheng, H. (2020). Examining parental educational expectations in one of the oldest children's savings account programs in the country: The Harold Alfond College Challenge. <i>Children and Youth Services Review</i> , 108(2020), 1-6.	Proxy (level 5) Opt-in with CSA (received account between 2008-2013) Opt-out with CSA (received account between 2014-2017) Comparison with no CSA Note. The Harold Alfond College Challenge (HACC) later became known as MyAlfond Grant	Method: Logistic regression analysis Type of Data: Participant Source of Data: HACC, Maine's statewide CSA Program Data from a 2019 survey of parents of children born in Maine between 2008 and 2017. Final analytic sample was 703. Type of Evidence (level 3): Quasi-Experimental Strength of Evidence Score = 8	College graduation	Full Sample: <ul style="list-style-type: none"> This study finds that Maine parents with a CSA, regardless of whether they opt-in or are opt-out, are more likely to expect their child to attend college than the comparison group with no CSA No difference in educational expectations between parents who opted-in and parents who were automatically given an account and had to opt-out if they wanted to participate
4. Zheng, H., Starks, B., Ellis, J., O'Brien, M., and Elliott, W. (2020). An examination of parental college expectations' mediating role between children's savings accounts and children's educational attainment by income level. <i>Sociology Mind</i> 10(3), 165-186. https://www.scirp.org/pdf/	Proxy (level 5) Received CSA (treatment) did not receive CSA (comparison) Note. The Harold Alfond College Challenge (HACC) later became known as MyAlfond Grant.	Method: Structural Equation Modeling (SEM) Type of Data: Participant Source of Data: HACC, Maine's statewide CSA Program Data from a 2019 survey of parents of children born in Maine between 2008 and 2017. Final analytic sample was 572. Type of Evidence (level 3): Quasi-Experimental Strength of Evidence Score = 8	Parental Perceptions of Math and Reading Ability Parental Educational Expectations	Low-to-Moderate Income: <ul style="list-style-type: none"> Positive association between the Alfond Grant enrollment and parental college expectations among low-to-moderate income families Parental expectations are found to be a full mediator between having a CSA account and parental perceptions of children's math ability (but not reading ability) among low-to-moderate income students High Income: <ul style="list-style-type: none"> No findings were significant for high income families
5. Elliott, W., Zheng, H., Sabol, T., and O'Brien, M. (2021). A Step Toward Measuring Children's College-Bound Identity in Children's Savings Accounts Programs: The Case of Promise Scholars. <i>Children and Youth Service Review</i> , 121(February). https://authors.elsevier.com/a/1c1X7hNfKpCXJ	Proxy (level 5) Received CSA (treatment) did not receive CSA (comparison) Note. The Promise Scholars program later became known as the Early Awards Scholarship Program (EASP)	Method: Structural Equation Modeling Type of Data: Participant Source of Data: Promise Scholars savings data from CollegeChoice 529 and school administration data Final analytic samples consisted of 1,579. The population was evenly distributed across grades, which consist of 413 5th graders, 393 6th graders, 404 7th graders, and 369 9th graders during the 2019-2020 school year. Type of Evidence (level 3): Quasi-Experimental Strength of Evidence Score = 8	College-Bound Identity Scale (alternative measure of children's educational expectations)	Full Sample: <ul style="list-style-type: none"> Findings indicate that a second-order identity latent named college-bound identity may be reflected in the data CSA participants' college-bound identity is predicted to be statistically higher than that of non-CSA participants
6. Elliott, W., Zheng, H., O'Brien, M., and Choi, T. (2023). Children's Savings Accounts and Rural Children's College Expectations: The Case of Kickstart Newaygo County. <i>Sociology Mind</i> , 13, 43-61. doi: 10.4236/sm.2023.131003.	Proxy (level 5) Received CSA (treatment) did not receive CSA (comparison)	Method: Structural Equation Modeling (SEM) Type of Data: Participant Source of Data: Kickstart to Career Newaygo County Survey Data Pooled sample of 2nd grade students with 72 from the year of 2020 and 89 from 2022 Type of Evidence (level 3): Quasi-Experimental Strength of Evidence Score = 8	College-Bound Identity Scale (alternative measure of children's educational expectations) Parent Perception of Academic Performance	Rural Community: <ul style="list-style-type: none"> Findings support better performance of a global second-order factor describing college-bound identity (CBI) compared to a single-item measure of child educational expectations Participation in the CSA is associated with greater levels of CBI CBI was found to be positively associated with parent perceptions of child academic performance

Note 1. Articles are listed from oldest to newest.

Note 2. The strength rating of types of proxies goes from 1 to 3 with use of program data given a 5. The lower the score the less comparable the variable is believed to be to participating in a Children's Savings Account Program: 1 = family assets (e.g., net worth, liquid assets, etc.); 2 = parental savings for college & children's basic savings account; 3 = children's designated savings for future schooling.

Note 3. The strength rating for types of evidence goes from 1 to 5. They are (1) non-experimental exploratory, (2) non-experimental explanatory, (3) quasi-experimental, (4) quasi-experimental impact evaluation, and (5) experimental (randomized control trial).

Note 4. The strength of evidence score is the sum of the proxy score and the type of design score (1 through 10, with 10 being strongest). This score is to give the reader an idea of the strength of a particular study specifically within the CSA field.

TABLE 11

REVIEW OF WELL SUPPORTED AREA RESEARCH ON THE EFFECTIVENESS OF CSAS ON IMPACTING SHORT-TERM PREDICTORS OF CHILDREN’S COLLEGE OUTCOMES (STRENGTH OF EVIDENCE OF EFFECTIVENESS SCORES 9 – 10)

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
1. Huang, J., Sherraden, M., Kim, Y., and Clancy, M. (2014). Effects of child development accounts on early social-emotional development an experimental test. <i>Journal of American Medical Association Pediatrics</i> , 168(3), 265-271.	Proxy (level 5) Received CSA (treatment) did not receive CSA (control)	Method: Mean Difference Type of Data: Participant SEED OK data collected between 2008 and 2011 Final analytic sample consists of 2228 mothers: 1132 in the treatment group and 1096 in the control group. Type of Design (level 5): Experimental (RCT) Strength of Evidence Score = 10	Social-Emotional Development	Full Sample: • The CSAs have positive effects on social-emotional development for children at approximately age 4. The nonweighted treatment-control difference is significant, but the weighted difference is nonsignificant Low-Income: • The effects appear to be greater for disadvantaged subsamples, such as low-income households
2. Huang, J., Sherraden, M., & Purnell, J. (2014). Impacts of Child Development Accounts on maternal depressive symptoms: Evidence from a randomized statewide policy experiment. <i>Social Science & Medicine</i> , 112, 30-38. doi:10.1016/j.	Proxy (level 5) Received CSA (treatment) did not receive CSA (control)	Method: Intent-to-treat; regression analysis Type of Data: Participant Source of Data: SEED OK data collected between 2008 and 2011 Final analytic sample consists of 2223 mothers: 1126 in the treatment group and 1097 in the control group. Type of Design (level 5): Experimental (RCT) Strength of Evidence Score = 10	Maternal Depressive Symptom Social-emotional development	Full Sample: • CSAs’ impacts on maternal depressive symptoms may be partially mediated through children’s social-emotional development Low-Income: • Greater impact among subsamples that reported lower income or lower education
3. Kim, Y., Sherraden, M., Huang, J., & Clancy, M. (2015). Child Development Accounts and parental educational expectations for young children: Early evidence from a statewide social experiment. <i>Social Service Review</i> , 89(1), 99-137. doi:10.1086/680014	Proxy (level 5) Received CSA (treatment) did not receive CSA (control)	Method: Regression analysis Type of Data: Participant SEED OK data collected between 2008 and 2011 Final analytic sample consists of 2167 mothers: 1097 in the treatment group and 11070 in the control group. Type of Design (level 5): Experimental (RCT) Strength of Evidence Score = 10	Parental Educational Expectations Durability of Parental Educational Expectations	Full Sample: • Find that CSA participation positively affects parents’ educational expectations at age 4 • The proportion of mothers whose expectations remain constant or increase between birth and age 4 is higher among CSA participants than among the control group Income: • Significantly more durable among households with low-income
4. Huang, J., Kim, Y., & Sherraden M. (2016). Material hardship and children’s social-emotional development: Testing mitigating effects of Child Development Accounts in a randomized experiment. <i>Child: Care, Health and Development</i> , 43(1), 89-96. doi:10.1111/	Proxy (level 5) Received CSA (treatment) did not receive CSA (control)	Method: Multiple regression Type of Data: Participant Source of Data: SEED OK data collected between 2008 and 2011 Final analytic sample consists of 2208 mothers: 1121 in the treatment group and 1087 in the control group. Type of Design (level 5): Experimental (RCT) Strength of Evidence Score = 10	Material Hardship Social-Emotional Development	Full Sample: • Material hardship has a negative association with the social-emotional development of children around the age of 4 years • CSAs mitigate about 50% of the negative association between material hardship and children’s social-emotional development

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
5. Elliott, W. Lewis, M., O'Brien, LiCalsi, C. Brown, L. Tucker, N. & Sorensen, N. (2017). Kindergarten to College Children's Savings Account program: School outcomes report. Find at https://aedi.ssw.umich.edu/publications/1992-children-s-savings-account-program-school-outcomes-report	Proxy (level 5) Received CSA (treatment) did not receive CSA (comparison) Active account (made contribution or earned an incentive)	Method: Regression discontinuity (RD) Type of Data (level 2): Participant (k - 3rd grade) Source of Data: K2C account transaction data; school district administrative records, & school-level data Type of Design (level 4): Quasi-Experimental Impact Evaluations Strength of Evidence Score = 9	Absences Math Reading	Full Sample: • Significant findings were found only in the case of active accounts. Just owning an account that was inactive (no contribution and no incentive earned) was not significant for any outcome Absences: • The average student in the active account group was 40% less likely to average 10 or more absences in a year than the average student in the passive account group (odds ratio = 0.60). For example, 19% of students with active accounts were absent 10 or more days compared to 29% of students with passive account Reading: • The average student in the active account group was 53% more likely to meet expectations than the average student in the passive account group • For example, 65% of students with active accounts met or exceeded third-grade reading expectations compared to 55% of students with passive accounts Math: • The average student in the active account group was 41% more likely to meet expectations than the average student in the passive account group. But findings here were only marginally significant using an alpha of .05 • For example, 69% of students with active accounts met or exceeded third-grade math expectations compared to 62% of students with passive accounts.
6. Huang, J., Kim, Y., Sherraden, M., & Clancy, M. M. (2017). Unmarried mothers and children's social-emotional development: The role of Child Development Accounts. <i>Journal of Child and Family Studies</i> , 26(1), 234-247. doi:10.1007/s10826-016-0551-	Proxy (level 5) Received CSA (treatment) did not receive CSA (control)	Method: Multiple regression Type of Data: Participant Source of Data: SEED OK data collected between 2008 and 2011 Final analytic sample consists of 2121 mothers: 1072 in the treatment group and 1049 in the control group. Type of Design (level 5): Experimental (RCT) Strength of Evidence Score = 10	Social-Emotional Development	Unmarried Mothers: • CSAs have significantly positive effects on social-emotional development for children of unmarried mothers • They eliminate the difference in social-emotional development between single mother children and married mother children

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
7. Kim, Y., Huang, J., Sherraden, M., & Clancy, M. (2017). Child Development Accounts, parental savings, and parental educational expectations: A path model. <i>Children and Youth Services Review, 79</i> , 20–28. doi:10.1016/j.	Proxy (level 5) Received CSA (treatment) did not receive CSA (control) Opened 529 Account	Method: Path analysis Type of Data: Participant Source of Data: SEED OK data collected between 2008 and 2011 Final analytic sample consists of 2160 mothers Type of Design (level 5): Experimental (RCT) Strength of Evidence Score = 10	Parental Educational Expectations	CSA Only : • Participating in the CSA program has a significant effect on parents' educational expectations for their children Opened 529 Account: • Opening a 529 account (allows CSA participants to make personal contributions) mediates the effect of CSAs on parental expectations.
8. Elliott, W., Chowa, G., Ellis, J., Chen, Z.*, and O'Brien, M. (2019). Combining children's savings account programs with scholarship programs: Effects on math and reading scores. <i>Children and Youth Services Review, 102</i> (2019), p. 7-17. https://doi.org/10.1016/j.chilyd.2019.04.0241	Proxy (level 5) CSA only Promise Scholars (CSA account + Scholarship Program) Promise Scholar Savers (at least one contribution) Note. The Promise Scholars program later became known as the Early Awards Scholarship Program (EASP)	Method: Difference in Difference with Propensity Score Optimal Matching Type of Data: Participant Source of Data: Promise Scholars savings data from CollegeChoice 529 and school administrative data Final analytic samples consisted of 272 CSA only, 797 Promise Scholars, and 873 in the comparison. They were in 4th through 8th grades during the 2016–2017 school year. Type of Design (level 4): Quasi-Experimental Strength of Evidence Score = 9	Math Reading	Rural Community: • Being a Promise Scholar is associated with higher math and reading scores – Findings are strongest among low-income children • Being a Promise Scholar saver associated with higher math scores not reading • Promise Scholar findings stronger than CSA only findings
9. Huang, J., Nam, Y., Sherraden, M., Clancy, M. M. (2019). Impacts of child development accounts on parenting practices: evidence from a randomized statewide experiment. <i>Asia Pacific Journal of Social Work and Development, 29</i> (1), 34–47. doi:10.1080/02185385.2019.1575270	Proxy (level 5) Received CSA (treatment) did not receive CSA (control)	Method: Structural Equation Modeling (SEM) Type of Data: Participant Source of Data: SEED OK data collected between 2008 and 2011. Final analytic sample consists of 2228 mothers: 1130 in the treatment group and 1098 in the control group. Type of Design (level 5): Experimental (RCT) Strength of Evidence Score = 10	Parenting Practices	Full Sample: • CSAs significantly reduce punitive parenting • CSAs may serve as an additional tool for positive parent-child interactions
10. Elliott, W., Sorensen, N., Zheng, H., and O'Brien, M. (2023). Early award scholarship program results in improved attendance and state math test scores for students from lower-income households. <i>Economies 11</i> : 82. https://doi.org/10.3390/	Proxy (level 5) Received CSA (treatment) did not receive CSA (comparison) Three Measures of Participation: • Total Number of Quarters Enrolled • Total Scholarships Award Dollars Earned • Total District Formative Assessment Scholarship Dollars Earned	Method: Logistic Regression with Inverse Propensity Score Weighting Type of Data: Participant Source of Data: The analytic sample included N = 1174 students Students in Grades 4–6 in the 2016–17 school year and subsequently in Grades 5–7 in the 2017–2018 school year and examine attendance and state assessment scores for Grades 6–8 in the 2018–2019 school year. Type of Evidence (level 4): Quasi-Experimental Strength of Evidence Score = 9	Attendance Math Reading	Income : • Participation is significantly improved attendance—for students from lower-income households but not higher income students • Participation is significantly higher in state math test scores for students from lower-income households but not higher income students No impacts were found for reading test scores

CITATION	TYPE OF VARIABLE	METHODS	OUTCOMES	FINDINGS
11. Hernandez, M.W., Finch, L. E., Gupta, R., Kabourek, S. E., Hwang, C., Kelleher, J., Feinstein, A., Ernst, S., Bennett, T., & Long, D. (2023). Oakland Promise Brilliant Baby: Follow-Up Report at 18 Months of Age.	<p>Proxy (level 5) Received CSA (treatment) did not receive CSA (control)</p> <p>While this study had both a CSA only treatment group and a CSA + coaching group here I focus only on the CSA only findings because they most resemble CSA programs examined in this study.</p> <p>CSA only group received a 529 College Savings Account seeded with \$500</p>	<p>Method: Regression analysis</p> <p>Type of Data: Participant</p> <p>Source of Data: Brilliant Baby data collected between 2018 and 2020</p> <p>The study N at the 18-month follow up was 153 participants, with 63 control, 39 CSA only, and 51 CSA + coaching with fully complete data (power analysis was conducted)</p> <p>Type of Design (level 5): Experimental</p> <p>Strength of Evidence Score = 10</p>	<p>Parental Educational Expectations</p> <p>Improved Communications</p> <p>Personal-Social Skills (like Social Emotional Development)</p>	<p>CSA Only Findings:</p> <ul style="list-style-type: none"> • Higher parental educational expectations when compared to the control group • Children had improved communication skills when compared to the control group • Children had improved personal-social skills (i.e., social-emotional development) when compared to the control group

Note 1. Articles are listed from oldest to newest.

Note 2. The strength rating of types of proxies goes from 1 to 3 with use of program data given a 5. The lower the score the less comparable the variable is believed to be to participating in a Children's Savings Account Program: 1 = family assets (e.g., net worth, liquid assets, etc.); 2 = parental savings for college & children's basic savings account; 3 = children's designated savings for future schooling.

Note 3. The strength rating for types of evidence goes from 1 to 5. They are (1) non-experimental exploratory, (2) non-experimental explanatory, (3) quasi-experimental, (4) quasi-experimental impact evaluation, and (5) experimental (randomized control trial).

Note 4. The strength of evidence score is the sum of the proxy score and the type of design score (1 through 10, with 10 being strongest). This score is to give the reader an idea of the strength of a particular study specifically within the CSA field.



Elliott, W. (2024, Jan.). Assessing the evidence for Children's Savings Accounts (CSAs) as an effective strategy for improving children's postsecondary outcomes: The continuum of evidence of effectiveness. University of Michigan. Center on Assets, Education, and Inclusion (AEDI).

Find at <https://aedi.ssw.umich.edu/sites/default/files/documents/Reports/evolution-of-csa-research.pdf>