

Navigating the College Affordability Crisis: Insights from College Savings Accounts*

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August 1, 2025

With higher education costs consistently outpacing inflation and public funding declining, college affordability has become a critical barrier to economic mobility for middle- and low-income families. While College Savings Accounts (CSAs), or 529 plans, offer tax-advantaged vehicles for college savings, their adoption patterns and educational impacts remain poorly understood. Using comprehensive administrative data from over 900,000 Illinois 529 accounts (2000-2023) linked to educational outcomes, plus complementary surveys of account owners and parents, we provide the first large-scale analysis of CSA participation and effectiveness. We find that while CSA adoption has expanded to every ZIP code in Illinois, participation remains concentrated among higher-income, more educated families. Financial literacy emerges as a key barrier: 61% of parents who could save enough to cover half of future college costs still perceive their potential savings as meaningless. Among participants, higher savings are strongly correlated with better educational outcomes, including four-year college enrollment, attendance at selective institutions, and the pursuit of post-graduate degrees. These findings suggest that targeted interventions addressing financial literacy gaps and misperceptions about modest savings could significantly expand CSA effectiveness as a tool for educational equity. Beyond state-level 529 program optimization, our findings suggest several promising avenues for federal policy coordination and institutional innovation.

JEL Classification Codes: I22; I24; H31; D14; G53

Keywords: Human capital investments; Financing for higher education; College Savings Accounts; Financial literacy

*This study and its related surveys obtained IRB approval from University of Chicago: IRB21-1268 and IRB22-1436. We thank John Mitchell and the staff at the Illinois State Treasurer’s Office staff for their collaboration, Jesse Orr for impeccable project management, and Franco Albino for research assistance.

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1 Introduction

Higher education is widely recognized as a critical tool for economic security and social mobility, particularly for children from lower-income households (Card, 1999). Yet, tuition costs have increased 1,200% since 1980, pricing out the very families who would benefit most from higher education’s mobility-enhancing effects. Today, the average student graduates with over \$37,000 in debt, while 40% of college-qualified low-income students never enroll due to financial barriers. In a rapidly changing labor market witnessing technology-driven job polarization, higher education serves as a critical launch pad to higher-wage jobs, yet the increasing cost of college, coupled with declining public funding for state universities, has made this goal increasingly unattainable for many middle- and low-income families.

The challenges of navigating the complex mix of federal, state, institutional, and private financial aid options leave many students unable to afford college. While simplifying the financial aid application process can mitigate some barriers, student loans may still be necessary to cover substantial costs (Dynarski et al., 2021; Bettinger et al., 2012). Even when upfront costs are partly covered by financial aid, low-income students often face pressure to work more and take time away from studying, while others may drop out due to unexpected expenses (Chakrabarti et al., 2023; Welbeck et al., 2014; Stinebrickner and Stinebrickner, 2008). Financial concerns also drive many students to enroll in institutions that are academically an undermatch, choosing cheaper two-year community colleges even when holding offers from four-year universities (Hallberg et al., 2023). Paradoxically, high school graduates are demonstrating growing aversion to student loans, even when borrowing would enable access to more prestigious institutions with substantial future wage gains (Black et al., 2023; Yoon et al., 2022; Boatman et al., 2017).

Parental financial transfers can play a crucial role in overcoming these financial and psychological barriers, yet even among households with access to disposable income, many parents lack effective savings tools. College Savings Accounts (CSAs), or 529 plans, provide families with a tax-advantaged mechanism for saving for higher education. Available in 49 states and the District of Columbia, these plans hold over \$450 billion in assets nationwide

and offer promise for enabling families to accumulate sufficient funds for college. However, this knowledge gap is particularly problematic given that states have invested billions in 529 tax incentives while having little evidence of their effectiveness in promoting educational equity.

This paper provides the first comprehensive analysis of CSA adoption, usage, and educational impacts using administrative data from the entire population of Illinois 529 accounts. We link these data to National Student Clearinghouse records and survey data from representative samples of Illinois parents. Our analysis of over 900,000 Illinois 529 accounts reveals counterintuitive patterns that challenge conventional assumptions about college savings barriers. While financial constraints matter, we find that 61% of parents who could save enough to cover half of their child’s college costs still believe their savings would be meaningless—suggesting that behavioral barriers may be as important as financial ones. Financial literacy emerges as a critical factor: 79% of account owners score highly on financial literacy measures compared to just 32% of non-participating parents. Among participants, we document substantial disparities in savings behaviors driven by gaps in financial knowledge, with higher savings strongly correlating with improved educational outcomes including four-year college enrollment, attendance at selective institutions, and pursuit of postgraduate degrees.

In this manner, our work contributes to three main streams of literature. First, our findings advance the discussion on financial barriers to higher education and the role of CSAs in overcoming these challenges. While some studies emphasize the potential of CSAs to encourage regular savings and support college financing, others argue that these plans disproportionately benefit wealthier households due to their tax regressive nature (Chen and Elliott, 2020; Beverly and Elliott III, 2010; Dynarski, 2004).¹ By providing a detailed household-level analysis, our work uncovers the mechanisms driving savings decisions and their implications for intergenerational transfers. This analysis suggests that CSAs, when accompanied by targeted outreach and support to help parents adopt sound saving strategies,

¹Earlier critiques may not fully apply today, as policy changes—such as the option in Illinois to roll over unused 529 funds into Roth IRAs—have addressed some concerns.

can play a meaningful role in reducing educational disparities and promoting broader access to higher education.

Second, our study contributes to the broader literature on human capital investment by examining the financial dimension of parental investments in children’s education. Existing research highlights the role of parental income and non-financial investments, such as time spent on cognitive development or access to quality schools, in shaping children’s educational preferences and career expectations (Fort et al., 2020; Cunha et al., 2006). Our findings provide insights into how financial planning through CSAs offers a novel pathway for families to invest in their children’s human capital and social mobility.

Finally, this work contributes to the literature on household finance and financial literacy, which has long recognized the critical role of financial literacy in shaping high-stakes financial decisions, such as home purchases, retirement planning, and long-term wealth accumulation (Brown, 2016; Alessie et al., 2011; Van Rooij et al., 2012). Our study provides new evidence on an equally high-stakes domain with significant implications for intergenerational upward mobility, suggesting that public investments in financial literacy initiatives could yield higher returns through more effective use of CSAs.

Beyond state-level 529 program optimization, our findings suggest several promising avenues for federal policy coordination and institutional innovation. The documented role of financial literacy gaps points toward integrating college savings education into K-12 financial literacy curricula, while the prevalence of simple heuristics among savers suggests that schools and employers could provide concrete savings guidance at key life transitions. Given that 529 assets receive favorable treatment in federal financial aid calculations and that student loan aversion is rising, federal policymakers could consider expanding contribution limits or making contributions fully deductible to complement existing aid programs. The concentration of participation among higher-income families, despite widespread geographic coverage, indicates that current tax incentives may be poorly targeted, suggesting potential for income-based matching contributions or sliding-scale benefits to improve equity. Furthermore, the behavioral patterns we document—such as the mixed long-term outcomes from automatic

contributions—suggest opportunities for policy experimentation with automatic enrollment programs and default options that could be tested across different state contexts.

Our study also opens multiple research directions that extend well beyond college savings policy. The finding that families rely on simple heuristics despite the complexity of optimal savings strategies suggests fertile ground for behavioral economics research on how complexity affects long-term financial planning across various domains. The methodology of linking administrative data across agencies while supplementing with targeted surveys provides a template for evaluating other financial products. Additionally, the strong correlations between savings patterns and educational outcomes offer new avenues for studying intergenerational mobility transmission. The role of financial literacy in both adoption and usage optimization has implications for research on retirement accounts, insurance products, and other complex financial instruments. Perhaps most significantly, the persistent misperceptions among families who could substantially benefit from increased savings highlight fundamental questions about how people assess financial product value—questions that could inform both academic research on household finance and practical interventions in financial product design. The cross-state variation in 529 program features also creates natural experimental opportunities for comparative research that could build toward a national understanding of optimal college savings policy design.

The remainder of the paper is organized as follows. Section 2 provides background information about 529 plans, in particular in Illinois. Section 3 summarizes the many administrative and survey data sources we used for our analysis. Section 4 presents our findings about participation and usage of CSAs. Section 5 concludes.

2 Institutional Background: 529 Plans

Higher education is widely recognized as a critical tool for creating equity and achieving economic security. Due to the rapidly increasing cost of college and cuts to public funding for state universities, this goal is increasingly out of reach for many families who are not at the

top of the income distribution. College Savings Accounts (CSA), also known as 529 plans, are a useful tool for bridging this gap. Named after Section 529 of the IRS Code, these plans are state-administered college savings accounts that allow a contributor either to prepay a beneficiary’s qualified higher education expenses at an eligible educational institution or to contribute to an account intended to pay postsecondary educational expenses. In 2001, the Economic Growth and Tax Relief Reconciliation Act made earnings on these plans completely tax-free (with this provision becoming permanent in 2006). Today, all 49 states and the District of Columbia offer 529 plans, and many of them offer income tax deductions for contributions.

As of June 30, 2023, there were 16.25 million 529 accounts currently active across the country, with total assets being around \$450.5 billion.² In Illinois, the state Treasurer (this study’s implementation partner) serves as the trustee of two 529 college-saving plans: Bright Start, a direct plan that allows individuals to sign up and manage their savings independently, and Bright Directions, a plan accessible through a financial advisor. Both plans share several defining features: (i) contributions are tax deductible for Illinois taxpayers (up to \$10,000 for individuals and \$20,000 for joint filers per year); (ii) savings accrue interest tax-free; (iii) withdrawals are tax-free for qualified education-related expenses ; and (iv) assets in 529 plans have a minimal effect on financial aid, with only 5.64% of their total amount being considered as a parental asset. These plans also offer additional advantages: anyone can contribute to a 529 plan and account owners can change the beneficiary or transfer funds to other 529 plans if needed. In Illinois, savers can open an account with no minimum contribution, pay no annual account fee, and are under no requirement to carry a minimum balance. Total fees in the program are also very low. For example, savers selecting the Bright Start Index Age-Based Portfolio (the default choice for Bright Start savers) pay a total fee of approximately 12 cents on every \$100 they contribute.

Despite the potential impact and broad availability of these plans, little is known about their take-up and usage, in part because researchers had limited or no access to this administrative data before. Given the novelty of this data, we provide a brief background of

²Source: <https://www.collegesavings.org/529-plan-data>.

the available variables, which will also enter our empirical estimation, in the next section.

3 Data and Methodology

In this section, we explain our multiple data sources, which include three administrative data sets and two surveys. Our largest set of administrative data contained information on the 529 accounts opened in Illinois. We supplemented this information with Census data characteristics for account owners based on their ZIP code of residence. We also linked account beneficiaries with their postsecondary enrollment and graduation records to track outcomes. For both surveyed populations, we collected richer demographic and socioeconomic indicators as well as information unobservable from the administrative data on their beliefs, preferences, and saving strategies.

3.1 Administrative data

As part of our partnership with the Illinois State Treasurer’s Office (ILSTO), we have access to de-identified administrative data of 529 accounts in Illinois. In total, we observe 901,932 accounts that have been opened in Illinois between April 19, 2000 and December 31, 2023 belonging to 403,772 account owners. The account level information includes the account opening date, account closing date (if applicable), choice between a Bright Start or Bright Directions plan, date of birth for the account’s intended beneficiary, and current account balance.

We also have insight to the contributions to and withdrawals from the 529 accounts as well as account owners’ preferences to set up automatic contributions. Whenever logged into their accounts, account owners have the option to initiate a recurring contribution with an amount and frequency of their choosing to be transferred electronically either from their bank account or as a paycheck deduction into their 529 account. The amount and frequency can be changed, or the recurrence can be paused or canceled altogether at any time.

Demographic information collected about account owners is limited to gender, ZIP code of residence, and the number of 529 accounts they own. We overcome the lack of socioeconomic and demographic information by combining account owners' ZIP codes with Census data at the ZIP Code Tabulation Area (ZCTA) level. Utilizing the 2022 release of American Community Survey (ACS) 5-year estimates, we pull the total population, number of children and households, number of residents with at least a bachelor's degree in formal education, and median household income for each ZCTA in Illinois. From here, we are better able to contextualize the population of Illinois 529 account owners among the broader Illinois general population.

To better understand the population of Illinois 529 account beneficiaries and their choices for education, we additionally pursued the linkage of their information with the National Student Clearinghouse (NSC), which collects enrollment and credential attainment records from the vast majority of postsecondary institutions in the United States. After receiving linking variables for account beneficiaries, NSC was able to return postsecondary records for 247,661 students, which makes up about 81% of account beneficiaries who were at least 18 years old at the end of September 2024. For this matched group of students, we gained access to the date and school of their first postsecondary enrollment, the date and school of their most recent postsecondary enrollment, the number of terms enrolled thus far, the dates of their earliest associate, bachelor's, and graduate degree if any have been earned, and their area of study if the school reported it. Using school name and identification number, we aggregated the thousands of distinct institutions in our data set into the following school types: community college or similar, four-year Illinois/in-state public school, four-year non-Illinois/out-of-state public school, four-year private school, and online school or similar.

3.2 Survey data on account owners

Together with ILSTO, we launched an online survey for owners of open 529 accounts in October 2021. ILSTO along with its outsourced data collection firm Civis Analytics, sent out recruitment emails to a selected population of 529 account owners. In order to reach the

intended audience, we required that invited Illinois account owners had account beneficiaries under the age of 17 as of as of October 19, 2021 across all of their accounts and had contributed some amount of money to at least one of their 529 accounts, while further excluding owners of already closed accounts. Respondents were compensated with a \$5 gift card upon survey completion.

We chose a target sample size based on the partner agency’s budget constraints.³ To reduce the risks of over-recruiting and exceeding the budget, we split the pool of invitees into two subsets to receive the invite email in batches so we could monitor participation rates more closely. The survey remained open for two weeks, reaching a final sample of 3,337 complete responses. Survey links were personalized to the email address that received the invitation, which allowed the individual survey responses on preferences, intentions, and perceptions to be connected with administrative data on savings totals, transactions, and other historic account choices as well as add to the depth of demographic information available on existing account owners on dimensions such as age, income, home ownership rate, and relationship to the account beneficiary.

3.3 Survey data on Illinois parents

Besides gaining deeper insights into account owners, we aimed to understand the broader population of parents in Illinois, who may now or in the future face the costs of postsecondary education for their children. In partnership with Qualtrics, we conducted a survey in December 2021 to collect data on demographics—such as household income, highest education level attained, and number of children in the household—as well as parents’ beliefs and preferences regarding their children’s likelihood of postsecondary enrollment and specific school choices; predictions for future college costs at the time of their child’s enrollment; plans and ability to save for these expenses; and perceptions of 529 accounts, including their benefits and potential barriers to participation. We received 1,013 responses.

³The nature of the survey required that compensation could not come from the researchers, and the University could not reimburse the partner agency for the study costs due conflict of interest.

4 Results

In this section, we distill our empirical findings into key insights on college savings. We start by examining participation dynamics in the 529 program, then explore variations in savings among 529 account holders, followed by the implications for educational outcomes. We conclude with potential policy interventions to encourage more families to save for college.

1. CSA participation has grown over time, yet it remains predominantly concentrated among higher socio-economic status households.

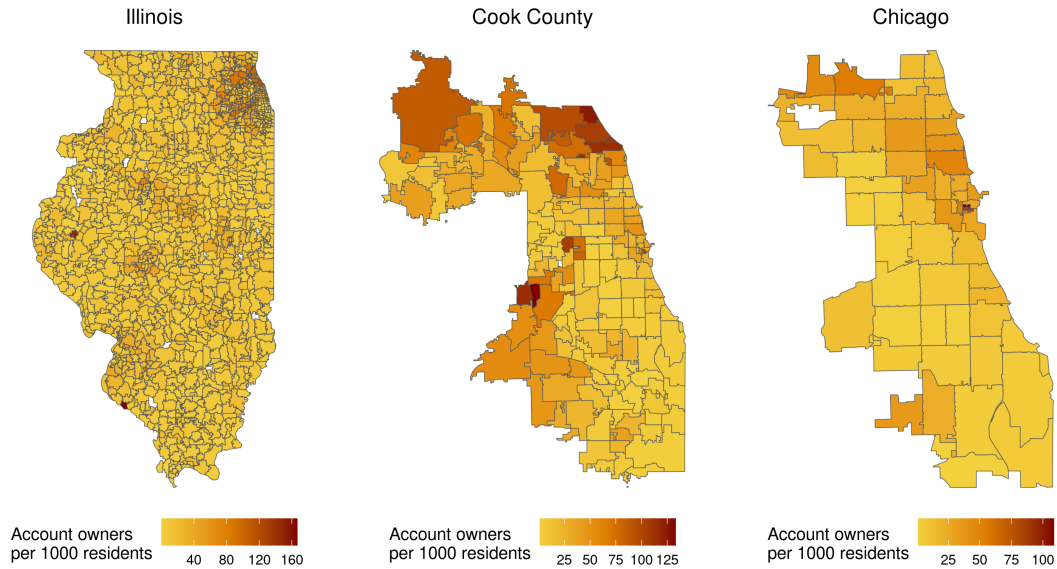
The number of new 529 accounts opened in Illinois has grown steadily since the program’s launch in 2000, when 1,497 accounts were created, to 53,626 new accounts in 2023, for a total of 901,932 accounts that have been opened in Illinois between April 19, 2000 and December 31, 2023 belonging to 403,772 account owners. Over the past decade, the cumulative data suggest that approximately 11% of Illinois children have been beneficiaries of a 529 plan. As shown in Figure 1, by 2024, almost all ZIP codes in Illinois were represented in the program. This widespread uptake likely reflects both supply and demand effects, with effective outreach and marketing initiatives led by the Illinois State Treasurer’s Office, as well as parents’ increasing concerns about rising college costs, which have consistently outpaced inflation over the last two decades.

Despite the program’s growth, however, 529 account ownership remains concentrated in areas with higher household incomes and higher levels of educational attainment (see Figures 7 and 8 in Appendix). This pattern of disparity mirrors trends observed with other financial products, not only in Illinois but across the United States. For instance, a 2022 Federal Reserve Bank report highlights that fewer than 40% of families below the median income nationwide owned a retirement savings account, compared to over 90% of families in the top 10% of the income distribution. Similarly, less than 30% of below-median-income families owned any stock, compared to more than 90% of families in the top income decile (Chang et al., 2023).⁴

⁴As a point of comparison, while 99% of U.S. families owned a transaction account (e.g., checking or savings accounts, money market accounts, call accounts, or prepaid debit cards), only 54% had a retirement

In a large-scale natural field experiment in Illinois involving 150,000 residents without a 529 account, Briscese and List (2024) demonstrate that neither higher program awareness nor financial incentives increased participation rates. These findings indicate that interventions designed to reduce disparities in account ownership may necessitate more comprehensive and resource-intensive educational outreach strategies.

Figure 1: IL 529 take-up rate



Notes. The graph shows the number of account owners per 1000 residents in each ZIP code in Illinois. The first map on the left shows account owner density in Illinois, the second map in the middle shows account ownership in Cook County, and the last map on the right in the city of Chicago.

2. Financial literacy and misperceptions are key factors in explaining CSA participation rates.

To accumulate sufficient savings in a 529 account, households need access to disposable income, making the unequal uptake by income levels unsurprising. However, even among households in the middle-to-upper percentiles of the state income distribution, participation rates are not uniform. This suggests that factors beyond income may play a significant role. To explore these additional mechanisms, we conducted a survey of a representative sample of account, 21% held stocks, and ownership of other financial assets remained below 10%.

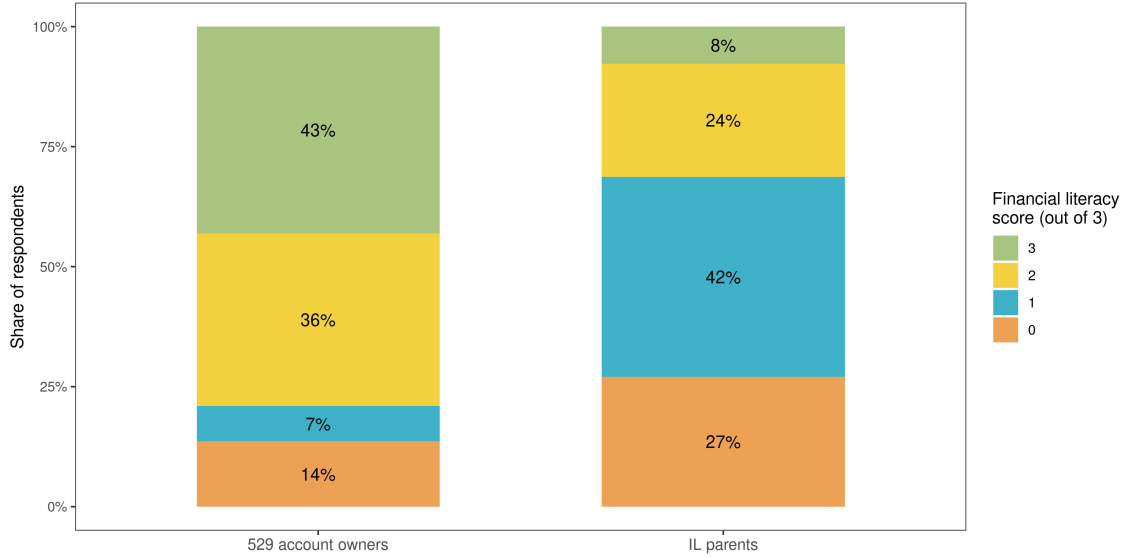
Illinois parents with at least one child aged 17 or younger.

Among the 1,013 surveyed parents, 27% reported already saving in a 529 plan. Of the remaining 736 parents, 48% indicated they had heard of the program before. To address potential misunderstandings or social desirability bias, all respondents were shown a brief description of the program, regardless of prior awareness. After reading this description, all non-owners expressed interest in and willingness to open a 529 account in the near future. This indicates that awareness and program appeal are relatively high, but other barriers may be preventing broader adoption.

To better understand these barriers, we compared the characteristics of Illinois parents with those of 529 account owners. As shown in Table 2, the two groups differ significantly in income, age, and aspirations for their children’s college type. Financial literacy also emerged as a key distinguishing factor, measured using the framework developed by Lusardi and Mitchell (2023).

Figure 2 reveals that 79% of surveyed account owners scored at least two out of three on the financial literacy measure, compared to just 32% of parents in the representative sample. Excluding 529 account owners from the latter sample, this share drops even further to 19%. These findings suggest that financial literacy is a critical factor in explaining uptake disparities. Future research could explore whether targeted financial literacy interventions might help parents navigate the complexities of college savings decisions and increase participation in programs like 529 plans.

Figure 2: Differences in financial literacy between 529 owners and IL parents



Notes. The stacked bar graph shows the share of 529 owners vs the share of Illinois parents who scored between 0 and 3 on three survey questions on financial literacy as measured by (Lusardi and Mitchell, 2023)

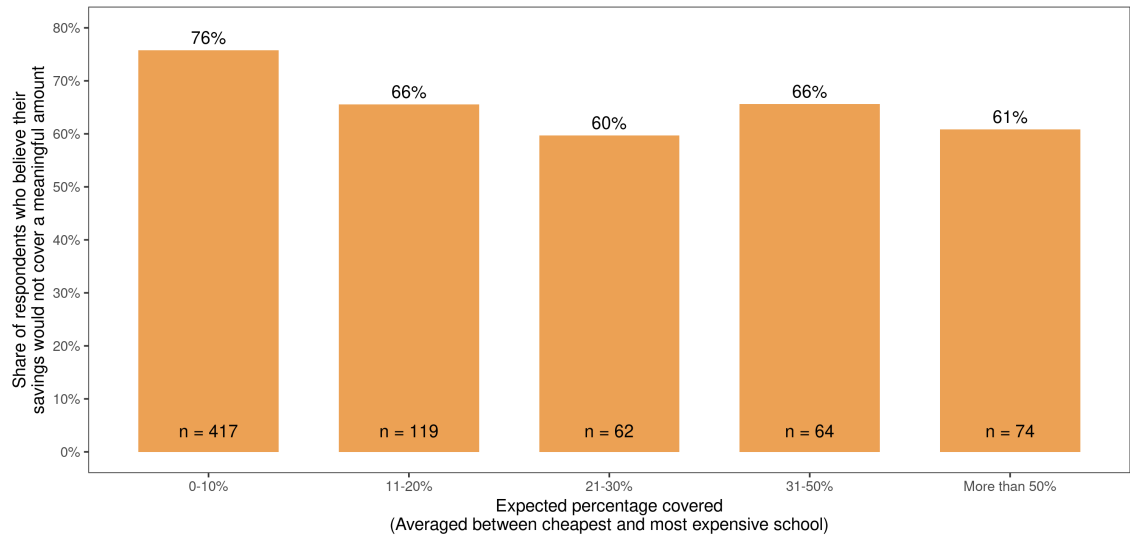
Another important dimension we explore is misperceptions. The public discourse and media coverage on the cost of college has been pervasive and it has likely affected parents' perceptions about the future cost of their child's higher education and how to fund it. A possible source of choice paralysis that may prevent parents from saving in a dedicated CSA may be the (mis)perception that their savings would not make a meaningful difference to offset their child's future student loan debt. To investigate this mechanism, we asked Illinois parents who didn't own a 529 account, what they believed they could save by the time the child they expected to attend college first reached college age, and then calculated the hypothetical share of the total future cost of college of their child that that savings amount would cover.⁵

⁵The expected percentage covered is calculated as the ratio of projected savings to projected college costs. Using the annual contribution amount that respondents indicated they could afford for a 529 account, we computed each respondent's expected savings total by assuming consistent annual contributions from the survey date until their youngest child turns 18, compounded at a 5% annual rate of return. Projected college costs were estimated based on the average current cost to complete a degree at the specified school type(s), inflated by 5% annually from the survey date until the child reaches 18. Since respondents could select multiple school types, we calculated costs separately for the cheapest and most expensive options per respondent, then averaged them to derive the child's overall expected college cost.

We find that misperceptions about the value of saving for college are common. Among parents who believe their savings would not make a meaningful difference, even those with substantial potential coverage exhibit this belief. Specifically, 61% of parents who could save enough to cover 50% or more of the future (sticker price) college costs perceive their savings as inconsequential. Similarly, 66% of parents whose savings could cover between one-third and half of future costs share this misperception. This pattern persists among parents whose savings would cover a smaller share of expenses and is consistent across income groups (see Table 1).

Other misconceptions are also prevalent. Many parents cite perceived paperwork burdens, the belief that costs will be fully covered by other means (e.g., financial aid), or uncertainty about whether their children will attend college as reasons for not saving. While financial constraints are more common among lower-income households, affecting about 67% of those earning less than \$150,000 annually, even higher-income households face similar challenges, with 46% reporting insufficient resources to save. This finding suggests that liquidity constraints, rather than income alone, may play a significant role, as observed in other financial decision-making contexts (Kaplan and Violante, 2014).

Figure 3: Parents' underestimation of own savings to cover child's future costs of college



N = 736

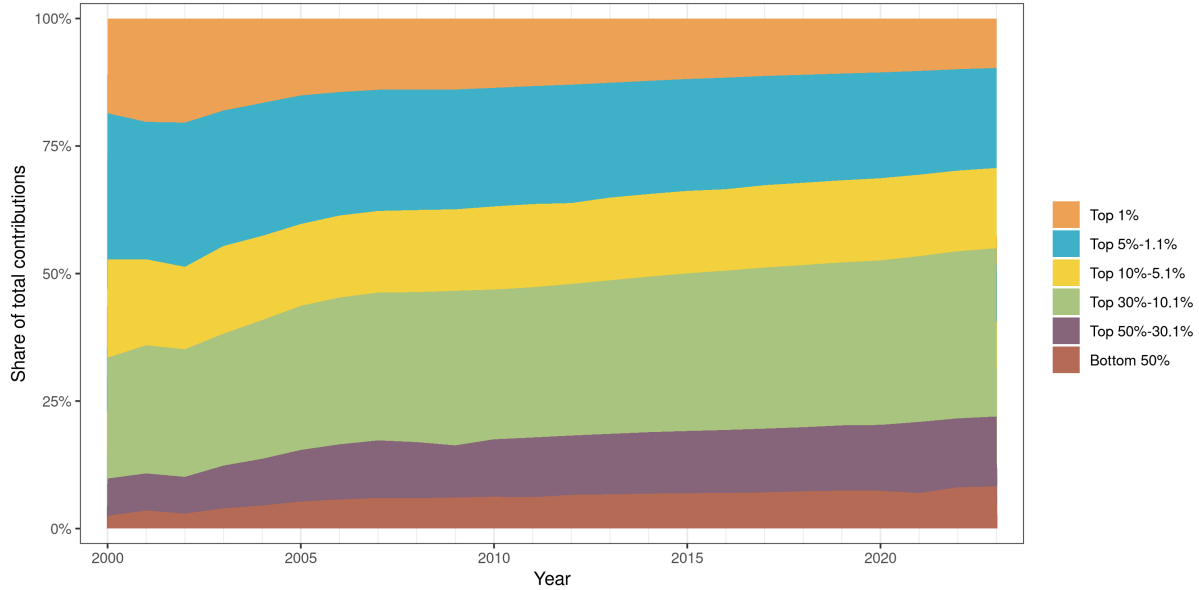
Notes. The bar graph shows the share of Illinois parents who believe their savings would not cover a meaningful amount, broken down by the projected share that their self-reported possible savings amount may be able to cover given the future cost of their child's college, after accounting for inflation.

Thus far, our analysis has centered on the drivers of disparities in 529 plan participation, emphasizing the extensive margin. We now turn to the intensive margin, exploring variations in savings behavior among account holders and the underlying factors.

3. Significant savings disparities exist among account owners.

An analysis of administrative data linked to Census records, supplemented by a survey of account owners, indicates that most 529 account owners reside in higher-income areas of Illinois and anticipate that the beneficiaries of their accounts will attend at least a 4-year higher education institution. Despite this relative homogeneity, there are substantial disparities in savings among account holders, as illustrated in Figure 4.

Figure 4: Savings differences among 529 account owners over time



Notes. The graph shows the share of contributions, at any given year of the program, owned by different percentiles of owners, between 2000 and 2023.

In 2023, the total deposits across all 529 accounts amounted to \$16.95 billion. Of this, 29.3% (\$4.97 billion) was held by the top 5% of account owners. By contrast, half of all account holders (154,794 people) collectively owned just 8.3% of the total deposits, equivalent to about \$1.4 billion. The average balance for the top 1% of account owners was \$531,000, compared to an average of \$9,000 for the bottom 50%. While these disparities have narrowed compared to 20 years ago, they remain significant. Moreover, this pattern remains relatively stable even as the pool of account owners has become more diverse over time and despite the disruptions to 529 savings caused by major recessions, such as the 2008–2010 global financial crisis and the COVID-19 pandemic.

4. Savings disparities may also arise from differences in financial literacy, which can lead to the adoption of suboptimal saving strategies.

The differences in savings rates among this seemingly homogeneous group of 529 account owners can be partly explained by variations in household income, financial literacy, and saving strategies. Table 5 and Figure 13 present results from an OLS regression based

on survey responses from account owners. Higher household income emerges as the most significant predictor of larger CSA balances. However, after accounting for income, financial literacy and saving strategies also stand out as important correlates. While these factors are somewhat correlated with income, their influence suggests that disparities in knowledge and approach to saving play a critical role in shaping savings outcomes (see Table 6).

Saving for college is a complex decision, and different parents may rely on various strategies, such as rules of thumb, heuristics, or mental accounting, to guide their contributions and manage their long-term financial goals. A growing literature in behavioral economics documents how seemingly suboptimal behavioral patterns can be explained by complexity rather than time or risk preferences (Enke et al., 2023).

A closer look at savings patterns among 529 account owners reveals that many parents rely on heuristics to navigate the complexity of deciding how much to save. For example, while Illinois taxpayers can deduct up to \$10,000 annually for single filers and \$20,000 for joint filers on contributions to a 529 plan, most account holders tend to contribute around \$1,200 per year on average (see Figure 9 in the Appendix). This suggests that many parents may use the around \$100 per month heuristic when choosing how much to save for college from the moment they open an account. Opening accounts when children are younger allows for greater benefits through compounding interest over a longer time horizon. However, owners who open accounts later — whether for older children or even for themselves — often compensate for lost years by making larger deposits in the first year of account ownership. From the second year of their account lifespan, their annual contributions taper to align with the average savings pattern of those who started earlier. This behavior suggests a “self-anchoring” effect, where account owners rely on simple rules of thumb or heuristics to determine their annual savings contributions.

An average of 36% of account owners each year choose to set up automatic contributions to their 529 plans, with 69% of these decisions occurring within the first two months of opening an account. This suggests that opting into automatic contributions is often an immediate decision for many savers. Descriptive analysis reveals that owners who

set up automatic plans save more in the short term, particularly in the months immediately following the setup. However, approximately one-third of these account owners do not adjust the frequency or amount of their automatic contributions over time, which results in lower cumulative savings in the long run (see Figures 10 and 11).

In our survey of 1,776 owners who use automatic plans, 79% reported setting up the feature to avoid forgetting to contribute regularly, while 54% believed it would help them save more in the long term. While it is possible that some owners eventually adjust their automatic contribution settings, these findings suggest that behavioral barriers, such as forgetfulness or overconfidence in their saving strategies, may prevent some individuals from optimizing their contributions. This is further supported by responses to a survey question asking owners if they believed they could increase their monthly contributions and, if so, by how much. Figure 12 shows that while higher-income households report larger hypothetical increases, there is no notable difference between users and non-users of automatic plans in their reported capacity to contribute more.

To explore the relationship between saving strategies and financial literacy, we ran a regression using survey data where the outcome variable was a binary indicator for the use of automatic plans. The primary independent variable was a binary indicator of whether the owner answered all financial literacy questions correctly, controlling for income, age, and other observable characteristics. Table 7 shows that owners with higher financial literacy are significantly less likely to use automatic contributions, even after accounting for these covariates. This suggests that automatic contributions may serve as a heuristic for overcoming the complexity of saving for college, particularly for those with lower financial literacy. We believe that further exploring this mechanism presents a promising avenue for future research. Understanding how financial literacy and saving strategies interact with income to influence CSA balances could provide valuable insights into designing more effective policies and interventions to support families in maximizing the benefits of these plans and savings in other type of accounts more broadly.

5. The proportion of CSA beneficiaries enrolling in two-year community

colleges or equivalent programs has increased over time, while graduation rates remain consistently high across all institution types.

Our analysis now shifts to the educational outcomes of 529 account beneficiaries. A notable trend, illustrated in Figure 14, is the decreasing share of beneficiaries enrolling at 4-year private institutions. This share has declined from approximately 45% in the program's early years to about one-third over the last decade, and further to an average of 25% following the COVID-19 pandemic. Meanwhile, the proportion of beneficiaries attending 4-year public universities out of state has remained relatively stable, fluctuating between 25% and 30% over the past two decades.

In contrast, enrollment at 4-year in-state public universities has declined, dropping from around 20% in the program's first decade to about 10% in the past five years—a trend that began before the pandemic. These decreases in enrollment at more expensive institutions have been offset by a growing share of beneficiaries opting for 2-year community colleges or similar alternatives, such as apprenticeship programs. The recent shift aligns CSA beneficiaries more closely with state averages (in 2022, 45% of Illinois high school students enrolled in a community college).⁶ This trend may indicate broader program adoption among families from historically underrepresented communities.

An analysis of completion rates, summarized visually in Figure 15, reveals that nearly all 529 beneficiaries who attend any type of four-year higher education institution successfully complete their degree. In contrast, 42% of beneficiaries who start at a two-year community college or similar institution earn a credential. A notable portion of this lower completion rate can be attributed to transfer patterns, as 33% of 529 beneficiaries who initially enroll in a two-year college eventually transfer to a four-year institution.

6. Higher savings in 529 plans are associated with improved post-secondary outcomes.

In this last section, we investigate the relationship between ending balances in

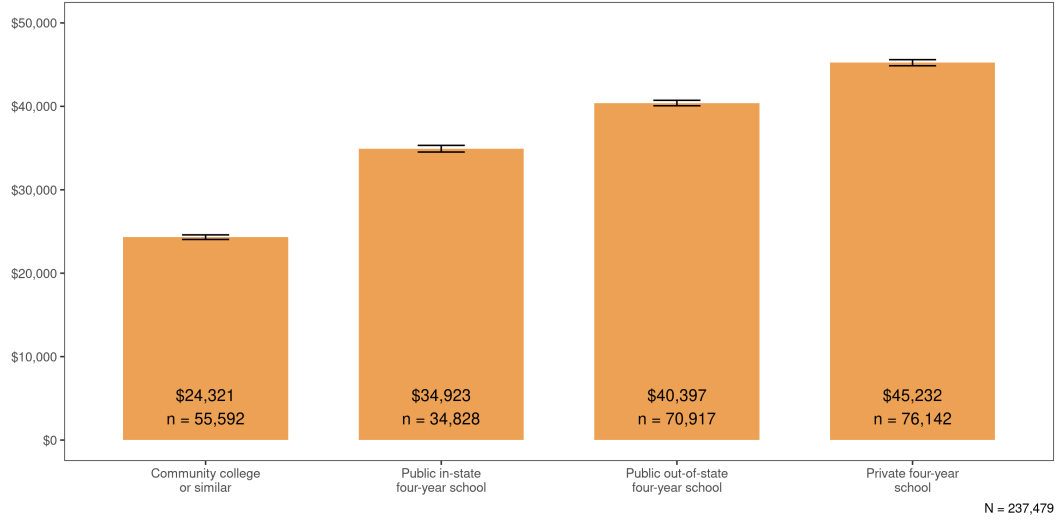
⁶Source: https://www.ibhe.org/board/2023/June/June_Board_Meeting_Presentation_EJL_Final.pdf#page=6.00.

529 plans and higher education outcomes. Since we have seen from the previous analysis that almost all beneficiaries graduate from college, we focus on three main outcomes where differences in savings may be influential: (i) the type of college students enroll in, (ii) the rate of transferring from a 2-year to a 4-year institution, and (iii) the rate of pursuit of postgraduate studies.

Figure 6 shows the average amount saved in the College Savings Account (CSA) based on the type of college that beneficiaries first attend. Two key insights emerge. First, higher amounts saved are correlated with a higher probability of attending a higher-quality college. However, our analysis does not establish causal inferences. We cannot exclude the possibility that parents who expect their children to attend more expensive institutions save more, and this, in turn, could be associated with additional non-monetary investments — such as enhancing their children’s cognitive skills — that may help them access more selective colleges. Second, with the exception of students attending two-year community colleges, the differences in savings across the three types of four-year institutions are relatively small - less than \$5,000 on average. Given that the average account lifespan is seven years, this difference equates to an additional \$60 per month on average.⁷ The difference in contributions is larger between parents of students who enroll in two-year colleges and those who attend a four-year public in-state university, with a gap of around \$10,000 on average, which doubles compared to those who enroll in a four-year private University. This pattern holds even when considering the last type of college enrollment, which accounts for possible dual degrees and transfer rates (see Figure 16).

⁷This amount would be even smaller when accounting for compound interest. In 2024, the average return for a Bright Start account was 7.8%. Source: <https://www.savingforcollege.com/529-plans/performance-rankings/five-year>.

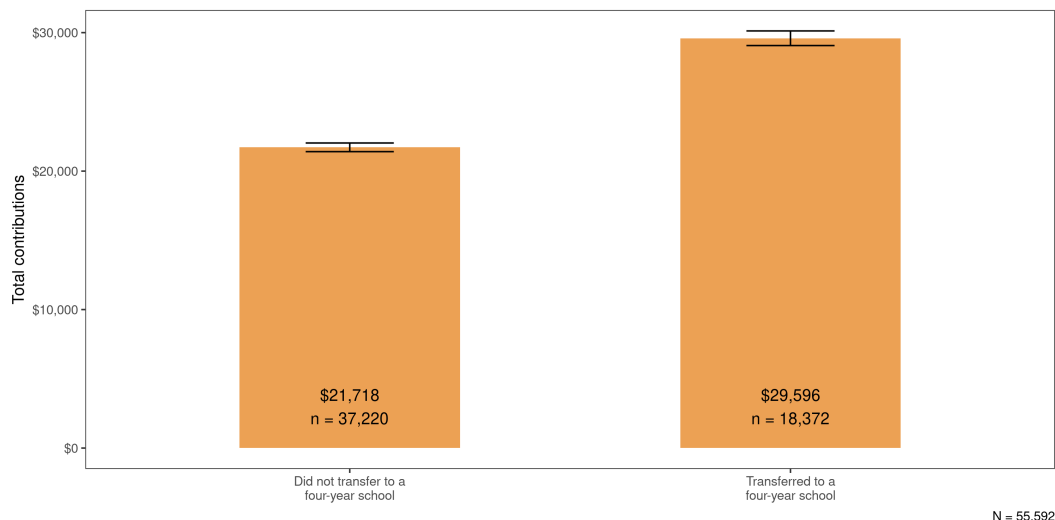
Figure 5: CSA contributions by initial school type



Notes. The graph shows the average lifetime contribution to a beneficiary's CSAs broken down by the school type of the beneficiary's first postsecondary enrollment. Students enrolled in an online school represent less than 0.5% of the sample and are omitted from the graph.

The amount deposited into their CSA may only be a factor influencing the type of college that student beneficiaries enroll in. Other factors, such as student's performance and financial aid may be among the contributing factors. While we can't observe these other levers, we can see the extent to which saving balance in a CSA influences outcomes for the subset of student who first enroll in a community college or similar two-year institution. Here we see again a similar correlation, with students who first enrolled in a community college or similar being more likely to transfer to a four year institution if they had higher cumulative deposits into their CSA, by an average of just less than \$8,000 in total (or just less than \$100 per month extra over a 7-year period).

Figure 6: CSA contributions among two-year school type attendees



Notes. The graph shows the average lifetime contribution to a beneficiary’s CSAs among those who started at a community college or similar school type broken down by whether they eventually transferred to a four-year school.

Finally, as we report in Figure 17, we find that CSA beneficiaries also have a relatively high share of CSA beneficiaries pursue postgraduate studies. Between 2000 and 2017, an average of 31% of CSA beneficiaries who enrolled in a public in-state four year university pursued postgraduate studies. Over the same period, an average of 29% and 41% of those who first enrolled in a public out of state and private university respectively pursued a postgraduate degree. This share is substantially higher than the national average share of students who hold a Master’s degree, which was 10% in 2000 and 21% in 2018, and only 2% who hold doctoral degree in 2000 and 4% in 2018.⁸

5 Conclusions

This study reveals a striking paradox at the heart of America’s college affordability crisis: while financial constraints undoubtedly matter, the barriers to effective college savings are often behavioral rather than purely economic. Our analysis of over 900,000 Illinois 529

⁸Source:<https://www.census.gov/library/stories/2019/02/number-of-people-with-masters-and-phd-degrees-double-since-2000.html>.

accounts demonstrates that 61% of parents who could save enough to cover half of their child’s future college costs still believe their savings would be meaningless—a finding that fundamentally reframes how policymakers should approach college affordability solutions. The fact that financial literacy gaps persist even among families with substantial resources suggests that traditional approaches focused solely on expanding access to savings vehicles may be insufficient without addressing the knowledge and perception barriers that prevent families from using these tools effectively.

Our findings arrive at moment when college costs continue to outpace inflation, student debt is reaching all time levels, and students are growing averse to borrowing. The need for alternative financing mechanisms has never been greater. Yet our research shows that even a well-designed, tax-advantaged savings program like Illinois’s 529 plan reaches only 11% of the state’s children, with participation heavily skewed toward families who likely have other resources to pay for college. More troubling, substantial disparities in savings behaviors persist even among participants, with many families adopting suboptimal strategies that limit their ability to benefit from compound growth over time.

The policy implications are both clear and actionable. States cannot simply create 529 programs and expect equitable participation—they must actively address the informational and behavioral barriers that prevent broader adoption. Our findings suggest that targeted financial literacy interventions, delivered at key decision-making moments and designed to help parents visualize the long-term impact of modest regular contributions, could dramatically expand program effectiveness. Rather than comprehensive financial education courses, what appears needed are practical tools—such as online calculators showing how \$100 monthly contributions grow over 10-15 years—that directly address the misperceptions we document. Additionally, after uptake barriers are addressed, behavioral interventions such as personalized reminders or pre-set contribution plans could help families establish and sustain saving habits (Briscese and Liu, 2024).

The correlations we observe between savings levels and educational outcomes—including four-year college enrollment, attendance at selective institutions, and pursuit of postgraduate

degrees—suggest that optimizing 529 programs could have meaningful impacts on educational equity and intergenerational mobility. Even modest differences in savings, when compounded over time, appear to translate into substantial educational advantages. While our analysis cannot establish causality, the magnitude and consistency of these relationships point toward CSAs as a promising mechanism for reducing educational disparities.

Perhaps most importantly, this research demonstrates the critical value of evidence-based policymaking through administrative data partnerships. By combining comprehensive administrative records with targeted surveys, we can move beyond assumptions about how families make financial decisions to understand the actual barriers and behaviors that shape outcomes. This methodological approach could be replicated across states and policy domains, creating opportunities for rigorous program evaluation and continuous improvement.

On the future research front, much more work is needed to explore the scalability of policies and the welfare implications of broader adoption and usage of CSAs (List, 2024). One research path forward is to recognize that college savings is not merely a financial challenge but a behavioral one. States that invest in understanding and addressing the psychology of long-term financial planning—rather than simply expanding tax incentives—will be best positioned to leverage 529 programs as tools for educational equity. Such behavioral modifications can have deep impacts, as research suggests that personal debt is linked to delayed marriage and reduced likelihood of pursuing lower-paying, high-social impact careers such as teaching (Gicheva, 2016; Rothstein and Rouse, 2011). Moreover, CSAs may improve financial literacy through a “learning-by-doing” effect, where parents saving for college acquire skills that positively influence other financial decisions, such as retirement planning, by mitigating aversion to complexity in high-stakes financial choices (Oprea, 2020).

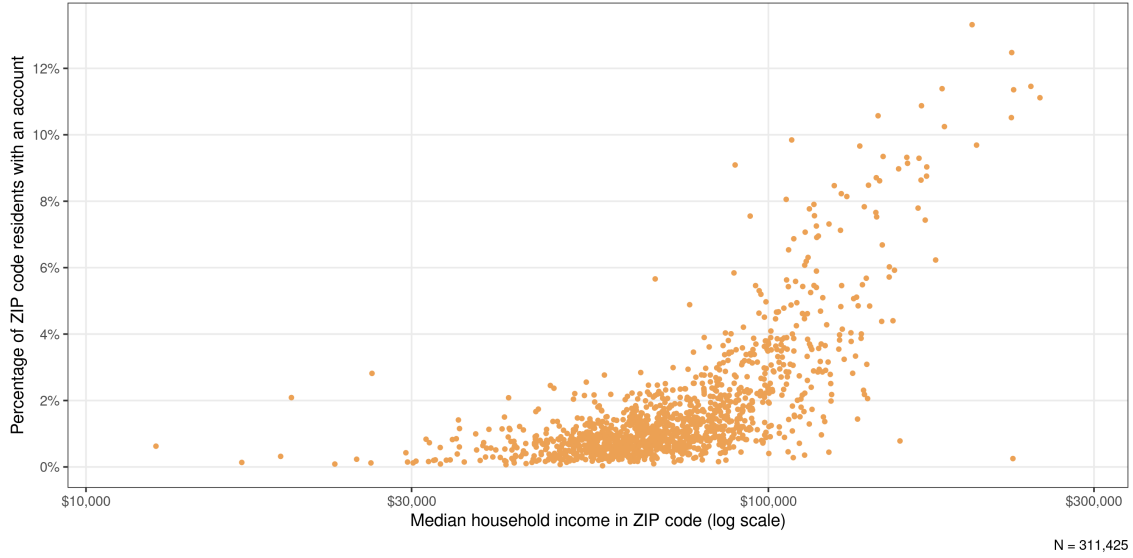
6 Appendix

Figure 7: IL 529 take-up rate by household educational attainment



Notes. The graph shows the correlation between the percentage of ZIP code residents with at least a bachelor's degree and the percentage of residents in the same ZIP code with at least one 529 plan.

Figure 8: IL 529 take-up rate by household income



Notes. The graph shows the correlation between the median household income in a ZIP code and the percentage of residents in the same ZIP code with at least one 529 plan.

Table 1: Reason for not opening a CSA

HH income	No need saving	Not enough savings	Not meaningful amount	Paper work	Reduce financial aid	Suffer penalty	Uncer. attend college
<\$30K	39%	67%	71%	61%	56%	68%	42%
\$31-60K	34%	69%	73%	62%	67%	74%	50%
\$61-90K	31%	66%	72%	68%	62%	75%	37%
\$91-150K	32%	67%	67%	69%	61%	83%	44%
>\$150K	33%	46%	60%	52%	69%	75%	60%

Notes. The table reports the share of surveyed IL parents who did not own a CSA and reported a score of at least 5/10 to a set of perceived barriers after reading a brief information page about IL 529 plans.

Table 2: CSA beneficiary characteristics: full vs matched samples

	Account beneficiaries sent to NSC	Account beneficiaries matched by NSC
Total N (beneficiaries)	306,894	247,661
1st IL ZIP income quintile	3.3%	3.2%
2nd IL ZIP income quintile	5.8%	5.7%
3rd IL ZIP income quintile	9.3%	9.4%
4th IL ZIP income quintile	18.9%	19.2%
5th IL ZIP income quintile	38.3%	38.9%
Non-IL or no ACS income estimate	24.4%	23.6%
Average age of oldest account	9.9 years	10.0 years

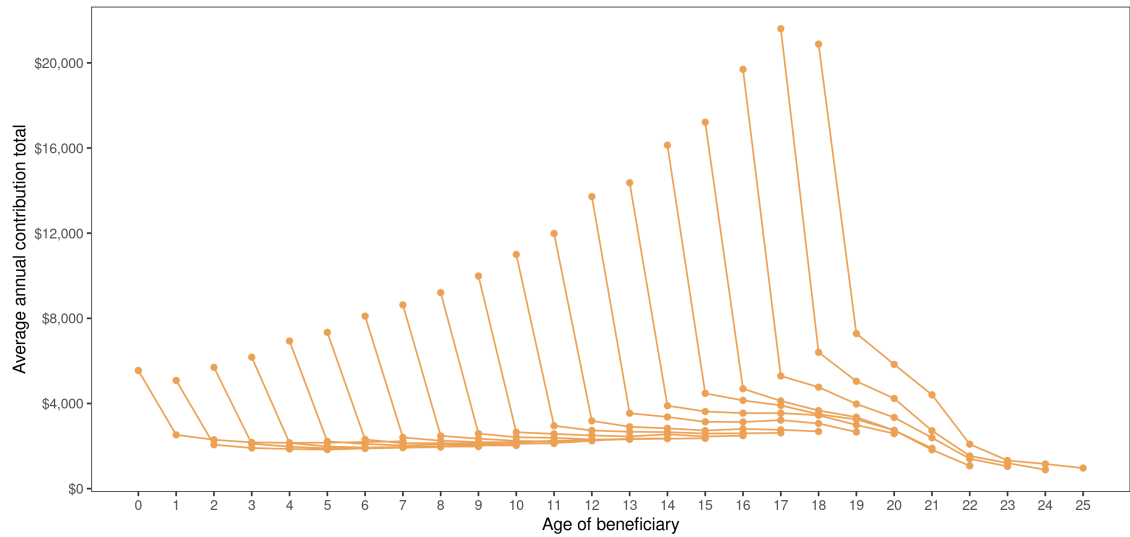
Table 3: Lifetime contributions (among closed accounts)

Group	Number of accounts	Minimum total contribution to be in group	Average total contribution of group
Top 1%	2,685	\$134,079	\$170,826
Top 5%-1.1%	10,738	\$77,151	\$98,421
Top 10%-5.1%	13,449	\$52,000	\$63,005
Top 30%-10.1%	53,664	\$16,337	\$29,936
Top 50%-30.1%	53,690	\$5,175	\$9,962
Bottom 50%	134,224	\$0	\$1,139

Table 4: Survey sample characteristics

	Survey of IL 529 account owners	Survey of IL parents
Total N (survey respondents)	3,337	1,013
1st IL ZIP income quintile	4.2%	26.2%
2nd IL ZIP income quintile	8.5%	17.1%
3rd IL ZIP income quintile	13.2%	17.5%
4th IL ZIP income quintile	28.0%	18.7%
5th IL ZIP income quintile	46.1%	18.7%
Non-IL or no ACS income estimate	0.0%	2.0%
Respondent age: 18-24	0.1%	10.9%
Respondent age: 25-44	52.3%	62.1%
Respondent age: 45-59	25.8%	19.0%
Respondent age: 60 or older	21.8%	2.3%
Respondent age: Unknown	0.0%	5.8%
Child age: 0-5	28.4%	27.8%
Child age: 6-9	27.5%	22.8%
Child age: 10-13	24.0%	20.1%
Child age: 14-16	20.0%	10.8%
Child age: 17-18	0.2%	18.5%
Share considering a 4-year public school for their child	82.9%	65.9%
Share considering a 4-year private school for their child	44.2%	36.9%

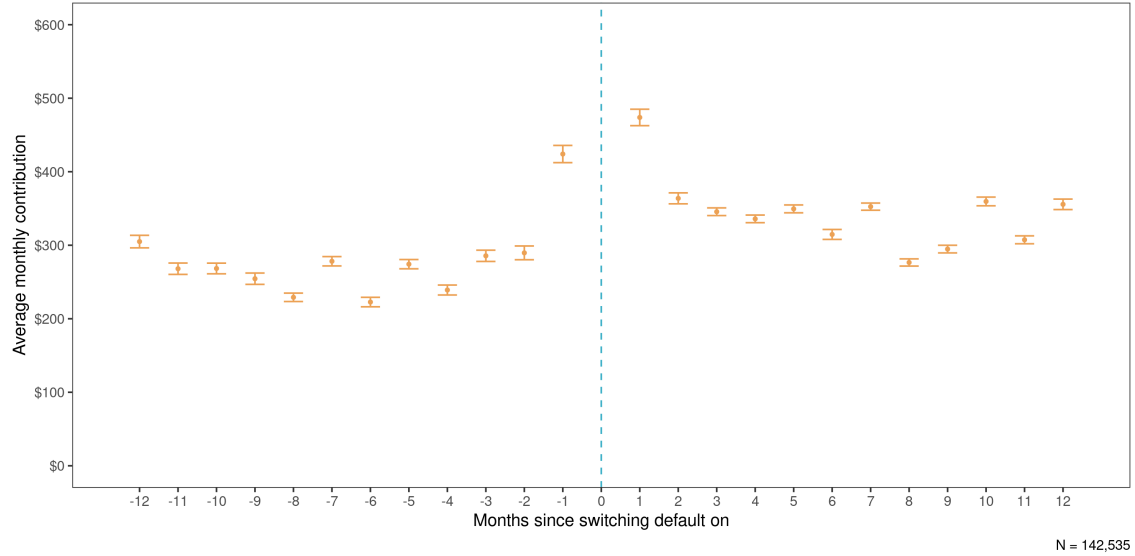
Figure 9: Average annual contribution into 529 plans based on age of beneficiary at time of account opening



N = 306,047

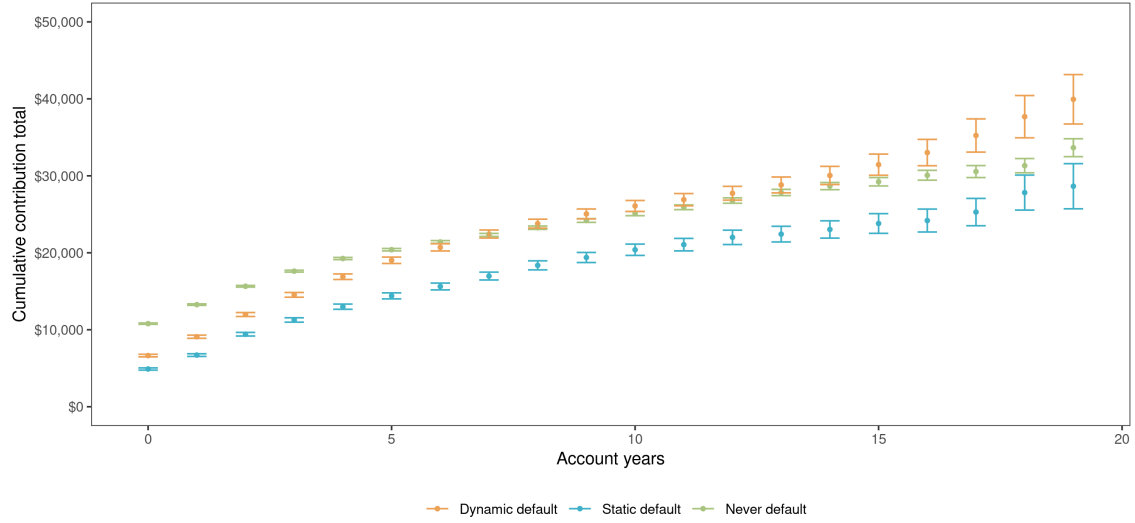
Notes. The graph shows the relationship between the average annual contribution (on the y-axis) and the age of the beneficiary (on the x-axis), with each line representing a different age at account opening and the first eight years of activity. All accounts that were or have been open for at least 8 years and have beneficiaries who were between ages 0-18 at the time of account opening are included in this graph.

Figure 10: The short-run effect of setting up automatic contributions



Notes. The graph shows the average monthly contribution up to one year before and after an account owner sets up automatic contributions among accounts without automatic contributions set up in the 30 days prior and that continued to have their automatic contribution set up in the 30 days following. The error bars show a 95% confidence interval around each estimate.

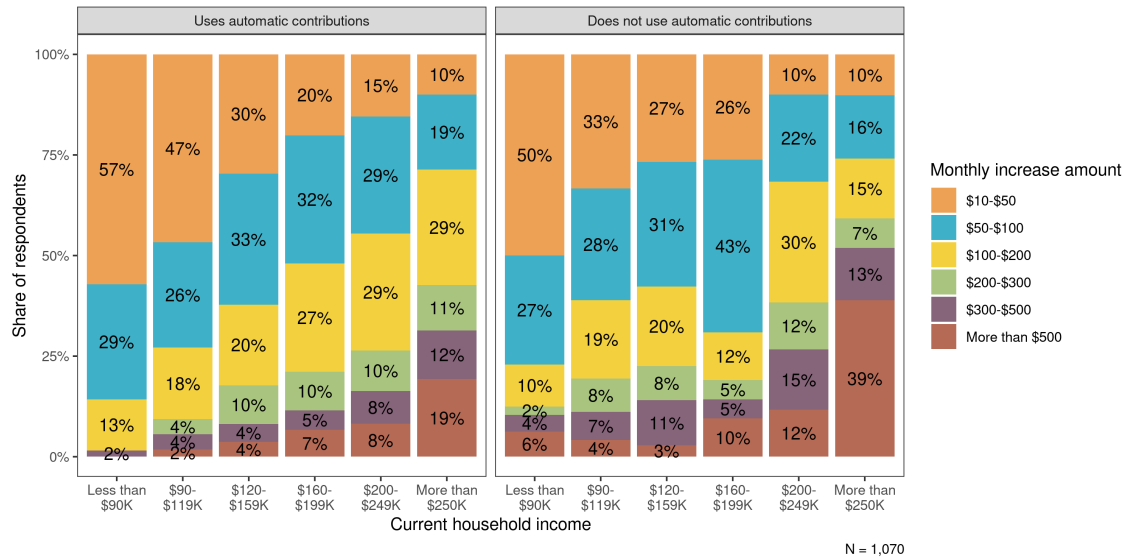
Figure 11: The long-run effect of setting up automatic contributions



N = 215,559

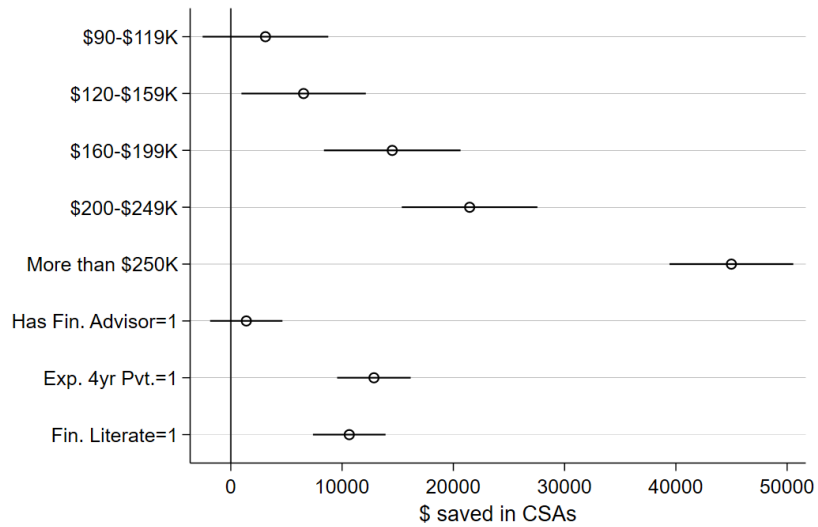
Notes. The graph shows the average cumulative contribution total for closed accounts for each year the account had been open, broken down by account owners' decisions on whether or not to have automatic contributions. Dynamic default represents account owners who set up automatic contributions and either made changes to or ended their automatic contributions altogether. Static default represents account owners who set up automatic contributions but did not end their automatic contributions until they closed their account. Never default represents account owners who never set up automatic contributions.

Figure 12: Willingness to increase contributions, by household income and automatic plan status



Notes. The graph shows the self-reported amount of intended monthly contribution increase among survey respondents who said they can and plan to increase their contributions in the near future, broken down by self-reported current annual household income and self-reported current usage of automatic contributions.

Figure 13: Determinants of college savings balance



Notes. The graph shows the coefficients and 95% confidence intervals of a subset of covariates from an OLS regression. The dependent variable is the amount saved across all owned CSA at the time of the survey. For clarity, the graph controls for, but doesn't display: parent dummy, number of owned accounts, eldest beneficiary's age, and respondent's age. For full specification, see Table 5

Table 5: Determinants of college savings balance

	(1)	(2)	(3)	(4)
Fin. Literate		19,916*** (1,860)	13,879*** (1,770)	10,005*** (1,642)
HH inc: \$90-\$119K	1,325 (3,109)		849.5 (3,082)	3,330 (2,863)
HH inc: \$120-\$159K	5,703* (3,034)		4,508 (3,011)	6,989** (2,836)
HH inc: \$160-\$199K	12,600*** (3,318)		11,135*** (3,293)	14,601*** (3,110)
HH inc: \$200-\$249K	24,021*** (3,276)		22,185*** (3,255)	21,673*** (3,090)
HH inc: >\$250K	51,148*** (2,878)		47,872*** (2,883)	44,685*** (2,818)
No. accounts = 2				15,872*** (1,883)
No. accounts = 3				20,412*** (2,280)
Exp. 4yr Pvt. Uni				12,567*** (1,672)
Static default				-11,268*** (1,651)
Dynamic default				-13,372*** (4,592)
Resp. age FE	No	No	No	Yes
Child age FE	No	No	No	Yes
Constant	18,220*** (2,253)	27,897*** (1,221)	13,751*** (2,305)	-2,503 (10,648)
N	3,337	3,337	3,337	3,337
R-squared	0.134	0.033	0.150	0.291

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. The table reports the results of an OLS regression with cumulative savings in CSAs as dependent variable.

Table 6: Correlation matrix of selected observable characteristics

	HH income >\$160K	Fin. Advisor	No. account	Child age	Parent age	Expects 4-yr pvt	Fin Lit
HH income >\$160K	1.0000						
Fin. Advisor	-0.0555	1.0000					
No. account	0.0438	-0.0062	1.0000				
Child age	0.0156	-0.0116	0.2903	1.0000			
Parent age	-0.1783	0.0847	0.0905	0.1482	1.0000		
Expects 4-yr pvt	0.2194	-0.0371	-0.0159	-0.0524	-0.1112	1.0000	
Fin Lit	0.1329	-0.1091	0.0675	0.0175	0.0990	0.0790	1.0000

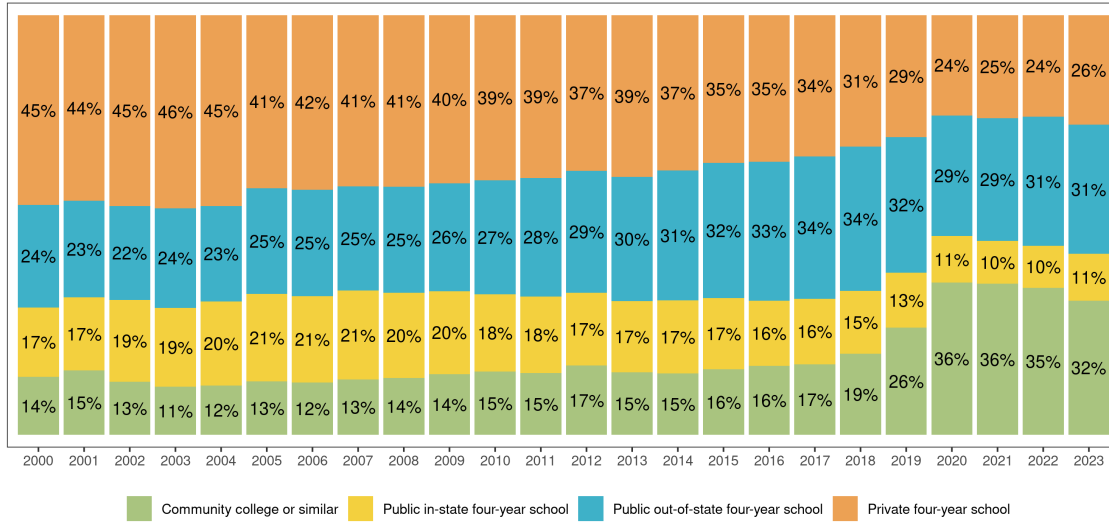
Notes: The table shows the correlation among selected variables: if the account owners lives in a household with an annual income of \$160K or more; whether they use a financial advisor; the number of owned 529 accounts; the age of the account beneficiaries that is closest to college age; the age of the parent; whether they expect their child to attend a 4-year private University; and whether they scored a 3/3 on the financial literacy questions.

Table 7: Correlation between financial literacy and saving strategy

Uses automatic plans (Y/N)	(1)	(2)	(3)
Financially literate	-0.0639*** (0.0174)	-0.0682*** (0.0176)	-0.0377** (0.0175)
HH income \$90-\$119K		0.0904*** (0.0306)	0.0397 (0.0304)
HH income \$120-\$159K		0.138*** (0.0299)	0.0711** (0.0301)
HH income \$160-\$199K		0.161*** (0.0327)	0.0775** (0.0330)
HH income \$200-\$249K		0.150*** (0.0323)	0.0628* (0.0328)
HH income \$250K+		0.0774*** (0.0286)	-0.00731 (0.0299)
Constant	0.560*** (0.0114)	0.462*** (0.0229)	0.510*** (0.122)
Controls	No	No	Yes
Observations	3,337	3,337	3,337
R-squared	0.004	0.015	0.063

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. OLS regression coefficients. Model (3) includes the following control variables: whether the owner relies on the advice of a financial advisor to make college saving decisions; the number of owned accounts; respondents' age group; age of owner's eldest account beneficiary; race dummy; type of college they expect their child will attend (4 year public University, 4 year private University, or other types).

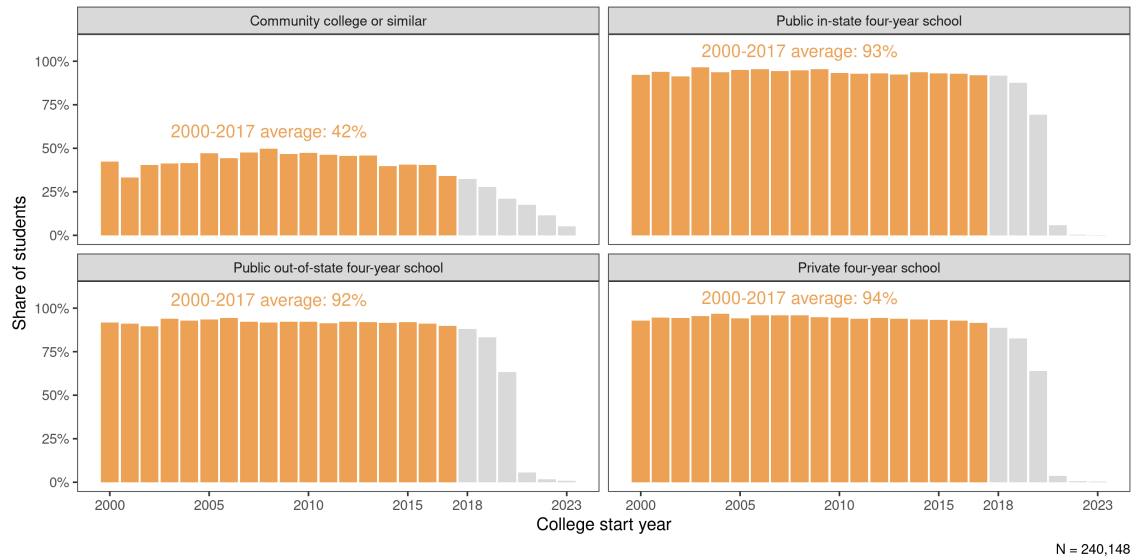
Figure 14: Postsecondary enrollment by initial school type



N = 240,148

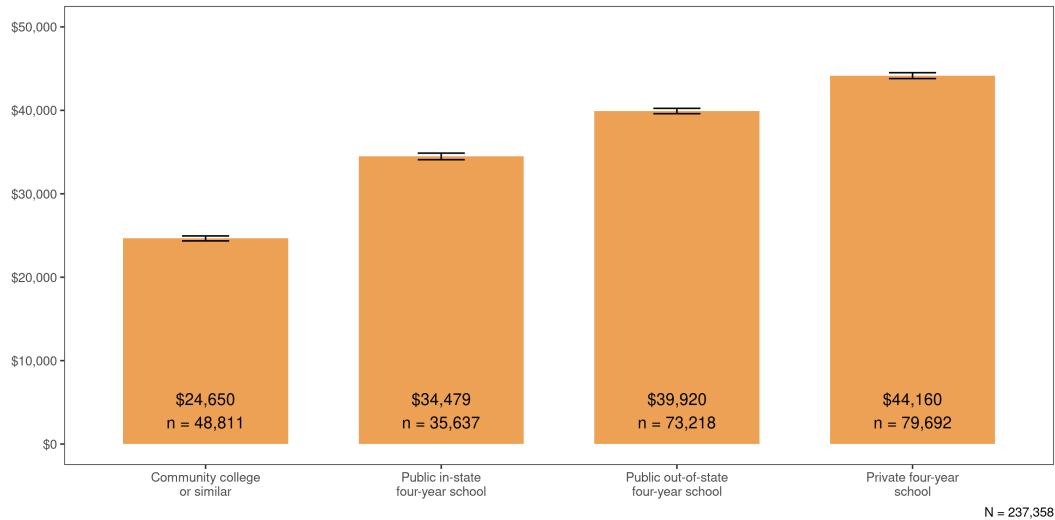
Notes. The graph shows the share of school types chosen by 529 account beneficiaries per year of initial postsecondary enrollment. Students enrolled in an online school represent less than 0.5% of the sample and are omitted from the graph.

Figure 15: Credential attainment by initial school type



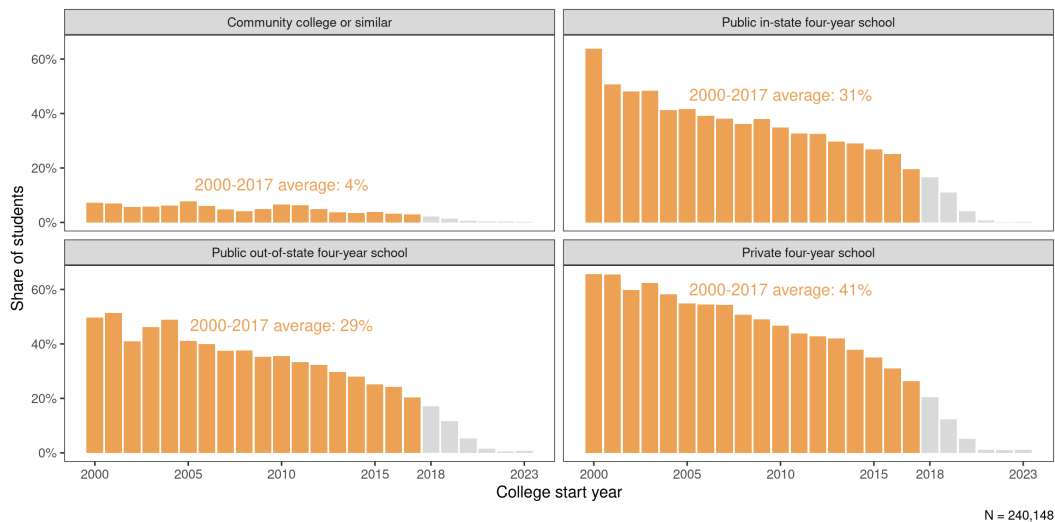
Notes. The graph shows beneficiary rate of credential attainment through the end of 2023 by year of initial postsecondary enrollment. Credential attainment is not specific to initial school type. For example, a student who begins at a private four-year school, transfers to a two-year school, and completes their associate degree will be counted in the private four-year school panel as that is the school type of their initial postsecondary enrollment. The most recent six years are grayed out in alignment with many recognized completion rate metrics that consider 150% time for four-year undergraduate degrees.

Figure 16: CSA contributions by most recent school type



Notes. The graph shows the average lifetime contribution to a beneficiary's CSAs broken down by the school type of the beneficiary's most recent postsecondary enrollment. Students enrolled in an online school represent less than 0.5% of the sample and are omitted from the graph.

Figure 17: Graduate school enrollment by initial school type



Notes. The graph shows beneficiary rate of graduate school enrollment through the end of 2023 by year of initial postsecondary enrollment. Beneficiaries may have completed their undergraduate degree at a school type different from their initial enrollment school. The most recent six years are grayed out in alignment with many recognized completion rate metrics that consider 150% time for four-year undergraduate degrees although many people enter the workforce after a two-year or four-year degree before returning to school for graduate studies later in life.

References

- Alessie, R., M. Van Rooij, and A. Lusardi (2011). Financial literacy and retirement preparation in the netherlands. *Journal of Pension Economics & Finance* 10(4), 527–545.
- Bettinger, E. P., B. T. Long, P. Oreopoulos, and L. Sanbonmatsu (2012). The role of application assistance and information in college decisions: Results from the h&r block fafsa experiment. *The Quarterly Journal of Economics* 127(3), 1205–1242.
- Beverly, S. G. and W. Elliott III (2010). Staying on course: The effects of savings and assets on the college progress of young adults.
- Black, S. E., J. T. Denning, L. J. Dettling, S. Goodman, and L. J. Turner (2023). Taking it to the limit: Effects of increased student loan availability on attainment, earnings, and financial well-being. *American Economic Review* 113(12), 3357–3400.
- Boatman, A., B. J. Evans, and A. Soliz (2017). Understanding loan aversion in education: Evidence from high school seniors, community college students, and adults. *Aera Open* 3(1), 2332858416683649.
- Briscese, G. and J. List (2024). Toward an understanding of the political economy of using field experiments in policymaking. Technical report, National Bureau of Economic Research.
- Briscese, G. and S. Liu (2024). Targeting behavioral change interventions: An experiment on debiasing savings for college. *Available at SSRN 4993013*.
- Brown, S. R. (2016). The influence of homebuyer education on default and foreclosure risk: A natural experiment. *Journal of Policy Analysis and Management* 35(1), 145–172.
- Card, D. (1999). The causal effect of education on earnings. *Handbook of labor economics/Elsevier*.
- Chakrabarti, R., V. Fos, A. Liberman, and C. Yannelis (2023). Tuition, debt, and human capital. *The Review of Financial Studies* 36(4), 1667–1702.

- Chang, A. C., A. Aladangady, J. Bricker, S. Goodman, J. Krimmel, K. B. Moore, S. Reber, A. Henriques Volz, and R. Windle (2023). Changes in us family finances from 2019 to 2022.
- Chen, Z. and W. Elliott (2020). Saving for college: perspectives from participants in a universal children’s savings program. *Journal of Children and Poverty* 26(2), 151–166.
- Cunha, F., J. J. Heckman, L. Lochner, and D. V. Masterov (2006). Interpreting the evidence on life cycle skill formation. *Handbook of the Economics of Education* 1, 697–812.
- Dynarski, S. (2004). Who benefits from the education saving incentives? income, educational expectations and the value of the 529 and coverdell. *National Tax Journal* 57(2), 359–383.
- Dynarski, S., C. Libassi, K. Micheltmore, and S. Owen (2021). Closing the gap: The effect of reducing complexity and uncertainty in college pricing on the choices of low-income students. *American Economic Review* 111(6), 1721–1756.
- Enke, B., T. Graeber, and R. Oprea (2023). Complexity and time.
- Fort, M., A. Ichino, and G. Zanella (2020). Cognitive and noncognitive costs of day care at age 0–2 for children in advantaged families. *Journal of Political Economy* 128(1), 158–205.
- Gicheva, D. (2016). Student loans or marriage? a look at the highly educated. *Economics of Education Review* 53, 207–216.
- Hallberg, K., S. Robinson, N. Nguyen, C. Odom, and F. Hernandez (2023). Developing a best fit framework for postsecondary success. *The University of Chicago Inclusive Economy Lab*.
- Kaplan, G. and G. L. Violante (2014). A model of the consumption response to fiscal stimulus payments. *Econometrica* 82(4), 1199–1239.
- List, J. A. (2024). Optimally generate policy-based evidence before scaling. *Nature* 626(7999), 491–499.
- Lusardi, A. and O. S. Mitchell (2023). The importance of financial literacy: Opening a new field. *Journal of Economic Perspectives* 37(4), 137–154.

- Oprea, R. (2020). What makes a rule complex? *American economic review* 110(12), 3913–3951.
- Rothstein, J. and C. E. Rouse (2011). Constrained after college: Student loans and early-career occupational choices. *Journal of Public Economics* 95(1-2), 149–163.
- Stinebrickner, R. and T. Stinebrickner (2008). The effect of credit constraints on the college drop-out decision: A direct approach using a new panel study. *American Economic Review* 98(5), 2163–2184.
- Van Rooij, M. C., A. Lusardi, and R. J. Alessie (2012). Financial literacy, retirement planning and household wealth. *The Economic Journal* 122(560), 449–478.
- Welbeck, R., J. Diamond, A. Mayer, and L. Richburg-Hayes (2014). Piecing together the college affordability puzzle: Student characteristics and patterns of (un) affordability. *MDRC*.
- Yoon, H., Y. Yang, and C. K. Morewedge (2022). Early cost realization and college choice. *Journal of Marketing Research* 59(1), 136–152.

7 Online Appendix

7.1 Study materials

A copy of the survey on the IL 529 account owners can be found [here](#).

A copy of the survey on the IL representative sample of parents can be found [here](#).