CONFERENCE BRIEF

Kindergarten to College (K2C) College Enrollment Findings:

Fuel for an Evidence-Based Movement

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Methods:

- **Sample:** Intent-to-treat sample of students enrolled (N=1,104) in 18 schools in the San Francisco Unified School District (SFUSD) in 2010-11 (graduating class of 2023). These were the 18 schools where K2C was fist rolled out with automatic enrollment for all kindergarteners. They were compared to students enrolled (N=1,128) in the same schools the prior year (graduating class of 2022)
- **Outcome Data:** College enrollment data from the National Student Clearinghouse, data were collected by SFUSD
- **Analysis Plan:** Multi-level models with students nested within the school in which they enrolled in kindergarten

Key Findings:

- Among K2C students, the gap in college enrollment between represented and underrepresented students decreased by nearly 30% relative to the gap in the comparison group.
- The gap in on-time graduation between represented and underrepresented students decreased by nearly 1/3 (29%) relative to the gap in the comparison group.

Introduction

The Kindergarten to College Savings Program

This brief presents new evidence from Kindergarten to College (K2C), a Children's Savings Account (CSA) program in San Francisco, CA.[1] As part of the vision of then Mayor Gavin Newsom (now Governor of California) and under the leadership of Treasurer José Cisneros, K2C started 13 years ago by automatically opening an account with an initial seed deposit of $50 for over 1,000 kindergarten students. K2C is the nation's first automatic and universal CSA program and one of the most recognized CSA programs in the U.S. It became the model for local CSA programs across the country and signaled to policymakers that CSAs could be administered at scale.

[1] To learn more about K2C go to https://sfgov.org/k2c/.

CSAs, an Evidence-Based Movement

The CSA field has evolved in response to data and evidence, producing studies showing that CSAs, even small-dollar CSAs, impact the educational outcomes of children. Given that these programs started when children were very young, until now, the field relied on short-term outcome metrics (e.g., parental and child educational expectations, social emotional development, math and reading scores, etc.) that were known to be predictive of children's college attendance (for a review of this research see Elliott & Harrington, 2016; Elliott, 2024, Jan.). At the same time, this work on short-term outcomes was building an increasingly definitive body of evidence supporting the potential of CSAs to directly impact children's college enrollment rates.

Evolution of a Field

Drawing on Elliott (2024, Jan.), we identify four areas of evidence that may be useful for helping to gain an understanding of where the CSA field is on the continuum of evidence of effectiveness as a strategy for improving college outcomes: (1) emerging – expected to be effective using non-experimental exploratory designs, (2) promising direction – some evidence of effectiveness using proxies for CSA participation and quasi-experimental designs, (3) supported – found to be effective using proxies for CSA participation and quasi-experimental designs with advanced statistical methods for addressing selection bias, and (4) well-supported – found to be effective using quasi-experimental designs with participant data (strong) to true experimental designs (stronger).

Evolution 1 -Emerging Evidence: Family Assets and Children's College Outcomes

Emerging evidence uses nationally representative secondary data sets to test the relationship between parental assets, primarily net worth, and college enrollment. Proxies used in the emerging area of evidence are characterized as being the least like actual participation in a CSA program (i.e., the weakest proxy). Findings in this area of the continuum are classified as being expected to be effective.

Dalton Conley's work is exemplary of the kind of evidence that existed during this period. In his 1999 book *Being Black, Living in the Red* he seemingly burst onto the asset scene, and the public's radar. In some ways, it seemed to feed off the success of Melvin Oliver and Thomas Shapiro's 1995 book, *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 had not been previously seen. However, Conley's (1999) book was the first to emphasize the role family assets play in determining children's college outcomes. 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 children in odds of having graduated from college. This was counter to what common narratives suggested.

Evolution 2 – Promising Evidence: Designated Savings for Future Schooling

Promising evidence is classified as providing some evidence of effectiveness. The second evolution was characterized by a shift from using family net worth as a proxy for participation in a CSA program to a proxy derived from questions in a secondary data set 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.

Research by Elliott and Beverly (2011) showed that having savings designated for future schooling was associated with higher rates of enrollment and reducing the incident of wilt, when a young person in high school expects to attend a college school but fails to do so shortly after graduating high school. These findings had an important impact on the perception of CSAs as an effective strategy for improving children's college outcomes. In a press release at the start of K2C, then Mayor Gavin Newsom said, "There's no better long-term investment we can make as a city than helping our kids go to college, and Kindergarten to College will provide working families with the financial tools to turn a college education for their child from a distant dream to a practical reality" (Newsom, 2010). In talking about why the city started K2C, the Mayor often cited statistics from a study done by Elliott and Beverly (2011) that indicated that children who have savings designated for college were more likely to attend college than those who did not. K2C, under the leadership of Treasurer José Cisneros, 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.

However, while findings from the Elliott and Beverly (2011) 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 population was chosen because the authors felt that wilt provided a unique opportunity to better isolate the school saving effect. It did this by ruling out through sampling *desire* as a reason for why this subset of children did not attend college while controlling family income and academic achievement. This seemed particularly important because lack of desire was often cited as a reason children from low-income families did not attend college. While the proxy designated saving for future schooling is not the same as participating in a CSA program, it was clear that it more closely resembled participation in a CSA program.

While this study helped the CSA field to evolve in ways that were not possible using variables like net worth, a stronger level of evidence was still possible by using data from children and families who were part of a CSA program. Further, the authors did not use the most rigorous methods for accounting for potential selection bias. It is on this last point that evolution three further strengthens our confidence that CSAs, including those with small initial deposits, are an effective strategy for improving children's outcomes.

Evolution 3 -Supported Evidence: Even Small Amounts of Money in a CSA Can Matter

Evidence in this area is classified as "found to be effective." In terms of research design, researchers moved from using non-experimental explanatory designs to using quasi-experimental impact evaluation designs that better accounted for potential selection bias through advanced statistical methods. Evolution three was shepherded by a set of studies examining whether small amounts of assets in an account could have positive effects on children's college outcomes (Elliott, 2013; Elliott, Song, & Nam, 2013; Friedline, Elliott, & Nam, 2013). This was important because the most widespread form of CSAs were CSAs with small initial deposits of anywhere between $5 to $1,000. Findings from this research indicated that having savings designated for future schooling was associated with both college enrollment and college completion even when the amounts in a child's account were small.

Evolution 4: Quasi-Experimental Impact Evaluation Using Data from CSA Programs

Evolution four marks a period when some of the most recognizable and often replicated CSA programs in the U.S. have children entering college or nearing college age. As a result, quasi-experimental impact study designs using CSA participants can now start to test the effectiveness of CSAs. This study design can produce evidence of effectiveness that can be classified on the continuum as well-supported. The well-supported area of the continuum represents the highest form of evidence even though experimental evidence is the strongest form of well-supported evidence. There are four of the most well-known CSA programs which either have children who just reached college age or are nearing college age for whom we know of research being planned to test the impact of participation on college enrollment. The SEED for Oklahoma experiment started in 2007 (at birth), Maine's My Alfond Grant (at birth) in 2008 but did not become automatic until 2013, K2C in 2011 (at kindergarten), and Imagine Early in Wabash County, IN in 2016 (at fourth grade).

The first two waves of children enrolled in K2C are now college age, and there is data currently available for the first cohort of participants. Thirteen years after K2C started, we can now answer the following research questions:

1. What is the impact of K2C on college enrollment?
2. What is the impact of K2C on on-time high school graduation?
3. Do impacts differ for students who are historically underrepresented in college education?

This marks a significant moment in the CSA field.

Methods

To assess impacts for K2C on college enrollment and on-time high school graduation, we conducted a cohort comparison study of K2C's first phase of implementation. In the 2010-11 school year, K2C launched by providing CSAs to all kindergarteners in 18 schools (25% of San Francisco Unified School Districts [SFUSD] schools serving kindergarten students). Specifically, this study compares the outcomes of students who enrolled in kindergarten in these 18 schools in 2010-11—the graduating class of 2023—and who were the first cohort of students in these schools to receive a CSA from K2C (K2C cohort), with students who enrolled in kindergarten in these 18 schools the prior year in 2009-10—the graduating class of 2022— (comparison cohort).

The intent-to-treat (ITT) sample, based on kindergarten enrollments, included N=2,232 students (N=1,104 students in the K2C cohort; N=1,128 students in the comparison cohort). Although 38% of the ITT sample (N=852) left SFUSD before entering high school, we did not find evidence of differential attrition; 37% of the K2C cohort (N=410) and 39% of the comparison cohort (N=442) left SFUSD before high school; γ=0.02, SE=0.02, p=0.213, d=0.05. The outcome analysis sample therefore included N=1,380 students (N=694 students in the K2C cohort; N=686 students in the comparison cohort). Exhibit A-1 in the appendix displays baseline characteristics for the ITT sample (N=2,232) and outcome analysis sample (N=1,380) by condition, demonstrating that both the ITT and outcome analysis samples do not differ by condition (K2C vs. comparison cohorts) at baseline (all standardized mean differences are less than 0.07 for the ITT sample and 0.06 for the outcome analysis sample) and do not require any weighting techniques to adjust for baseline differences.[2]

To examine college enrollment, we used National Student Clearinghouse data collected by SFUSD and coded students as enrolling in college education if we could document enrollment by the end of September following their scheduled

[2] An additional N=115 students (8% of outcome analysis sample) who started high school in SFUSD were not enrolled by their scheduled 12th grade year (2021-22 for comparison cohort, 2022-23 for K2C cohort). These students had not graduated high school and did not have exit/leave codes in SFUSD administrative data indicating they had transferred to another district. The likelihood of leaving high school prior to graduating did not differ by condition, =0.02, SE=0.01, p=0.275.

Methods, *continued*

on-time high school graduation (September 2023 for K2C cohort, September 2022 for comparison cohort) to ensure a comparable timeframe for analysis for each cohort. Students who attended at least some high school in SFUSD were coded as 1 if they enrolled in college education and 0 if they did not. To examine on-time high school graduation, we used SFUSD administrative data and students who attended at least some high school in SFUSD were coded as 1 if they graduated on time (on or before spring 2023 for K2C cohort, spring 2022 for comparison cohort) and 0 if they did not.[3] To examine whether effects differed for students who are historically underrepresented in college education, we coded students as represented if they identified as Asian or White, and as underrepresented if they identified as Black/African American, Hispanic/Latino, Filipino, Pacific Islander or American Indian/Alaskan Native based on SFUSD administrative data. The outcome analysis sample is N=758 (55%) underrepresented and N=622 (45%) represented.

To assess outcomes, we used multi-level models[4] with students nested within the school in which they enrolled in kindergarten. Although What Works Clearinghouse (2022) evidence standards suggest that baseline standardized mean differences (by condition) less than 0.05 do not require adjustment, we include the baseline student characteristics in Exhibit A-1 as covariates in the models for additional adjustment. Models that assess interactions with represented/underrepresented status exclude race/ethnicity baseline covariates and add an interaction term (treatment x underrepresented).

Results

Overall, as shown in Exhibit 1, we found a statistically significant 6% increase in college enrollment for the K2C cohort relative to the comparison cohort, γ=0.06, SE=0.02, p=0.009 (d=0.13). However, the effect on college enrollment differed significantly for underrepresented and represented students (underrepresented by K2C interaction, γ =0.10, SE=0.05, p=0.036). Specifically, we found a positive and statistically significant 12% increase in college enrollment for underrepresented students in the K2C cohort relative to underrepresented students in the comparison cohort, γ=0.12, SE=0.04, p<0.001 (d=0.25)—an effect size considered to have educational significance (Bloom, Hill, Black, & Lipsey, 2008). The effect of K2C for represented students was not statistically significant, γ =0.01, SE=0.03, p=0.752 (d=0.02). In other words, among K2C students, the gap in college enrollment between represented and underrepresented students decreased by nearly 1/3 (30%) relative to the gap in the comparison group. Results are robust with multi-level logistic regression and/or OLS regression models entering schools as fixed effects with robust clustered standard errors by cohort.

[3] The N=115 students who left high school without graduating were coded as 0 for the on-time graduation and college enrollment outcomes.

[4] We use linear models with conventional standard errors instead of non-linear models (e.g., logit models) to estimate impacts on binary outcomes—with sensitivity analyses that estimate logit models. Linear models are simpler to estimate and to interpret, yield unbiased estimates of the intervention impact, yield standard error estimates that are approximately correct even when the underlying data-generating process is nonlinear (Judkins & Porter, 2015).

COLLEGE RATES BY CONDITION, OVERALL AND BY UNDERREPRESENTED STATUS

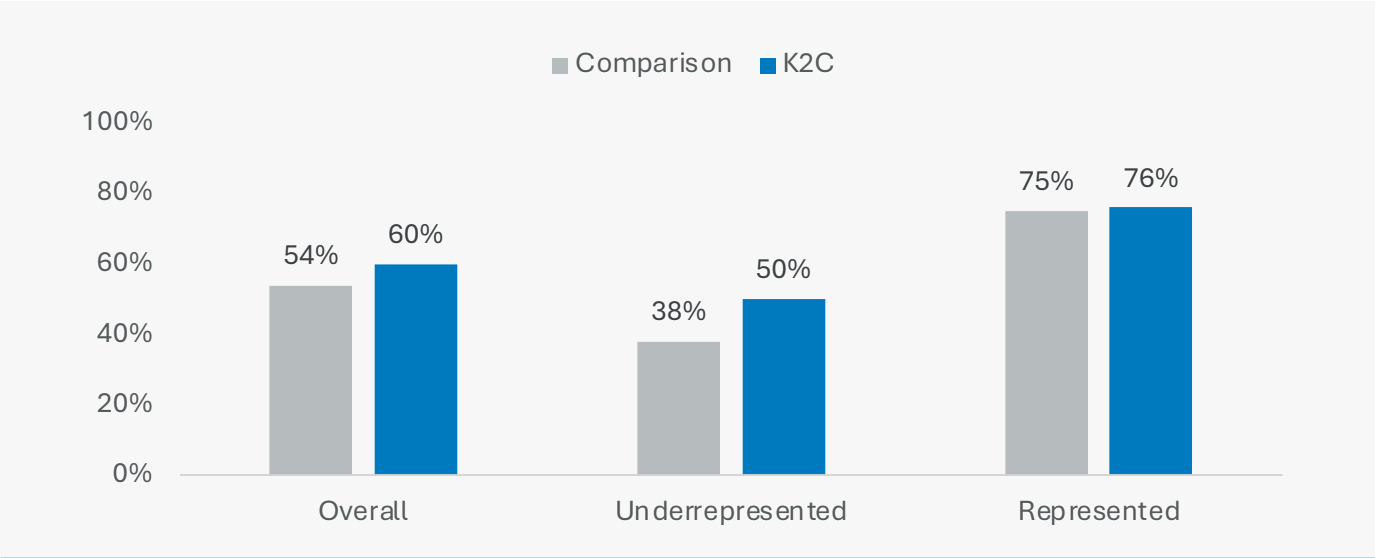

EXHIBIT 1

As shown in Exhibit 2, we observed a 3% increase in on-time graduation rates for the K2C cohort relative to the comparison cohort though this increase was not statistically significant, γ=0.03, SE=0.02, p=0.182 (d=0.07). Although we did not observe a statistically significant interaction for underrepresented by K2C, γ=0.07, SE=0.05, p=0.140, we also explored whether there was an effect of K2C separately for a subsample of students who are historically underrepresented in college education and a subsample of those who are represented. We observed a statistically significant 7% increase in on-time graduation rates for underrepresented students in the K2C cohort relative to underrepresented students in the comparison cohort, γ=0.07, SE=0.03, p=0.045 (d=0.14); the effect of K2C for represented students was not statistically significant, γ=-0.01, SE=0.03, p=0.818 (d=-0.03). In other words, among K2C students, the gap in on-time graduation between represented and underrepresented students decreased by nearly 1/3 (29%) relative to the gap in the comparison group. These results were robust when employing multi-level logistic regression models. When employing the less conservative OLS regression models entering schools as fixed effects with robust clustered standard errors, we find that the overall effect of K2C on on-time graduation and the underrepresented by K2C interaction coefficients were statistically significant. Together, these analyses highlight stable increases in on-time graduation rates for underrepresented K2C students.

ON-TIME HIGH SCHOOL GRADUATION RATES BY CONDITION, OVERALL AND BY UNDERREPRESENTED STATUS

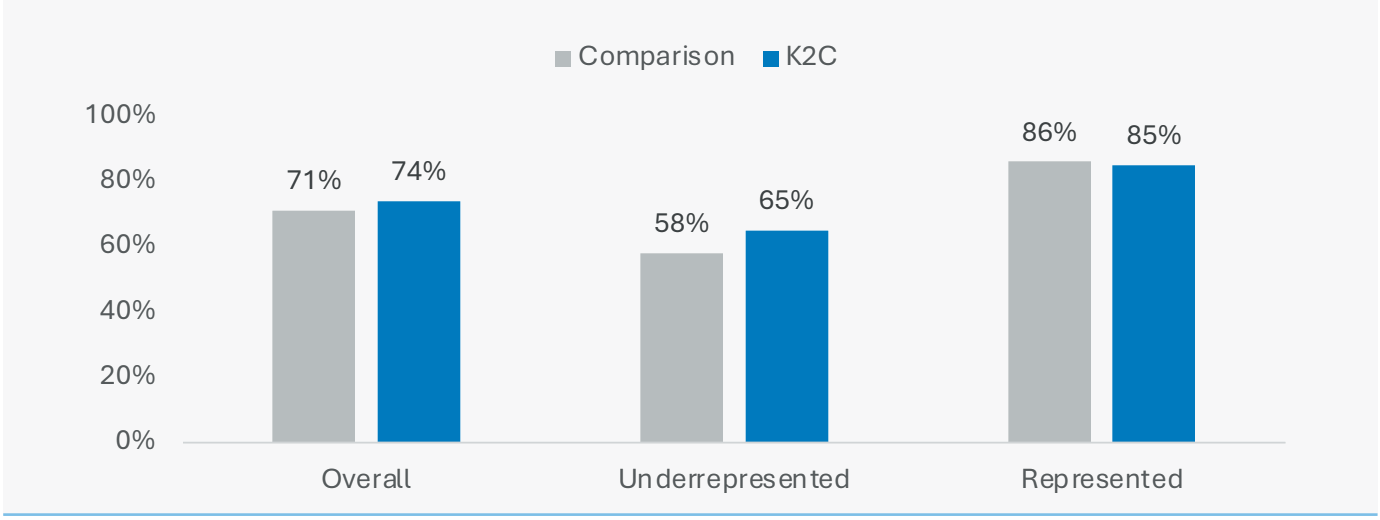

EXHIBIT 2

Conclusion

Findings presented here are noteworthy in that they are among the first to directly measure college outcomes from a CSA program. Our analyses reveal that, among K2C students, the gap in college enrollment between represented and underrepresented students decreased by nearly 30% relative to the gap in the comparison group. Further, among K2C students, the gap in on-time graduation between represented and underrepresented students decreased by nearly 29% relative to the gap in the comparison group.

Appropriately, the analysis discussed in this brief takes a conservative approach, or places a higher burden on finding statistical impacts, by using an intent-to-treat design. An intent-to-treat design examines all children in cohorts assigned to receive a CSA or not based on the year of their kindergarten enrollment, regardless of whether students did or did not receive the account.

This new college outcome evidence from K2C launches the CSA field into its fourth evolution as a field, which places it on the beginning of the "well-supported" area of the continuum, representing the highest form of evidence of effectiveness. In this brief we provided examples of how Children's Savings Accounts (CSAs), as an evidenced-based movement, have evolved over the last 20 plus years. These evolutions are important for understanding the body of evidence upon which the CSA field now rests as a strategy for improving children's college outcomes. They also provide context for understanding why findings from K2C should strengthen our confidence in CSAs as an effective strategy for improving children's college outcomes.

These findings are important for understanding CSAs as a policy relevant intervention for improving children's college enrollment rates. As such, these findings seem particularly important to U.S. Senator Bob Casey's 401Kids proposal. His proposed 401Kids Savings Account Act would establish a federal CSA policy with universal, automatic, and progressive features. By serving all children at birth through a centralized savings platform—a transformed 529 college savings plan—this policy would promote asset building, wealth equity, and from what we have learned from the K2C findings, improved college outcomes, particularly for people of color and disadvantaged families underrepresented in higher education.

It is important to also remember this study does not mark the end of this research, but the beginning. Additional waves of data from K2C will be evaluated over the next several years. Further, this winter it is anticipated new college findings from Imagine Early in Wabash County, IN will be available. This will provide valuable evidence on the impact of CSAs within a rural community. Not long after, experimental data from SEED OK will be available, providing the field with its most rigorous test. And somewhere in there, there will be data from the first statewide CSA program, My Alfond Grant in Maine. It is the body of evidence that the CSA field has produced, both regarding short-term metrics as well as evidence regarding college enrollment itself, that provide us with confidence that CSAs can be part of an effective strategy for improving children's college enrollment.

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SAMPLE CHARACTERISTICS AND BASELINE EQUIVALENCE

Characteristic	Full Sample (N=2,232)	Intent-to-Treat Sample (N=2,232)			Outcome Analysis Sample (N=1,380)		
		K2C	Comparison	Standardized Mean Difference	K2C	Comparison	Standardized Mean Difference
Demographics							
Female	50%	51%	49%	0.03	48%	46%	0.03
Asian	26%	26%	26%	0.01	35%	34%	0.02
Black	19%	19%	18%	0.01	15%	16%	-0.04
Hispanic/Latinx	33%	33%	32%	0.01	31%	30%	0.00
White	10%	10%	11%	-0.03	7%	7%	0.02
Other Race/ Ethnicity	9%	9%	9%	0.03	9%	8%	0.03
Kindergarten English Proficiency							
English only	44%	45%	43%	0.04	38%	36%	0.05
English learner	51%	50%	52%	-0.05	57%	59%	-0.03
Fluent	4%	3%	4%	-0.03	3%	4%	-0.04
Pending	1%	2%	1%	0.07	1%	1%	0.00
U.S. Census Data (based on home address associated with kindergarten enrollment)							
Median Income		$29.907	$30,061	-0.01	$29,871	$29,964	-0.01
College Enrollment	61%	61%	61%	-0.02	60%	61%	-0.05
Above Poverty Threshold	63%	63%	64%	-0.02	63%	64%	-0.06
Below Poverty Threshold	42%	42%	42%	-0.02	41%	42%	-0.05

EXHIBIT A-1