The Role of Parental Beliefs and Public Policies in Financing Higher Education: An Experimental Study*

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Parents who want to financially support their child's pursuit of higher education must save against assumptions about what college will cost and how it will be funded. This study examines how parental beliefs and future borrowing costs shape college saving decisions. Through a survey experiment with an embedded financial planning tool, we elicit parental beliefs about the future costs of college and their expectations of different funding sources, including financial aid and student loans. We find that nearly all parents want to cover some of the future costs of college, but many may fall short in their savings due to underestimating future expenses and overestimating available financial aid. A corrective information intervention encourages most parents to recalibrate their saving target. However, when a substantial gap between expected and actual costs is combined with a salient high repayment burden for their child, we find a discouragement effect that diminishes both their willingness to save and their aspirations for their child's educational attainment. We calibrate a model of parental saving with learning about college costs, which reproduces both the absence of an average response to borrowing costs and the shift of children away from college attendance, and use it to price the welfare cost of misperception. Parents with higher financial literacy hold better-calibrated beliefs and respond more to correction. We discuss policy implications for outreach activities to support informed financial planning for college education.

JEL Classification Codes: D14, D15, D61, H21, I22; G53
Keywords: Human capital investments; Higher Education Financing; Parental Beliefs; Financial Literacy.

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1 Introduction

Parental transfers have become a first-order input into who attends college and what kind of institution they attend. As published prices have risen and public subsidies per student have flattened, the share of the bill met by families before their child enrolls has grown, and with it the importance of a decision made long before any application is filed: how much to save. That decision is not a straightforward optimization. It requires parents to forecast a price sometimes a decade into the future, to anticipate how much of that price financial aid will absorb, and to weigh the residual against the debt their child would carry after graduation. Each of these is an expectation, and each can be wrong.

This paper asks how those expectations, and the policy environment that shapes the consequences of holding them, determine parental saving for college. We address two questions. First, how do parental beliefs about college costs, financial aid, and student loans influence saving decisions, conditional on income and wealth? Second, what role does the policy environment—specifically the interest rate their child would face on student loans—play in those decisions? The first question matters because if saving targets are anchored to mistaken beliefs, then families may systematically undersave for reasons that have nothing to do with liquidity, and educational interventions may be a cost-effective policy lever. The second matters because parents rarely confront their child's future debt at the moment they decide how much to save. Our design brings it forward and makes it salient, showing each parent the monthly repayment their child would face under a given interest rate. The sign of the response is not obvious *a priori*: a larger projected repayment gives the parent more reason to save, since every dollar saved now spares the child more later, but it may also signal that the child's position is difficult regardless of what the parent does.

We study how parents navigate these decisions by means of a pre-registered survey experiment with 1,020 parents of children aged 17 or younger. The design is motivated by a novel de-identified administrative dataset on Illinois 529 college savings accounts, in which account openings and contributions co-move with the interest rate cycle in a way that is suggestive but not causally identified, for reasons we set out below; to keep the survey evidence comparable to these records, we recruit respondents from Illinois only. The survey

elicits, in sequence: expectations about each child's college attendance; the child's expected earnings at ages 23, 30, and 45, following the elicitation design of Wiswall and Zafar (2018); the type of institution the child is most likely to attend; the total expected cost of that institution; and the expected amount of financial aid. Parents then state how much of the projected cost they intend to cover themselves.

Because these are demanding calculations, we limit the extent to which differences in numeracy drive our results by embedding a financial planning calculator that translates each stated goal into its two implications: the monthly amount the parent must set aside between now and enrollment, and the student loan monthly repayment their child would face for twenty years after graduation. Respondents are randomly assigned to see the loan-repayment implications computed at a hypothetical interest rate of either 2.5% or 7%— the lowest and highest federal student loan rates of the past two decades. Respondents may revise their saving goal and re-run the calculation as often as they wish. After confirming their choice under their own cost forecast, all respondents are shown a belief-correction information that shows them a more objective standardized projection of the cost of their selected institution type and asked again to state their saving goal. We then elicit posterior beliefs by re-asking college aspiration questions. Finally, all respondents are entered into a prize draw for $500 and choose how to split it between a deposit into a 529 account and an Amazon gift card, providing an incentive-compatible measure that helps validate the stated saving outcomes.

We report four novel results. *First*, misperception of costs is the norm rather than the exception: 77% of parents underestimate the standardized projected sticker price of the institution type they expect their child to attend, by an average of $127,047. The error is strongly graded by institution type, rising from $27,533 for parents expecting a 2-year community college to $215,277 for those expecting a 4-year private university. *Second*, parents are similarly optimistic about financial aid: 92% expect their child to receive some aid, 72% expect an amount exceeding the maximum Pell Grant, and 58% believe aid will cover the entire cost of college. *Third*, these beliefs are malleable: saving goals are anchored to subjective cost forecasts, and when we replace those forecasts with a standardized projection, parents revise their goals. *Fourth*, the randomized loan rate has no detectable average effect on saving. We estimate a precisely estimated null on stated saving goals, and the same

null on the incentivized allocation of the $500 prize. This average, however, conceals an interaction that runs in the opposite direction from the standard precautionary logic. Among parents whose cost forecasts were close to the projection, the high-rate condition *increases* willingness to save more; as the forecast gap widens, the effect reverses. Parents who learn both that college costs far more than they thought and that the residual would be financed at a high rate reduce their saving adjustments and their aspirations for their child's higher education. We term this a *discouragement effect*. It is identified by the interaction with the cost forecast gap, and it is most pronounced among parents whose prior beliefs about their child's attendance were weakest.

As the reduced-form results point to the importance of belief accuracy for human capital investments, we investigate the correlates of belief accuracy. Financial literacy, measured by the three canonical items of Lusardi and Mitchell (2014), is the characteristic most consistently associated with better-calibrated expectations: more literate parents hold less biased cost beliefs, are less optimistic about aid sufficiency, and adjust their saving goals more when shown the standardized projection. We also find qualitative evidence of demand for information of this kind: respondents engaged at length with the planning calculator, and a large majority volunteered comments describing the exercise as a useful prompt to reconsider their college saving plans. Together these patterns suggest that inaccurate beliefs are neither randomly distributed across households nor difficult to update—which raises the question of how much is at stake in correcting them, and for whom.

To recover that, we develop and calibrate a three-period model of parental saving in which parents hold Gaussian priors over the cost of each institution type, receive a noisy signal, update, and finally choose consumption, labor supply, savings, and their child's institution type once true costs are revealed. The model matches the joint distribution of cost beliefs and college savings among parents of older children and the observed distribution of expected institution types. The model reproduces the near-zero average effect of the loan rate on saving, and it generates an increase in the fraction of children not attending any college when the rate is high—a margin that mirrors the reduced-form estimate on parental posterior beliefs about attendance. We then use the model to compute the compensating subsidy that would leave a parent with mistaken beliefs as well off as one with correct beliefs. That value

averages roughly $1,700, is increasing in the magnitude of the belief error, and is U-shaped in initial assets—largest for the asset-poor and the asset-rich, and smallest in the middle of the distribution.

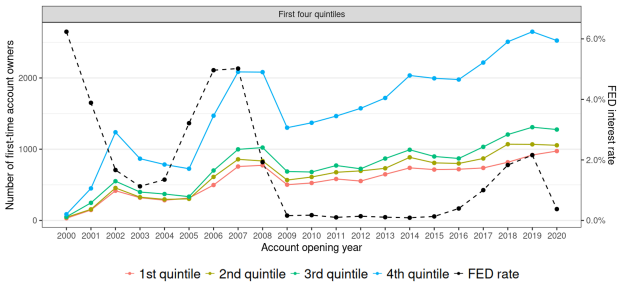
None of this could be recovered from observational data on college saving, which is where we began. Figure 1 plots, against the annual average federal funds rate, the number of first-time 529 account owners and the average annual contribution, separately for the bottom four income quintiles and the top quintile. Both margins appear to co-move with the rate cycle. Account openings and average contributions rise through the mid-2000s as rates rise, fall away over the near-zero-rate decade that follows, and recover as rates climb again after 2015. The pattern holds across the income distribution, though its amplitude differs, and participation remains concentrated in higher-income and higher-education zipcodes throughout: roughly 15% of Illinois children have an account in the most recent year of data, a take-up rate comparable to that of other voluntary tax-advantaged accounts (Census, 2022).

The co-movement is suggestive but endogenous. The federal funds rate moves with the business cycle, and therefore with household income, employment risk, and the tightness of budget constraints; it moves with the return on every competing savings vehicle, so that any shift toward 529 accounts may reflect substitution rather than a change in total saving; it co-varies with federal and state fiscal policy, including changes to the tax treatment of these very accounts; and it coincides with periods in which the Treasurer's Office varied its own outreach and advertising, which is itself a determinant of take-up. Those who hold 529 accounts are thus not a representative sample of parents, and within any income bracket they are plausibly those most attentive to financial matters and best equipped to act on rate news. The composition of account holders therefore changes with the rate environment at the same time as the behavior of incumbent holders.

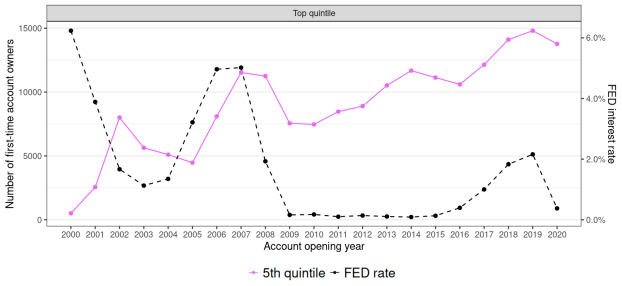
Disentangling these channels with observational variation alone is not feasible. The experiment holds them fixed by construction. Income, wealth, employment, the tax code, the outreach environment, and the identity of the respondent are all held constant within a single survey session, and we vary two things: what the parent believes about the cost of college, and the rate at which their child's residual debt would be priced. This isolates the belief and policy channels from the confounds that make the aggregate series uninterpretable.

Figure 1: Take-up of and contributions to Illinois 529 plans, and the federal funds rate

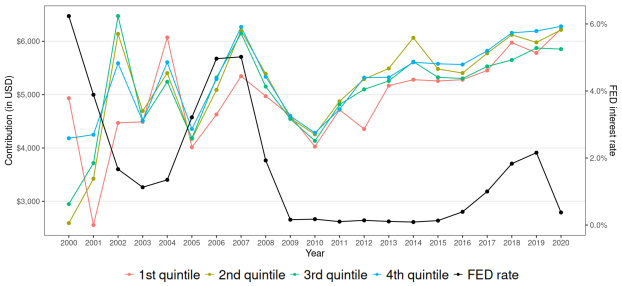
(a) First-time account owners, 1st–4th quintiles



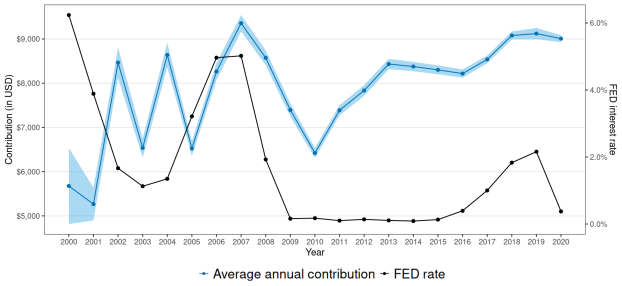
(b) First-time account owners, 5th quintile



(c) Average contributions, 1st–4th quintiles



(d) Average contributions, 5th quintile



Notes. Panels (a) and (b) show the number of first-time owners of an Illinois 529 college savings account, by year of account opening. Panels (c) and (d) show the average total annual contribution to Illinois 529 plans, by year. In each pair, the first panel covers the bottom four household income quintiles and the second the top quintile; the two are plotted separately because the difference in y-axis scale would render the lower quintiles illegible on a common axis. Quintiles are assigned using median household income in the account owner's zipcode of residence. In all four panels the dotted black line is the average annual federal funds rate, plotted on the secondary y-axis. *Sources:* Illinois State Treasurer's Office 529 administrative records, 2000–2020, at the account level in panels (a) and (b) and the transaction level in panels (c) and (d); Federal Reserve Economic Data.

Related literature. We contribute to three main streams of the literature. The first is the studies on beliefs and higher education choice. The closest set of papers to ours uses belief elicitation and information provision to study how students and families form expectations about the returns and costs of schooling (Attanasio and Kaufmann, 2014; Wiswall and Zafar, 2018; Bleemer and Zafar, 2018; Boneva and Rauh, 2018). Relative to this work, which focuses predominantly on beliefs about returns and on the student's decision, we study beliefs about the cost side of the ledger and the parent's saving decision, and we embed the belief correction inside a planning tool that makes the budgetary consequences of each stated goal immediate and concrete.[1] Our findings align closely with Briscese et al. (2025), who show that both the decision to open a 529 account and the amount contributed conditional on opening are strongly associated with better-calibrated beliefs about future college costs and financial aid. The fact that the same beliefs which predict behavior in administrative records also respond to correction in our experiment further supports the importance of targeting belief accuracy as a policy objective rather than an static individual characteristic.

The second stream of studies concerns the role of financial literacy in shaping financial decisions around higher education. Previous work showed that while access to student loans can improve attainment (Marx and Turner, 2019), many students show an aversion to student loan debt that reduces take-up (Field, 2009), and that borrowing responds to the return to schooling (Lochner and Monge-Naranjo, 2011). The papers closest to ours are those by Li et al. (2024), who show that households' financial literacy increases the likelihood of households choosing the correct 529 plan and its investment, and Briscese et al. (2025) who show that low financial literacy correlates with misbeliefs about the value of compound interest in college savings accounts. These studies extend the previously existing evidence on how financial literacy shapes retirement planning, wealth accumulation, and financial market participation (Lusardi and Mitchell, 2014, 2023; Yoong, 2011; Lusardi and Mitchell, 2011).

The third concerns the relationship between intergenerational wealth transfer and human capital investment. Some studies find that family background and environment matter more than contemporaneous income and wealth in explaining enrollment and completion

[1]Another stream of studies focuses on the financial aid margin, showing that aid raises attainment (Deming and Dynarski, 2009; Dynarski, 2003; Denning et al., 2019), but take-up is hindered by administrative complexity (Bettinger et al., 2012) and by uncertainty about eligibility and price (Dynarski et al., 2021).

(Hotz et al., 2023; Stinebrickner and Stinebrickner, 2008; Cameron and Heckman, 2001), while others document that income and wealth have grown more important over time relative to ability (Belley and Lochner, 2007). We provide evidence of another important mechanism: conditional on income, wealth transfers for higher education are influenced by parents' beliefs, which can be systematically biased.

The paper proceeds as follows. Section 2 describes the survey design and sample. Section 3 presents the experimental results. Section 4 develops and calibrates the structural model. Section 4.3 computes the value of correct beliefs and discusses interpretation and limitations. Section 5 concludes.

2 Survey Design and Sample

Our experiment is designed to unpack the decision-making process behind parental investment in a child's college education, and in particular the interaction between beliefs and the external policy environment.

The setting is Illinois, where the State Treasurer serves as trustee of two 529 plans—Bright Start, a direct-sold plan, and Bright Directions, sold through advisors. Both are tax-advantaged: contributions are deductible for Illinois taxpayers up to $10,000 ($20,000 for joint filers) annually, balances accrue tax-free, withdrawals for qualified education expenses are untaxed, and only 5.64% of plan assets count as a parental asset in federal aid calculations. Accounts carry no minimum contribution, no annual fee, and no minimum balance requirement, and total fees are low—roughly 12 cents per $100 contributed in the default age-based index portfolio. Between 2000 and 2022, about 682,000 accounts were opened statewide, rising from fewer than 10,000 in the program's first year to more than 46,000 in 2022.[2]

We restrict the survey to Illinois parents so that our results speak to the descriptive evidence from the administrative data, and so that the calibration targets in Section 4 are internally consistent with the setting the model describes. Screening a general population panel to Illinois residents with a child aged 17 or younger while maintaining demographic

[2]Growth reflects, in part, sustained investment by the Treasurer's Office in awareness-raising: television and online advertising, community outreach, free webinars, and direct mail to new parents, in varying combinations over time.

representativeness constrains the achievable sample, a trade-off we accept for the gain in internal consistency.

The survey opens with a module on household composition, income, employment, and saving behavior. Parents then report, for each child, the likelihood of college attendance and whether financial concerns bear on that expectation. To limit respondent burden, all subsequent questions are asked with reference to the child expected to attend college soonest.[3] We take this child to represent the most immediate and salient financial decision facing the household. Parents report the year they expect this child to start college rather than the child's current age, which yields more precise enrollment timelines.

The third module elicits expectations about the child's future earnings, in order to test whether parents tolerate higher debt when they expect higher repayment capacity. Following Wiswall and Zafar (2018), we ask for expected annual earnings at ages 23, 30, and 45, and for each age the perceived probability that earnings exceed a stated threshold. Thresholds are anchored on the median and 90th percentile of the Illinois earnings distribution at each age from the 2018–2022 American Community Survey five-year sample, adjusted forward at 2% inflation given the child's current age.

We then elicit beliefs about the child's likelihood of applying to and attending each of four options: a 2-year community college, a 4-year public university, a 4-year private university, or no higher education. This elicitation is repeated at the end of the survey to recover posterior beliefs, following Haaland et al. (2023). Respondents select the single institution type they most expect their child to attend,[4] and for that type report their best estimate of total future cost, how much they have saved to date, the amount of financial aid they expect, and the probability that aid covers at least half, and then all, of the cost.

[3]The instructions were: "*For the next questions, please provide your answers for the child you expect might attend college first. If you indicated in the previous question that none of your children are likely to pursue higher education, please still answer the following questions under the hypothetical scenario that they were to pursue higher education.*"

[4]The question was: "*If you had to choose only one of the following types of higher education institutions, which one do you expect your child will attend? If, in the previous question, you indicated that this child might not attend higher education, please still select the type of institution you think they might attend if they were to pursue higher education.*"

2.1 The planning tool and randomization

Respondents then reach the core module. They are shown their own previously reported cost forecast and their own expected earnings figure for the child at 23, piped back from earlier answers, and asked what share of the projected total they intend to cover themselves rather than leaving to the child.

Each stated goal is immediately translated into its two consequences. First, the monthly saving required from today until enrollment: the stated goal net of existing savings, accumulated at a compounded 5% rate over the months remaining. Second, the child's monthly loan repayment: the residual cost after parental savings, amortized at the assigned monthly rate over 240 months. Respondents may return and revise as many times as they wish before confirming. Figures B.2 and B.3 in the Online Appendix reproduce these screens.

The savings rate of 5% is conservative relative to the historical return on the age-based portfolios these families would plausibly use. The loan rate is randomized: 2.5% for the control group and 7% for the treatment group, approximately the extremes of federal student loan rates over the past two decades (6.8% in 2006; 2.75% in 2021). Randomization is at the respondent level and is held fixed for that respondent across both rounds of the module.

The second round implements the belief correction. All respondents repeat the exercise, but the total cost is now a standardized projection for their selected institution type, built from published 2023 costs and inflated at 5% annually to the child's expected enrollment year. We then re-elicit posterior beliefs about attendance, and measure willingness to earn additional income to meet the goal, along with a reservation wage.

The benchmark used for the correction is the published total cost of attendance—tuition, fees, room, board, and books—before institutional grants or scholarships. Net price is not an alternative benchmark so much as a schedule: it depends on the family's income and assets at application, on the aid policies of the specific institutions the child applies to, and on appropriations in force that year, none of it knowable a decade in advance. Personalizing the benchmark would make the forecast gap a function of our imputation rather than of the parent's belief. The published price is observable, constructed identically for every respondent, and is the figure against which a saving plan formed years in advance must be set. Further,

published prices are what government agencies use in their educational campaigns when encouraging parents to start saving for college. For example, the Illinois State Treasurer's Office, the setting of our study, uses sticker prices compiled by collegetuitioncompare.com that also includes living costs. It follows that our estimates measure underestimation relative to published prices, and that parents expecting institution types with larger average tuition discounts are more likely to be classified as underestimating.

To validate the stated saving measures, all respondents are entered into a prize draw for $500 over and above their completion fee, and choose how to allocate it between a deposit into a new or existing 529 account and an Amazon gift card. Because 529 balances carry penalties for non-qualified withdrawal, allocating the prize toward a deposit is a commitment, and the allocation therefore provides an incentive-compatible analogue to the hypothetical saving goals elicited earlier.

The final module collects views on student loan forgiveness, demographic characteristics, individual discount factors following Andreoni and Sprenger (2012), and the three canonical financial literacy items of Lusardi and Mitchell (2014).

3 Results

We partnered with Qualtrics to recruit a sample of Illinois parents with at least one child aged 17 or younger that would be representative of the target population on as many key observables as possible. Between August 20 and September 9, 2024, 1,020 respondents completed the survey, with a median completion time of 16 minutes. Table A.1 compares the sample to the Illinois population of parents with children under 18. Table A.2 reports covariate balance between the 2.5% and 7% randomized arms.

3.1 Prior beliefs

Expected costs of college. Among respondents, 70% report that at least one child will "almost certainly" attend higher education, 27% that it is "somewhat likely," and 3% that attendance is unlikely. Among those expressing any hesitancy, 76% cite financial reasons. Nearly all parents, in other words, value higher education and expect their children to pursue

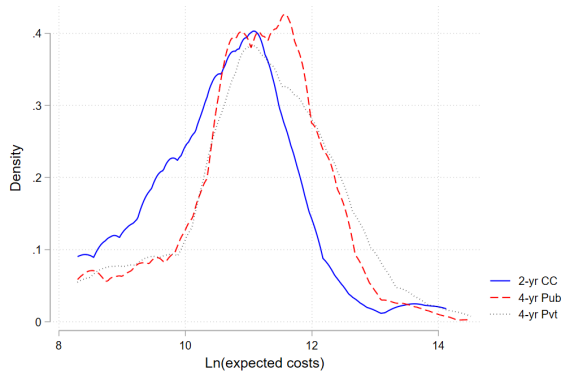
it, while a large majority fear that money will stand in the way.

Parents expect the future cost of college to average $105,136 (median $60,000). By institution type, those expecting a 2-year community college estimate total future costs—across all years, including tuition, room and board, fees, and textbooks—at $79,831 on average (median $45,000); those expecting a 4-year public university, $109,800 (median $70,000); and those expecting a 4-year private university, $136,514 (median $79,444). Parents are therefore aware that costs differ by institution type, but the spread they perceive across types is modest relative to the spread in published prices.

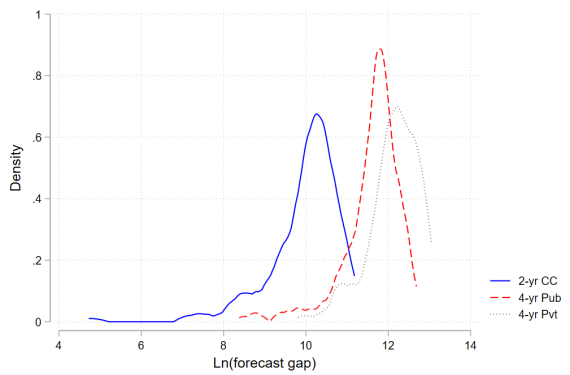
Table A.3 reports OLS estimates of the correlates of expected costs. Socio-economic characteristics—income, educational attainment, and age—play a limited and largely insignificant role; if anything, higher income is associated with *lower* expected costs. Financial literacy is weakly positively associated with higher expected costs. The child's age is not strongly related to expected costs, which is notable: proximity to enrollment, and the better information it presumably brings, does not measurably improve forecasts. The expected institution type is by far the strongest predictor. Panel (a) of Figure 2 shows the distribution of expected costs by type.

Figure 2: Expected future costs of college and the subjective–objective forecast gap, by college type

(a) Expected future total costs



(b) Gap between subjective and objective costs



Notes. Panel (a) shows the distribution of the log of parents' expected future total cost of college for their child. Panel (b) shows the distribution of the log difference between the standardized cost projection (2023 published costs inflated at 5% annually to the expected enrollment year) and parents' expected future total costs; panel (b) is restricted to parents with a positive forecast gap, that is, those who underestimate costs relative to the projection. Both panels are split by the institution type parents report their child is most likely to attend.

To assess accuracy we construct the standardized benchmark described in Section 2. Inflation-adjusted published prices rose by 14% for 2-year public colleges, 24% for 4-year public universities, and 15% for 4-year private non-profit universities over the past two decades (Ma and Pender, 2023).[5] Applying 2023 total costs of $33,000, $140,000, and $198,000 respectively, inflated at 5% annually to the child's expected enrollment year, we define the *forecast gap* as the difference between this projection and the parent's stated expectation.

We find that 77% of parents underestimate the future cost of college relative to this benchmark, by an average of $127,047 (median $118,499). Underestimation is strongly graded by expected institution type: 49% of parents expecting a 2-year community college underestimate, against 88% and 90% for those expecting 4-year public and 4-year private universities. The magnitude of the gap widens correspondingly, from $27,533 for community college to $131,614 and $215,277 for 4-year public and private. Panel (b) of Figure 2 plots the distribution of the gap by type.

Table A.4 confirms that underestimation is concentrated among parents expecting

[5]See also `https://nces.ed.gov/fastfacts/display.asp?id=76` for trends in tuition and fees alone.

a 4-year institution. Two further patterns emerge. Parents of younger children are not more likely to underestimate, but conditional on doing so their gap is larger—consistent with insufficient attention to compounding inflation over longer horizons. And the share underestimating declines modestly as financial literacy rises.

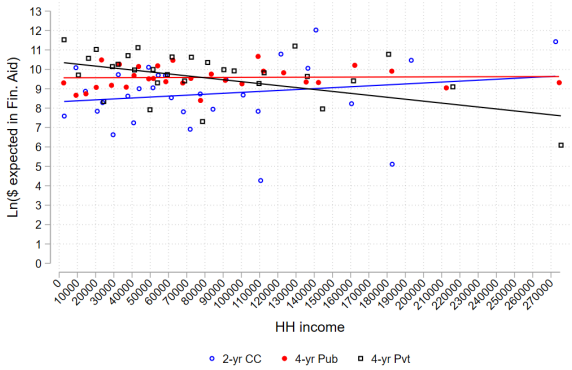
Result 1. Most parents underestimate the future published cost of their children's college education. The underestimation gap is particularly pronounced among parents who expect their children to attend more expensive institutions, such as 4-year public and private universities. This gap is smaller among parents with higher levels of financial literacy.

Expected financial aid. Most parents—92% of the sample—anticipate that their child will receive some financial aid, with expected amounts averaging $49,309 (median $20,000). About 72% expect an amount exceeding the maximum Pell Grant of $7,395 at 2023–24 levels, which points to an optimistic view of aid generosity.[6] Table A.5 and panel (a) of Figure 3 show that expected aid amounts vary with both parental income and expected institution type.

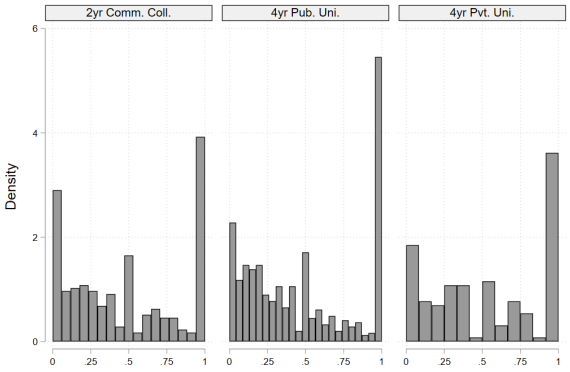
[6]The expectation may be overoptimistic even after accounting for institutional grants the student may receive from public or private universities at the time of enrollment.

Figure 3: Expected financial aid, by household income and college type

(a) Expected amount, by household income



(b) Expected share of total costs covered



Notes. Panel (a) is a binscatter of household income (midpoint of the categorical range) against the log expected amount of financial aid, controlling for the child's age; lines show the linear fit. Panel (b) shows the distribution of the share of subjectively expected future costs that parents expect financial aid to cover, where the top of the scale (100%) includes respondents expecting aid at least as large as their expected total costs. Both panels are split by the institution type parents report their child is most likely to attend.

Beyond amounts, 59% of parents believe aid will cover at least half of costs and 58% believe it will cover the full cost. Higher-income parents are less likely to expect sufficient aid, suggesting some appreciation that aid is means-tested. Parents with higher educational attainment are, by contrast, *more* optimistic. Financial literacy is the most consistent predictor: conditional on income, more literate parents are significantly less likely to believe aid will be sufficient, on both the amount and the share margin. Panel (b) of Figure 3 shows the distribution of the expected aid share of total costs by institution type; the mass at unity comprises respondents expecting aid at least as large as their expected total cost.

Result 2. Parents tend to be overly optimistic about financial aid covering the future costs of their child's college education. This overoptimism is widespread across socio-economic groups, but parents with higher levels of financial literacy exhibit more realistic expectations about the extent of aid their child is likely to receive.

3.2 Belief updating and treatment effects

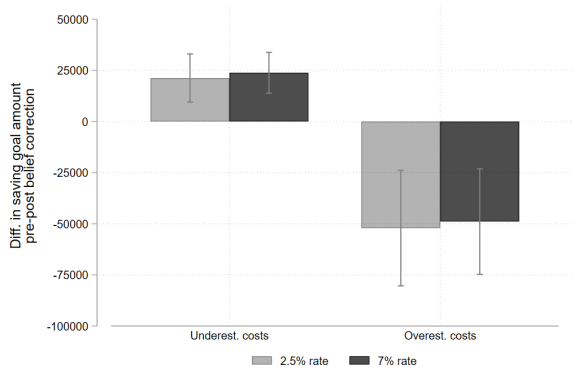
We now turn to saving. Nearly all parents (92%) report wanting to save something toward their child's college costs. Among these, the average goal is $72,282 (median $39,454) by the time the child reaches college age. Parents in the top income quintile report somewhat higher goals, both in dollars and as a share of their own expected total costs (Table A.6). Seeing the loan-repayment consequences at different interest rates does not significantly change these goals, with or without covariates, and this holds across income groups.

One explanation for the absence of a rate effect is that goals are set against cost forecasts that are themselves too low: if a parent believes college will cost $60,000, the residual debt implied at either rate is small enough that the rate is close to irrelevant. We therefore re-ask the saving question under the standardized cost projection, holding the assigned interest rate fixed, and again display the monthly saving and repayment implications.

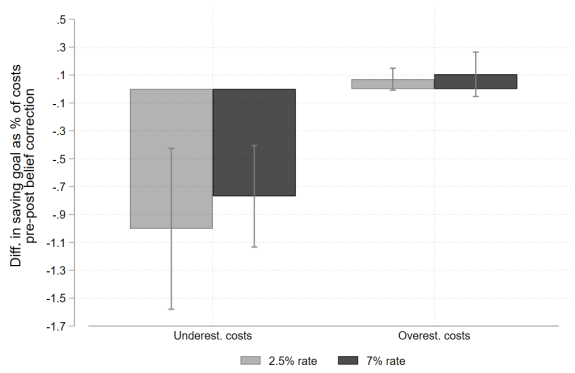
Figure 4 shows how goals change after the correction, in dollars (panel a) and as a share of costs (panel b), separately for parents who initially under- and over-estimated and by treatment arm. Belief correction moves goals substantially more than the rate environment does. Parents who underestimated revise upward on learning the projection. But the gap is often large enough that even a sizeable dollar revision leaves the goal covering a small share of projected costs—the share-of-costs measure falls for underestimators even as the dollar amount rises. Parents who overestimated revise downward while roughly preserving the share of costs they intend to cover.

Figure 4: Saving goal adjustment post-belief correction, by treatment

(a) In dollars



(b) As a share of total costs



Notes. Difference in the stated saving goal before and after parents are shown the standardized cost projection, split by whether they under- or over-estimated costs and by treatment arm. Panel (a) reports the difference in dollars; panel (b) reports it as a share of total costs. Bars show 95% confidence intervals.

Tables A.7 and A.8 report the corresponding regressions, with the change in saving goal as the outcome and the forecast gap and its interaction with treatment as covariates of interest. A wider gap is associated with a larger upward revision in dollars. The coefficient is precisely estimated but small per dollar of gap, which follows from the scale of the gap for most respondents. Parents are responsive to corrective information and act as though they are working toward a target they have in mind.

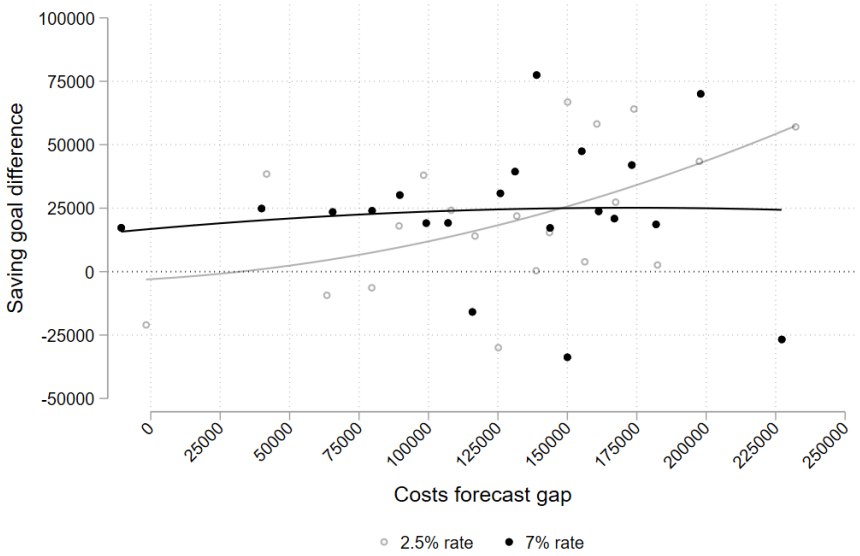
Result 3. Most parents want to save for their child's college education, with their saving goals often anchored to their inaccurate expectations of future college costs. When parents are presented with a more reliable cost estimate, their saving goals adjust accordingly.

In the main specifications, the randomized loan rate has no significant effect on saving goals. Taken alone, this suggests that the prospect of a child's future debt burden, as conveyed through the rate, is a second-order input into how much parents plan to save.

The average, however, conceals an interaction that runs against the standard precautionary logic. While correcting cost beliefs raises saving goals, that response is attenuated for parents assigned the high rate. Figure 5 makes the divergence visible: the

two arms track each other at small forecast gaps and separate as the gap widens, with the high-rate group's revisions flattening while the low-rate group's continue to rise.

Figure 5: Saving goal adjustment, by baseline beliefs and treatment



Notes. Binscatter of the adjustment in the stated saving goal (y-axis) against the forecast gap (x-axis), by treatment arm, controlling for the child's age, the parent's expected institution type, and financial literacy.

The interpretation we favor is a discouragement effect. Learning the true cost raises the target; learning that the residual would be financed at 7% raises the perceived burden on the child. For parents whose gap is small, these two pieces of information are manageable and the response is to save more. For parents whose gap is large, the combination describes a goal they are unlikely to reach attached to a debt burden they do not want their child to carry, and the response is to disengage. Financial literacy cuts the other way throughout: more literate parents make larger adjustments to their goals, indicating greater responsiveness to accurate forecasts and less susceptibility to this reversal.

Result 4. Parents' college saving goals are influenced by the policy environment at the margins; specifically, a higher student loan interest rate discourages parents from increasing their saving goals as the gap between their forecast of future costs and projected costs gets larger.

Incentive-compatible mechanism. The saving measures above are hypothetical. The prize allocation is not. Figure A.2 shows substantial variation in how respondents split the $500 between a 529 deposit and a gift card, with mass at both corners, and Figure A.3 shows that stated saving goals map monotonically onto the share allocated to a deposit. Respondents who told us they intended to save more also chose to commit more real money to a vehicle they cannot costlessly access, which supports the reliability of the stated measures.

On the treatment, the incentivized measure matches the hypothetical one. Figure A.1 shows a precisely estimated null difference between arms in the share of the prize allocated to a 529 deposit. Parents facing the prospect of their child borrowing at 7% rather than 2.5% do not commit more real money to a dedicated college savings account. This holds across income quintiles except at the top, where higher-income parents show a stronger preference for the deposit.

Result 5. Student loan interest rates do not influence parents' interest in college savings accounts, on either stated or incentivized measures.

3.3 Income search and college aspirations

Saving is not the only margin. A parent confronted with a larger target can also try to earn more. We asked respondents who were employed or seeking work about their current or most recent wage and the probability they would seek additional income, through a second job or a better-paid one.

The treatment has a precisely estimated null average effect here as well. Again the average conceals the interaction. Table A.9 shows that among parents whose forecasts were close to the projection, the high-rate condition significantly *increases* willingness to seek additional income. As the forecast gap widens, job-search intentions fall and the treatment effect attenuates and reverses. The discouragement effect thus operates on effort as well as on saving.

The same logic extends to what parents expect of their children. Table A.10 reports posterior beliefs about attendance, conditioning on elicited priors. Assignment to the high rate significantly increases the probability that parents believe their child will not pursue

any higher education, and decreases the probability they expect a 2-year community college or a 4-year public university. The effects are more muted among parents with strong priors, indicating that the rate environment principally moves those who were already uncertain. Table A.11 replicates the analysis on parents with a positive forecast gap and finds the same pattern, with the strongest effect on the probability of attending a 4-year public university—the type for which the forecast gap is largest in absolute terms among the most commonly expected institutions.

Finally, we asked all respondents whether they support student loan forgiveness, since parents might view policy change as a substitute for their own saving. The treatment effect is small and insignificant, and the forecast gap is likewise uncorrelated with support. In separate regressions, support is almost entirely explained by political identity rather than by respondents' own circumstances—a reminder that views about the policy environment and responses to it appeared to be influenced by factors outside of a parents' saving strategy.

Result 6. The policy environment affects parental aspirations for their child's pursuit of a higher education degree and attendance at different types of colleges, with the largest effects among parents holding weaker prior beliefs.

Taken together, Results 1–6 describe a decision in which beliefs do the heavy lifting and the rate environment operates at the margins, principally by interacting with beliefs rather than by shifting behavior on its own. Correcting beliefs raises saving targets and effort; but when the correction reveals a target far out of reach, and the residual is priced at a high rate, the same information discourages. This points to the value of accurate beliefs, which we quantify in a model.

4 A Model of Parental Beliefs and College Saving

The experiment identifies how parents respond to information about costs and to the rate environment. It cannot, on its own, tell us what accurate beliefs are worth in welfare terms, nor whether the responses we observe are consistent with a forward-looking household solving a well-defined problem. This section develops a model that addresses both.

We model a parent's decisions over three periods, during which the parent chooses consumption, labor supply, and savings, followed by a final decision about the type of college their child attends. Schooling outcomes for a child are indexed by $i \in \{0, 1, 2, 3\}$, where $i = 0$ denotes no higher education and $i = 1, 2, 3$ denote a 2-year community college, a 4-year public university, and a 4-year private university respectively. The parent's wage is fixed and homogeneous and is denoted by w. The cost of outcome i is p_i, with the cost of not attending college set to zero ($p_0 = 0$), and the child's subsequent earnings under that outcome are w_i. Including $i = 0$ explicitly is important for what follows, as it makes the extensive margin—whether the child attends any postsecondary institution—an endogenous choice of the parent. This allows the model to speak directly to the attendance outcomes analyzed in Section 3.

The parent enters the final period with assets a, which are endogenous and determined by the dynamic saving decisions made in previous periods. Conditional on schooling choice i, the child's net financial position after paying the college cost is $d = a - p_i$. Thus, $d < 0$ implies that the child must borrow to finance college, whereas $d > 0$ implies that assets remain after college costs are paid. The interest rate applied to this position depends on d:

$$r(d) = \begin{cases} r_f + r_\ell, & \text{if } d \leq 0 \quad \text{(the child borrows)}, \\ r_f, & \text{if } d > 0, \end{cases} \tag{1}$$

where r_f is the risk-free rate and r_ℓ is the student-loan spread. The experimental manipulation maps directly into r_ℓ: the control and treatment arms correspond to a low and a high value of the spread, respectively.

Finally, the parent derives m_i—which we label *pride*—from the child attaining schooling outcome i. This term captures the nonpecuniary value the parent places on a given educational outcome and allows the model to rationalize schooling choices that are not justified by financial returns alone.

The payoff from schooling combines the child's subsequent earnings, the financial position left after college costs are paid, and the parent's pride:

$$G(s, a) = -\exp\left\{-\sum_i \mathbf{1}(s = i)\left[w_i + \gamma\big(1 + r(a - p_i)\big)(a - p_i)\right]\right\} + \sum_i \mathbf{1}(s = i) m_i, \tag{2}$$

where s denotes the chosen schooling outcome and γ governs the weight the parent places on the child's net financial position.

The exponential form makes the parent increasingly averse to leaving the child with a poor financial position, so that the utility cost of a shortfall rises sharply with its size. Discouragement arises in the model not from a weakening of the incentive to save, but from the discrete schooling-choice margin. When a schooling option requires a sufficiently large shortfall and borrowing is sufficiently costly, the outside option $i = 0$ may become preferable. In that case, the parent responds to the higher borrowing cost by choosing no college rather than by fully offsetting it through additional saving.

4.1 The dynamic problem with learning

In the final period, educational costs are revealed, and the parent chooses consumption, labor supply, and the child's educational outcome:

$$V_T(p_1, p_2, p_3, a) = \max_{c,l,s} \log(c) + \zeta \frac{(1-l)^{1-\phi}}{1-\phi} + G(s, a') \tag{3}$$

where $a' = wl + (1+r)a - c$, ζ governs the weight placed on the disutility of labor, and ϕ determines the curvature of the disutility from labor.

In the preceding period, educational costs are uncertain. The parent holds beliefs about each cost p_i, represented by $F_i \sim N(\mu_i, \sigma_i)$. These beliefs may be unbiased, in which case the distribution is centered on the true cost of educational option i, or biased, in which case it is not. Given the vectors of means and standard deviations of cost beliefs, $\boldsymbol{\mu} = [\mu_1, \mu_2, \mu_3]$ and $\boldsymbol{\sigma} = [\sigma_1, \sigma_2, \sigma_3]$, the parent takes expectations over the distribution of possible cost realizations when making current decisions:

$$\begin{aligned} V_{T-1}(\boldsymbol{\mu}, \boldsymbol{\sigma}, a) = \max_{c,l,s} \log(c) + \zeta \frac{(1-l)^{1-\phi}}{1-\phi} \\ + \iiint V_T(p_1, p_2, p_3, a') dF_{1,2,3}(p_1, p_2, p_3 | \boldsymbol{\mu}, \boldsymbol{\sigma}) \end{aligned} \tag{4}$$

again with $a' = wl + (1+r)a - c$. Because our focus is on savings for college, we impose the constraint $a' \geq 0$, ruling out borrowing against future resources to finance current

consumption. This constraint generates a corner solution at $a' = 0$ for households whose unconstrained optimal level of savings would otherwise be negative.

The first period has the same structure but the continuation value is taken over *updated* beliefs, since the parent anticipates receiving information before choosing again:

$$V_1(\boldsymbol{\mu}, \sigma, a) = \max_{c,l} \Bigg\{ \log(c) + \zeta \frac{(1-l)^{1-\phi}}{1-\phi} + \iiint V_2\left(\mu_1'(s_1), \mu_2'(s_2), \mu_3'(s_3), \sigma', a'\right) \, dH(s_1, s_2, s_3 \mid \boldsymbol{\mu}, \sigma) \Bigg\}, \tag{5}$$

Between periods, the parent observes a signal s_i about the cost of each institution type and updates beliefs accordingly. We allow the parent to be uncertain not only about the cost itself, but also about the informativeness of the signal. In particular, parents know that they will receive a signal, but they do not know its true precision. Lacking information about signal quality, they behave as if the signal were drawn with the same variance as their prior belief.

Let the parent's prior belief about the cost of institution type i be

$$p_i \sim N(\mu_i, \sigma_i^2). \tag{6}$$

Under the assumption that the signal has the same perceived variance, $s_i \sim N(p_i, \sigma_i^2)$, standard Bayesian updating implies that the posterior mean places equal weight on the prior mean and the signal:

$$\mu_i' = \frac{\mu_i + s_i}{2}, \qquad \sigma_i^{2\prime} = \frac{\sigma_i^2}{2}. \tag{7}$$

Thus, parents treat the signal as equally informative as their existing information. This updating rule governs both how beliefs change once the signal is observed and, in Equation 3, how parents anticipate the evolution of their beliefs when making decisions in the preceding period.

The objective signal-generating process differs from the one perceived by parents. In the model, signals are drawn according to

$$s_i \sim N(p_i^*, \sigma_i^s), \tag{8}$$

where p_i^* denotes the true cost of institution type i and σ_i^s governs the dispersion of the signal. Parents, however, do not know the true precision of this process. Instead, when forming expectations and updating their beliefs, they behave as if the signal had the same variance as their prior belief. We calibrate σ_i^s separately, allowing the objective signal distribution to be more or less dispersed than the distribution perceived by parents. As a result, parents may place either too much or too little weight on new information relative to what would be implied by Bayesian updating under knowledge of the true signal precision. In particular, when signals are objectively noisier than parents perceive them to be, parents overreact to new information.

This wedge is the model's informational friction, and it is what generates belief revision at empirically relevant magnitudes. Parents are not Bayesian with respect to the true information structure; they are Bayesian with respect to a subjectively assumed one, and because they cannot assess signal quality they systematically over-react to noisy information about college costs. The behavioral counterpart in our experiment is direct. When we show a parent a standardized cost projection, they revise substantially—as documented in Result 3—even though a single projection about an event a decade away is, objectively, a weak signal about what their own child will face. Overconfidence in the informativeness of cost information is what our model contains to reproduce that responsiveness.

Further, because the weight parents place on the signal is fixed at one-half by the subjective rule, the calibrated signal variances σ_i^s are not identified through the *strength* of updating. They are identified through the *dispersion* of posterior beliefs that updating induces across households, which is what the belief-distribution moments in Table 1 discipline.

4.2 Model Calibration

Parents enter the first period with assets drawn from a log-normal distribution calibrated to the asset distribution of parents of young children in our data, and with normally distributed beliefs about the cost of each institution type. The means of those priors are drawn from

log-normal distributions based on observed cost beliefs, with assets and beliefs allowed to covary, and the means of the prior distributions are calibrated parameters.

For the calibration and subsequent quantitative analysis, we divide the model into three periods, corresponding to early, middle, and late childhood. In period one, parents choose consumption and saving. Between periods one and two, they receive a signal drawn from a normal distribution centered on the true cost of each institution type, with variance given by a calibrated parameter, and update their beliefs as described above. In period two, they again choose consumption and saving. Between periods two and three, the true costs are revealed—the analogue of the belief-correction stage of the experiment. In period three, parents choose consumption, saving, and the institution type their child attends.

We calibrate twelve parameters to match thirteen empirical moments by minimizing the sum of squared differences between the empirical and simulated moments. The prior variances (three parameters) and signal variances (three parameters) are calibrated to the distribution of college-cost beliefs among parents of older children—the mean and variance for each institution type, for a total of six moments. The pride parameters (three) target the fraction of parents expecting to send their child to each institution type, three moments. The coefficient on the disutility of labor and the curvature of labor disutility (two) target the mean and variance of college savings held by parents of older children, two moments. Finally, the warm-glow coefficient γ targets the coefficient from a regression of the change in saving intention on the gap between true and believed college costs—the experimental analogue of the belief-correction response documented in Result 3.

Model fit. Table 1 reports the fit of the baseline calibration. Overall, the model reproduces the targeted moments reasonably well. The fit is particularly close for parents' beliefs about college costs: for each institution type, the model closely matches both the mean and the dispersion of beliefs among parents with older children. The model also closely matches mean savings for these households, although it somewhat understates the cross-sectional dispersion of savings.

Table 1: Model fit: targeted moments

Moment	Data	Model
Fraction 2 year college	.2685	.2048
Fraction 4 year public	.5217	.5992
Fraction 4 year private	.1586	.1128
Fraction no college	.0512	.0832
Mean Savings Parents with Older Children	9.56	9.7336
SD Savings Parents with Older Children	1.8	1.27
Mean 2 Year College Cost Beliefs Parents w/ Older Children	10.93	10.6
SD 2 Year College Cost Beliefs Parents w/ Older Children	1.06	1.02
Mean 4 Year Public College Cost Beliefs Parents w/ Older Children	11.5	11.16
SD 4 Year Public College Cost Beliefs Parents w/ Older Children	.97	.973
Mean 4 Year Private College Cost Beliefs Parents w/ Older Children	11.74	11.35
SD 4 Year Private College Cost Beliefs Parents w/ Older Children	.9	.9
Elasticity of Savings with Respect to Knowledge Gap	.416	.2529

Notes. Savings and cost-belief moments are in logs. The "no college" row is the share of simulated households choosing the outside option $i = 0$; it was not targeted in calibration.

Institution type shares and the no-college margin. The model also captures the broad distribution of educational outcomes. Four-year public universities are the modal outcome both in the data and in the model, followed by two-year colleges and four-year private universities. Quantitatively, the model somewhat overpredicts attendance at four-year public universities and underpredicts attendance at two-year and four-year private institutions.

The relative attractiveness of the different institution types is governed in part by the pride parameters. The calibrated value for four-year public universities, $m_2 = 59.72$, is roughly two and a half times as large as the corresponding values for two-year colleges, $m_1 = 22.10$, and four-year private universities, $m_3 = 22.84$. This provides a structural counterpart to a feature of the data that the reduced-form analysis alone cannot explain: four-year public universities are both the most commonly expected destination and substantially more expensive than community colleges. In the model, their popularity therefore reflects not only financial considerations but also the non-pecuniary value parents attach to that outcome.

The no-college margin is particularly informative because it is not directly targeted in the calibration. The calibration disciplines the three college-type shares, while the share choosing the outside option, $i = 0$, is determined endogenously by households' assets, beliefs, preferences, and the constraint $a' > 0$. The baseline model generates a no-college share of

8.32 percent, compared with 5.12 percent in the data. Thus, although the model somewhat overstates the level of non-attendance, it generates a quantitatively meaningful outside option without directly targeting its prevalence.

Responsiveness to the knowledge gap. The targeted moment that the model matches least closely is the elasticity of savings with respect to the knowledge gap. The elasticity is 0.253 in the model, compared with 0.416 in the data. The model therefore reproduces the sign and qualitative pattern documented in the reduced-form analysis—parents whose prior cost beliefs are further from realized costs adjust their savings more strongly—but generates only about three-fifths of the empirical magnitude.

This discrepancy is important for interpreting the quantitative results. Because the model understates the observed responsiveness of savings to belief errors, it generates smaller behavioral adjustments to corrected beliefs than are observed in the data. To the extent that the welfare consequences of misinformation operate through these adjustments, this feature makes the model's quantitative effects conservative rather than mechanically amplifying the role of information.

The elasticity also differs across the simulated interest-rate regimes. It is 0.278 under the high rate and 0.226 under the low rate, whereas the negative treatment-by-gap interaction in Table A.7 indicates that responsiveness to the knowledge gap falls under the high-rate treatment in the experiment. One possible explanation is compositional. The two regimes are solved using identical underlying draws, but the high-rate regime induces some households to exit college altogether. If the households induced to exit are disproportionately those with large forecast gaps, limited assets, and relatively weak intensive-margin savings responses, their removal from the college-going sample mechanically raises the estimated elasticity among those who remain. Under this interpretation, the model expresses part of the reduced-form heterogeneity through an extensive-margin response rather than through a weaker intensive-margin savings response.

Calibrated parameters. Table 2 reports the calibrated parameter values. Several features are worth highlighting. First, the parameters governing the non-pecuniary value of college

attendance are highly asymmetric across institution types. The calibrated pride parameter for four-year public colleges, $m_2 = 59.72$, is substantially larger than those for two-year colleges, $m_1 = 22.10$, and four-year private colleges, $m_3 = 22.84$. As discussed above, this allows the model to rationalize the relatively high demand for four-year public institutions despite their higher cost relative to two-year colleges. The parameter values therefore imply an important role for the non-pecuniary value parents attach to the type of institution their child attends in accounting for observed educational choices.

Second, the belief parameters characterize both the dispersion of parents' initial information and the process through which beliefs evolve as children age. The prior variances, σ_1 to σ_3, govern the dispersion of parents' beliefs about the cost of each institution type at the beginning of the model, while the signal variances, σ_1^s to σ_3^s, govern the dispersion of the cost signals parents receive between periods. These six parameters are jointly disciplined by differences in the means and standard deviations of college-cost beliefs across parents of children of different ages in the survey. In this sense, the cross-sectional age profile of beliefs helps discipline the model's information process: the distribution of beliefs among parents of younger children is informative about the dispersion of initial beliefs, while changes in the distribution of beliefs as children age are informative about the precision of the signals received over time. The calibrated values imply substantial heterogeneity in parents' information about future college costs and relatively noisy signals as children age, so that belief updating is gradual prior to the final revelation of college costs. This allows differences between perceived and actual costs to persist and creates scope for belief correction to affect household behavior.

Finally, the remaining preference parameters govern how households translate these beliefs into saving and labor-supply decisions. The labor-supply parameters, $\zeta = 3.77$ and $\phi = 15.51$, are disciplined by the level and dispersion of savings among parents of older children, while the warm-glow parameter, $\gamma = 11.16$, is disciplined by the observed relationship between the college-cost knowledge gap and changes in intended saving.[7] In the model, γ governs how strongly parents value the child's financial position after enrollment

[7]The calibrated labor-supply parameters imply a median Frisch elasticity of labor supply of 1.6 in our model, with the 25th and 75th percentiles equal to 0.8 and 3.3, respectively.

and therefore helps generate the positive saving response to unexpectedly high college costs documented in the experiment. Because these parameters enter different components of the household problem and are measured in different units, their absolute magnitudes should not be compared directly. Their role is instead to jointly reproduce the observed distribution of beliefs, savings, educational choices, and responses to information that discipline the model.

Table 2: Calibrated parameter values

Parameter	Value
Coefficient on Disutility from Labor (ζ)	3.77
Curvature of Disutility from Labor (ϕ)	15.51
Warm Glow (γ)	11.16
Variance of Prior for 2 Yr College (σ_1)	.3175
Variance of Prior for 4 Yr Pub College (σ_2)	.1060
Variance of Prior for 4 Yr Priv College (σ_3)	6.7
Variance of Signal for 2 Yr College (σ_1^s)	49.72
Variance of Signal for 4 Yr Pub College (σ_2^s)	48.16
Variance of Signal for 4 Yr Priv College (σ_3^s)	28.36
Pride 2 Yr College (m_1)	22.10
Pride 4 Yr Pub College (m_2)	59.72
Pride 4 Yr Priv College (m_3)	22.84

Notes. The table reports the twelve parameters calibrated via the simulated method of moments targeting the thirteen moments in Table 1.

Responses to the student loan interest rate. We next use the interest-rate experiment to evaluate an implication of the calibrated model that was not directly targeted in the calibration. Table 3 compares the responses of educational demand to low- and high-interest-rate environments in the model and the experiment. In the experiment, parents were randomly assigned to either the low- or high-interest-rate scenario, and Column (4) reports the resulting treatment effects on changes in their stated probabilities of each educational outcome. In the model, we instead solve each household's problem under both interest-rate regimes, holding fixed the exogenous draws of initial assets and prior beliefs while varying only the student loan interest rate. This allows us to construct counterfactual educational choices for the same households under the two interest-rate regimes. We then compare the causal responses identified through random assignment in the experiment with the corresponding responses generated by the calibrated model through simulation.

Table 3: Educational Demand under Low and High Student Loan Interest Rates: Model and Data

	Model			
	Low R	High R	(2)−(1)	Experimental Treatment Effects (Posteriors − Priors)
Fraction no college	.0768	.0888	.0120	.0218
				(.0138)
Fraction 2 year college	.2064	.2076	.0012	−.0436
				(.0149)
Fraction 4 year public	.6076	.5912	−.0164	−.0144
				(.0149)
Fraction 4 year private	.1092	.1124	.0032	−.0089
				(.0149)

Notes. Columns (1) and (2) report the simulated share of households choosing each schooling outcome under the low (2.5%) and high (7%) student loan rate regimes; neither regime was targeted in calibration. The simulation draws 2,500 households and repeats the exercise 100 times, and both regimes are solved on the same draws of assets and prior beliefs, varying only the student loan spread r_ℓ. Column (3) reports the difference between the two regimes. Column (4) reports the estimated treatment effect on the change between parents' prior and posterior hypothetical educational choices in the survey data, with robust standard errors in parentheses.

The objects in Columns (3) and (4) are not directly comparable quantitatively: the model reports changes in simulated discrete schooling choices, while the experiment measures changes in parents' stated probabilities of different educational outcomes. We therefore focus on the broad patterns of adjustment rather than the exact magnitude of each response.

The main finding is that both the model and the experiment imply a decline in college demand when student loan interest rates increase. In the model, raising the interest rate from 2.5 to 7 percent increases the share of households choosing no college by 1.20 percentage points, compared with a 2.18 percentage-point increase in the stated probability of no college in the experiment. The two exercises also produce remarkably similar responses for four-year public colleges: the model predicts a decline of 1.64 percentage points, compared with 1.44 percentage points in the experimental data. Thus, although responses differ across individual college types, the model captures the central pattern observed in the experiment: higher borrowing costs reduce the demand for college education.

The main differences arise in how households adjust their choices across college types. In the experiment, higher interest rates reduce the stated probabilities of attending both two-year and four-year private colleges, with the largest decline occurring for two-year institutions.

In the model, the shares choosing these alternatives instead remain approximately unchanged. Hence, while the model does not fully reproduce the substitution patterns across specific institutions, it captures the broader response of educational demand to changes in financing conditions. This correspondence is particularly informative given that the experimental responses to interest rates were not targeted in the calibration.

More broadly, the relatively modest average responses to student loan interest rates admit several interpretations. One possibility is that parents pay limited attention to interest rates or that their stated saving decisions are relatively insensitive to the experimental variation. The model highlights an additional mechanism: even forward-looking households may respond only modestly to higher borrowing costs because adjustments in educational choices partly offset the incentive to increase precautionary savings. In particular, households can respond to more expensive borrowing by choosing less costly educational options or foregoing college altogether, thereby limiting the additional savings needed to finance their children's education.

This adjustment mechanism, however, operates conditional on households' beliefs about future college costs. When those beliefs are biased, households may make optimal decisions given their information while nevertheless choosing educational and saving plans that differ from those they would select under accurate beliefs. Thus, the ability to adjust educational choices in response to financing conditions does not eliminate the potential welfare costs of misinformation. In the next section, we use the calibrated model to quantify these costs and the welfare gains from providing parents with accurate information about college costs.

4.3 The Value of Correct Beliefs

The empirical results in Section 3 document systematic biases in parents' beliefs about college costs and show that correcting these beliefs affects their educational and financial decisions. Section 4 establishes that a forward-looking model calibrated to these data can reproduce the main experimental patterns. We now use the model to address a question that the experiment cannot answer directly: how much would parents benefit from having accurate beliefs about college costs?

To quantify these benefits, we compute, for each household, the compensating subsidy required to make a parent with their actual, potentially mistaken beliefs as well off as they would be with correct beliefs. This provides a money-metric measure of the welfare cost of misperceptions, allowing us to assess not only their average importance but also how these costs vary across households. The average compensating subsidy is approximately \$1,700, with a median of about \$1,000. The difference between the mean and median reflects a right-skewed distribution: while the welfare costs of mistaken beliefs are relatively modest for most households, they are substantially larger for some. Two patterns help explain this heterogeneity.

First, welfare losses increase with the absolute magnitude of belief errors. Parents whose initial beliefs deviate more from actual college costs generally require greater compensation. Larger errors can generate more substantial distortions in savings decisions before accurate information becomes available and can also lead parents to select educational options they would not have chosen under correct beliefs. Thus, even when parents eventually learn the true costs, earlier decisions made under mistaken beliefs can have lasting welfare consequences. Second, the welfare cost of mistaken beliefs varies non-monotonically with household resources. Table 4 reports the average compensating subsidy by decile of assets measured during the child's early childhood, corresponding to the first period of the model.

Table 4: Compensating subsidy for correct beliefs, by initial asset decile

Initial assets	Mean subsidy	Mean assets
Zero assets	1.181	0.000
Decile 1	0.862	0.036
Decile 2	0.815	0.113
Decile 3	0.660	0.220
Decile 4	0.584	0.388
Decile 5	0.670	0.641
Decile 6	0.793	1.061
Decile 7	1.392	1.759
Decile 8	2.353	3.071
Decile 9	4.365	6.239
Decile 10	5.976	34.100

Notes. All figures in thousands of dollars. The compensating subsidy is the transfer that leaves a parent with their actual beliefs as well off as with correct beliefs. The zero-asset group comprises N = 59,000 simulated households.

The relationship between initial assets and the value of accurate beliefs is U-shaped. Households with zero assets require an average subsidy of $1,181, which declines to a minimum of $584 in the fourth decile before increasing sharply to $5,976 in the top decile. This pattern suggests that mistaken beliefs can be particularly consequential at both ends of the asset distribution, although for different reasons. For households with limited resources, inaccurate cost expectations may affect whether saving for college or pursuing higher education appears financially feasible in the first place. Belief errors can therefore influence decisions at the extensive margin, even when the amounts households can save are relatively small. Wealthier households, by contrast, have greater capacity to adjust their savings and educational investments in response to information. As a result, mistaken beliefs can distort decisions involving substantially larger financial resources, generating greater welfare losses in dollar terms. Households in the middle of the asset distribution face neither the same degree of financial constraint nor the same absolute financial stakes, helping explain their smaller compensating subsidies.

These findings have implications for the design of information interventions. In particular, the value of correcting beliefs is far from uniform across households. The estimated welfare gains are approximately ten times larger for households in the top asset decile than for those in the fourth decile, and about twice as large for households with no assets. This heterogeneity suggests that information policies could generate larger aggregate welfare gains if outreach were directed toward households with the greatest potential benefits. At the same time, the appropriate targeting strategy depends on the policy objective: interventions aimed at improving access to higher education may place greater weight on financially constrained households, even if the largest absolute welfare gains accrue to wealthier families.

An important question, then, is which households are more likely to hold inaccurate beliefs in the first place. Although the model takes initial beliefs as given, the experimental data provide suggestive evidence on the characteristics associated with belief accuracy. One particularly consistent predictor is financial literacy, measured using the three questions developed by Lusardi and Mitchell (2014).

Financial literacy is associated with more accurate beliefs and different responses to information across several dimensions. More financially literate parents are less likely to

underestimate college costs and, conditional on underestimating, exhibit smaller belief errors (Result 1). They are also less likely to hold overly optimistic expectations about financial aid covering half or all college expenses, even conditional on household income (Result 2). Moreover, more financially literate respondents adjust their saving goals more strongly when presented with standardized cost projections (Result 3) and appear less susceptible to the discouragement effects associated with higher student loan interest rates (Result 4). Together, these patterns suggest that financial literacy is related not only to the accuracy of initial beliefs but also to how parents process and respond to new information.

Additional evidence comes from respondents' engagement with the calculator. Using unobtrusive timers, we measured the time respondents spent reviewing the calculator's output before confirming their choices. During the first round, when projections were based on respondents' own cost expectations, engagement was similar across experimental groups. In the second round, after respondents received standardized cost information, those assigned to the high-interest-rate treatment spent slightly less time reviewing the results. This pattern is consistent with the discouragement response observed in the experimental outcomes. Across both rounds, higher financial literacy was associated with longer engagement, providing further suggestive evidence that financially literate respondents devoted greater attention to the financial implications of their choices.

These relationships should not be interpreted as causal effects of financial literacy. The three-question measure captures several potentially related characteristics, including numeracy, education, and attentiveness, and the observed associations, although robust to controlling for income, need not reflect the independent role of financial knowledge. Moreover, financial literacy is not explicitly incorporated into the structural model. Consequently, the compensating subsidies reported in Table 4 measure the welfare value of *correct beliefs*, rather than the returns to financial literacy itself. Nevertheless, the empirical associations suggest that financial literacy may help identify households more likely to hold inaccurate beliefs or to respond differently to information. They also highlight the potential importance of how information is communicated, beyond its accuracy alone. Complementary evidence from Briscese et al. (2025) shows that better-calibrated beliefs about future college costs and financial aid are associated with both 529 account opening and contribution amounts

in administrative records, suggesting that the relevance of accurate beliefs extends beyond stated intentions in a survey setting.

A distinctive feature of our experimental design is that respondents received an interactive financial planning tool rather than information alone. Parents could revisit the calculator as often as they wished and explore how alternative educational goals translated into monthly saving requirements for themselves and future student loan repayments for their children. This feature allowed respondents to connect information about college costs to their own financial decisions. The qualitative feedback suggests that respondents valued this opportunity. Notably, 69% completed the optional final comments field, despite receiving no additional compensation. The feedback was overwhelmingly positive: many respondents described the exercise as informative or clarifying, several indicated that it prompted them to reconsider their saving plans, and others explicitly expressed appreciation for the calculator. Figure A.4 summarizes the most frequently used terms. Suggestions for improvement primarily concerned additional sources of college financing not included in the model, such as children's earnings while enrolled and contributions from other family members.

This feedback also provides useful evidence on the quality of survey responses. Given the complexity of the exercise, the median completion time of 16 minutes might raise questions about the attention respondents devoted to the task. However, the high rate of voluntary feedback and the substantive nature of the comments suggest meaningful engagement with the material. In particular, many respondents chose to devote additional, uncompensated time to reflecting on the exercise at the very end of the survey, when there was little incentive to continue. Together with the timer data, these patterns are difficult to reconcile with widespread inattentive responding. More broadly, they suggest that respondents engaged with the calculator as a financial planning tool, rather than simply treating it as another survey task.

Taken together, the model and experimental evidence suggest that correcting misperceptions about college costs can generate meaningful welfare gains, and that providing parents with tools to translate accurate information into concrete financial decisions may be an important component of effective information interventions.

5 Conclusions

This paper asked how parental beliefs and the policy environment shape saving for a child's college education. Using a survey experiment with a sample of Illinois parents, combined with administrative data on the state's 529 plans and a calibrated structural model, we provide a set of novel findings.

Parents want to support their children's education and intend to save for it, but many hold beliefs that may lead them to save inadequately: 77% underestimate the published cost of the institution type they expect their child to attend, and a majority are overly optimistic about how much financial aid will cover. These beliefs are consequential, as saving goals are strongly correlated with parents' cost expectations. They are also malleable: when shown a standardized cost projection, parents revise their saving goals and report greater willingness to seek additional income.

Greater parental savings also translate into lower student loan debt for their children. However, we find that a higher student loan interest rate has no average effect on willingness to save—a null result we observe both in stated saving goals and in an incentivized allocation of real money, and one that the calibrated model reproduces. Yet this average effect masks important heterogeneity. Among parents whose initial beliefs were relatively accurate, the higher rate increases willingness to seek additional income and save more. Among those who learn simultaneously that college will cost substantially more than anticipated and that the remaining costs will be more expensive to finance, it reduces saving adjustments, willingness to seek additional income, and stated aspirations for their child's college attendance. The model reproduces this pattern as well: the fraction of simulated children not attending college rises under the higher interest rate, consistent with the reduced-form estimates based on parents' posterior beliefs.

Correct beliefs also have measurable welfare value. The compensating subsidy required to make a parent with mistaken beliefs as well off as one with accurate beliefs averages approximately $1,700, increases with the magnitude of belief errors, and is U-shaped in initial assets. Welfare costs are particularly large for asset-poor households, for whom beliefs may determine whether college is financially feasible, and for asset-rich households,

for whom the amounts at stake are larger. Because the model understates the observed responsiveness to belief correction, these estimates may understate the full welfare benefits of accurate beliefs.

Two policy implications follow. First, information has value, and that value is unevenly distributed: targeting outreach toward households at the tails of the asset distribution could generate substantially larger welfare gains than uniform provision. Second, and more cautiously, adverse news about the financing environment can backfire among households whose beliefs are least accurate. A rate increase, or information emphasizing future debt burdens, may discourage precisely those parents who most underestimate college costs. Correcting cost beliefs before, or alongside, communicating information about financing conditions may therefore be particularly important.

More broadly, our results highlight a determinant of educational investment that operates alongside income and financial constraints. Whether a family saves adequately depends not only on what it can afford but also on what it believes it will need—and those beliefs may be systematically biased in ways that lead to undersaving. Financial literacy is the characteristic most consistently associated with more accurate beliefs. Making beliefs an explicit consideration in educational finance policy, and understanding the factors that help households form accurate expectations, represents a promising direction for future research.

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A Appendix

Table A.1: Survey sample and Illinois population, selected characteristics

Characteristic	Survey sample (N = 1,020)	Illinois parents (ACS PUMS)
Respondent		
Female	0.556	0.534
Age 18–34	0.290	0.245
Age 35–44	0.464	0.437
Age 45–64	0.233	0.314
Age 65+	0.013	0.003
Race and ethnicity		
White, non-Hispanic	0.560	0.592
Black, non-Hispanic	0.213	0.105
Hispanic	0.155	0.206
Asian, non-Hispanic	0.035	0.074
Other or multiple, non-Hispanic	0.037	0.024
Educational attainment		
High school or less	0.201	0.286
Some college	0.286	0.277
College degree	0.326	0.252
Postgraduate	0.187	0.185
Household		
Income < $20K	0.118	0.052
Income $20–50K	0.253	0.139
Income $50–80K	0.234	0.151
Income $80–125K	0.183	0.220
Income > $125K	0.212	0.439
Number of children under 18	1.825	1.873

Notes. Column 1 reports means for the survey sample. Column 2 reports the corresponding statistic for the Illinois population of adults who are the householder, or the spouse or unmarried partner of the householder, in a household containing an own child aged 17 or younger, computed by the authors from the American Community Survey 2018–2022 5-year Public Use Microdata Sample for Illinois (`ST=17`); this universe is not available in pretabulated ACS products. Point estimates use person weights, and replicate-weight standard errors are below 0.003 for every share reported. Household income is expressed in constant dollars using `ADJINC`. We use the 2018–2022 vintage because it is the same vintage used to anchor the expected-earnings questions in the survey instrument, which keeps the two sets of estimates internally consistent. It does, however, predate the August–September 2024 fielding date by two to six years, and nominal income growth over that interval moves households upward across fixed nominal thresholds: part of the difference in the income distribution between columns 1 and 2 is therefore attributable to the comparison period rather than to sample composition. The survey's own income bands ($21–50K, $51–80K, $81–125K) are matched to the nearest PUMS cutpoints, which introduces a further small discrepancy. Educational attainment groups associate's degrees with "some college." Race and ethnicity categories are mutually exclusive; respondents selecting more than one race are assigned to "other or multiple." *Sources:* authors' survey; ACS 2018–2022 5-year PUMS, `https://www.census.gov/programs-surveys/acs/microdata/access.html`.

Table A.2: Balance table

Variable	Control	Treatment	Diff p-value
HH educ.: HS or less	0.201	0.200	0.986
	(0.401)	(0.401)	
HH educ.: some college	0.301	0.272	0.295
	(0.459)	(0.445)	
HH educ.: college	0.303	0.346	0.141
	(0.460)	(0.476)	
HH educ.: postgrad	0.195	0.182	0.595
	(0.396)	(0.386)	
HH Inc.<$20K	0.131	0.105	0.195
	(0.338)	(0.307)	
HH Inc.$21-50K	0.252	0.253	0.978
	(0.435)	(0.435)	
HH Inc.$51-80K	0.230	0.238	0.754
	(0.421)	(0.426)	
HH Inc.$81-125K	0.178	0.187	0.711
	(0.383)	(0.390)	
HH Inc.>$125K	0.209	0.217	0.749
	(0.407)	(0.413)	
Fin. Lit. Score 0/3	0.203	0.215	0.624
	(0.403)	(0.411)	
Fin. Lit. Score 1/3	0.432	0.391	0.184
	(0.496)	(0.489)	
Fin. Lit. Score 2/3	0.248	0.285	0.185
	(0.432)	(0.452)	
Fin. Lit. Score 3/3	0.117	0.109	0.68
	(0.322)	(0.311)	
Female	0.566	0.545	0.508
	(0.496)	(0.498)	
Resp. age 18-34	0.291	0.288	0.927
	(0.455)	(0.453)	
Resp. age 35-44	0.434	0.491	0.072
	(0.496)	(0.500)	
Resp. age 45-64	0.260	0.210	0.058
	(0.439)	(0.408)	
Resp. age 65+	0.014	0.011	0.66
	(0.119)	(0.106)	
2yr Comm. Coll.	0.305	0.281	0.392
	(0.461)	(0.450)	
4yr Pub. Uni.	0.529	0.577	0.123
	(0.500)	(0.495)	
4yr Pvt. Uni.	0.166	0.142	0.297
	(0.372)	(0.350)	
Years to college	7.039	7.178	0.659
	(5.133)	(4.921)	
N	488	532	

Notes. The table reports a balance test between the control and the treatment group respondents' characteristics. College types refers to the respondents' expectation of the child's most likely type of college to attend. Years to college is the child's years left until reaching college age.

Table A.3: Expected costs of college

	Expected college costs
HH educ.: some college	8,185
	(14,685)
HH educ.: college	11,283
	(14,864)
HH educ.: postgrad	26,488
	(18,629)
HH Inc.$21-50K	-14,270
	(22,530)
HH Inc.$51-80K	-34,809*
	(20,390)
HH Inc.$81-125K	-23,744
	(22,972)
HH Inc.>$125K	-1,660
	(24,628)
Fin. Lit. Score (out of 3) = 1	-233.8
	(13,457)
Fin. Lit. Score (out of 3) = 2	23,674*
	(14,112)
Fin. Lit. Score (out of 3) = 3	40,810
	(27,875)
Female	18,473*
	(10,722)
Resp. age 35-44	4,960
	(12,403)
Resp. age 45-64	5,484
	(14,306)
Resp. age 65+	-41,123*
	(21,704)
Expects child to attend 4yr Pub. Uni.	21,716*
	(12,059)
Expects child to attend 4yr Pvt. Uni.	45,371**
	(20,558)
Child's years to college	1,720
	(1,138)
Constant	55,487*
	(29,090)
Observations	1,020
R-squared	0.039

Notes. The table reports the OLS estimates of the correlates of the child's expected college costs. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A.4: Expected vs. objective college costs gap

	(1)	(2)
	Underest. college costs	College costs underst. gap
HH educ.: some college	-0.0666*	-8,636
	(0.0381)	(14,879)
HH educ.: college	-0.0453	-11,180
	(0.0393)	(14,983)
HH educ.: postgrad	-0.0116	-20,865
	(0.0453)	(18,971)
HH Inc.$21-50K	0.0345	12,181
	(0.0435)	(22,739)
HH Inc.$51-80K	0.0186	30,033
	(0.0456)	(20,689)
HH Inc.$81-125K	-0.0234	16,662
	(0.0496)	(23,169)
HH Inc.>$125K	-0.0422	-6,002
	(0.0516)	(24,979)
Fin. Lit. Score (out of 3) = 1	-0.0183	-3,446
	(0.0309)	(13,556)
Fin. Lit. Score (out of 3) = 2	-0.0748**	-24,685*
	(0.0366)	(14,355)
Fin. Lit. Score (out of 3) = 3	-0.0193	-39,027
	(0.0437)	(28,094)
Female	-0.0273	-16,287
	(0.0247)	(10,964)
Resp. age 35-44	-0.0482*	-3,516
	(0.0285)	(12,690)
Resp. age 45-64	-0.0586	-926.8
	(0.0359)	(14,573)
Resp. age 65+	0.0561	56,985**
	(0.111)	(24,454)
Expects child to attend 4yr Pub. Uni.	0.402***	132,142***
	(0.0327)	(12,266)
Expects child to attend 4yr Pvt. Uni.	0.425***	198,032***
	(0.0399)	(21,137)
Child's years to college	0.00290	7,373***
	(0.00248)	(1,164)
Constant	0.577***	-67,595**
	(0.0598)	(29,504)
Observations	1,020	1,020
R-squared	0.206	0.199

Notes. The table reports the OLS estimates of the correlates on a dummy flagging whether the respondent underestimated the future college costs of their child by any positive amount; column (2) reports the OLS estimates with the subjective-objective cost gap as outcome variable. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A.5: Expected financial aid

	(1)	(2)	
	Exp. fin. aid amount	Exp. probability fin. aid will cover 50% of future costs	Exp. probability fin. aid will cover 100% of future costs
HH educ.: some college	-8,485	0.0154	0.00352
	(9,382)	(0.0262)	(0.0267)
HH educ.: college	-6,449	0.0502*	0.0268
	(11,655)	(0.0277)	(0.0297)
HH educ.: postgrad	14,323	0.105***	0.0666*
	(15,362)	(0.0338)	(0.0359)
HH Inc.$21-50K	-718.8	-0.00391	-0.0119
	(10,619)	(0.0311)	(0.0320)
HH Inc.$51-80K	-211.6	-0.0529	-0.0484
	(12,869)	(0.0328)	(0.0339)
HH Inc.$81-125K	2,957	-0.0723**	-0.0913**
	(12,205)	(0.0368)	(0.0387)
HH Inc.>$125K	20,181	-0.0743**	-0.0761*
	(14,182)	(0.0375)	(0.0388)
Fin. Lit. Score (out of 3) = 1	-6,538	0.0295	0.0281
	(10,558)	(0.0223)	(0.0236)
Fin. Lit. Score (out of 3) = 2	-17,402	0.0106	-0.0370
	(11,899)	(0.0252)	(0.0270)
Fin. Lit. Score (out of 3) = 3	-33,833**	-0.0632*	-0.130***
	(14,257)	(0.0330)	(0.0350)
Female	-14,133**	-0.00117	-0.0179
	(6,847)	(0.0181)	(0.0190)
Resp. age 35-44	6,351	0.0203	0.0212
	(6,278)	(0.0211)	(0.0223)
Resp. age 45-64	14,906	-0.00632	-0.0255
	(10,102)	(0.0264)	(0.0277)
Resp. age 65+	7,408	0.173**	0.122
	(19,605)	(0.0789)	(0.0915)
Expects child to attend 4yr Pub. Uni.	12,695	0.0839***	0.0752***
	(8,203)	(0.0214)	(0.0221)
Expects child to attend 4yr Pvt. Uni.	30,858*	0.0714**	0.0373
	(17,042)	(0.0290)	(0.0313)
Child's years to college	10.55	-0.000421	-0.00194
	(629.0)	(0.00191)	(0.00197)
Constant	47,242***	0.525***	0.590***
	(16,118)	(0.0411)	(0.0433)
Observations	1,020	1,020	1,020
R-squared	0.044	0.045	0.055
Mean dep. var.	*$49,309*	*59%*	*58%*

Notes. The table reports the OLS estimates of the correlates on (1) the dollar amount of financial aid the child will receive, (2) the percent chance the financial aid package will cover up to 50% of total costs, and (3) the percent chance the financial aid package will cover 100% of total costs. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A.6: College saving goal under subjective costs expectations

	(1)	(2)	(3)	(4)
	College saving goal	College saving goal	College saving goal as % of expected costs	College saving goal as % of expected costs
Treatment (higher student loan interest rate)	-3,898	-4,157	0.0225	0.0181
	(8,486)	(8,518)	(0.0227)	(0.0216)
HH educ.: some college		1,654		-0.0423
		(10,385)		(0.0339)
HH educ.: college		5,582		0.0104
		(9,924)		(0.0361)
HH educ.: postgrad		32,066*		0.0321
		(17,877)		(0.0444)
HH Inc.$21-50K		-14,060		0.0297
		(15,283)		(0.0418)
HH Inc.$51-80K		-12,066		0.0494
		(15,202)		(0.0432)
HH Inc.$81-125K		-286.7		0.131***
		(16,171)		(0.0477)
HH Inc.>$125K		32,811*		0.184***
		(18,913)		(0.0499)
Fin. Lit. Score (out of 3) = 1		-4,613		-0.0345
		(12,531)		(0.0303)
Fin. Lit. Score (out of 3) = 2		-6,288		-0.102***
		(12,538)		(0.0319)
Fin. Lit. Score (out of 3) = 3		-19,662		-0.0822**
		(14,999)		(0.0395)
Female		-11,584		-0.127***
		(8,881)		(0.0228)
Resp. age 35-44		2,714		-0.0317
		(10,440)		(0.0286)
Resp. age 45-64		-1,952		-0.0745**
		(11,453)		(0.0336)
Resp. age 65+		-30,791*		-0.106
		(18,432)		(0.109)
Expects child to attend 4yr Pub. Uni.		17,066*		-0.0200
		(8,940)		(0.0266)
Expects child to attend 4yr Pvt. Uni.		47,445***		0.0743**
		(18,220)		(0.0369)
Child's years to college		1,684*		0.00301
		(981.9)		(0.00239)
Constant	68,645***	43,138**	0.546***	0.601***
	(6,241)	(20,352)	(0.0165)	(0.0576)
Observations	1,020	1,020	1,020	1,020
R-squared	0.000	0.069	0.001	0.115
Mean dep. var.	*66613*	*66613*	*0.557*	*0.557*

Notes. The table reports the results of an OLS regression on parents' saving goal. In columns (1) and (2) the dependent variable is the saving goal amount, with and without controls respectively. In columns (3) and (4) the dependent variable is the saving goal as a percentage of the total expected costs. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A.7: College saving goal difference post-belief correction intervention

	(1)	(2)	(3)	(4)
	Δ	Δ	Δ	Δ
	saving goal	saving goal	saving goal	saving goal
Treatment (higher student loan interest rate)	3,897	3,227	1,545	11,985
	(7,784)	(7,984)	(7,274)	(10,629)
Costs forecast gap			0.316***	0.399***
			(0.0649)	(0.0625)
Treatment * costs forecast gap				-0.155*
				(0.0930)
Constant	3,665	-56,926***	-34,736**	-39,327**
	(5,886)	(18,181)	(15,117)	(15,421)
Controls	No	Yes	Yes	Yes
Observations	1,020	1,020	1,020	1,020
R-squared	0.000	0.026	0.201	0.213
Mean dep. var.	*5697*	*5697*	*5697*	*5697*

Notes. The table reports the results of an OLS regression on the difference in parents' saving goal before and after cost forecast correction, with and without controls in columns (1) and (2) respectively. Column (3) controls for the forecast gap, and column (4) for the interaction between the forecast gap and the treatment dummy, both accounting for controls. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A.8: College saving goal (as share of costs) difference post-belief correction intervention

	(1)	(2)	(3)	(4)
	Δ	Δ	Δ	Δ
	saving goal	saving goal	saving goal	saving goal
Treatment (higher student loan interest rate)	0.172	0.173	0.185	0.150
	(0.268)	(0.276)	(0.277)	(0.246)
Costs forecast gap			-0.000***	-0.000***
			(0.000)	(0.000)
Treatment * costs forecast gap				0.000
				(0.000)
Constant	-0.745***	-1.106**	-1.273***	-1.258***
	(0.225)	(0.470)	(0.488)	(0.477)
Controls	No	Yes	Yes	Yes
Observations	1,020	1,020	1,020	1,020
R-squared	0.000	0.022	0.031	0.031
Mean dep. var.	*-0.656*	*-0.656*	*-0.656*	*-0.656*

Notes. The table reports the results of an OLS regression on the difference in parents' saving goal (as share of costs) before and after cost forecast correction, with and without controls in columns (1) and (2) respectively. Column (3) controls for the forecast gap, and column (4) for the interaction between the forecast gap and the treatment dummy, both accounting for controls. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A.9: Income effect

	(1)	(2)	(3)	(4)	(5)
	Percent chance parent will seek higher income	Percent chance parent will seek higher income	Percent chance parent will seek higher income	Percent chance parent will seek higher income	Percent chance parent will seek higher income
Treatment (higher student loan interest rate)	0.00524	0.00364	0.00392	2.193	18.67***
	(0.0187)	(0.0186)	(0.0185)	(1.782)	(7.109)
Ln (costs forecast gap)			-0.113**	-0.0323	0.795
			(0.0491)	(0.0805)	(0.488)
Treatment * ln (costs forecast gap)				-0.151	-1.282***
				(0.123)	(0.488)
Constant	0.605***	0.595***	2.230***	1.054	-11.03
	(0.0137)	(0.0476)	(0.711)	(1.172)	(7.077)
Controls	No	Yes	Yes	Yes	Yes
Observations	964	964	964	964	746
R-squared	0.000	0.058	0.061	0.062	0.069
Mean dep. var.	*0.608*	*0.608*	*0.608*	*0.608*	*0.608*

Notes. The table reports the results of an OLS regression on the parents' reported percent chance they will seek extra sources of income to increase their contributions to their child's college savings. The regressions are on the subset of respondents who report being working or currently looking for work. Column (5) regression further subsets the sample to include only those who also report a positive cost forecast gap.
Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A.10: Posterior beliefs on college attendance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Posterior beliefs no college	Posterior beliefs no college	Posterior beliefs 2-year CC	Posterior beliefs 2-year CC	Posterior beliefs 4-year Pub.	Posterior beliefs 4-year Pub.	Posterior beliefs 4-year Pvt.	Posterior beliefs 4-year Pvt.
Treatment (higher student loan interest rate)	0.0216*	0.0193	-0.00243	-0.0360*	-0.0149	-0.0617***	-0.00336	-0.0144
	(0.0122)	(0.0142)	(0.0124)	(0.0212)	(0.0127)	(0.0237)	(0.00917)	(0.0120)
Prior beliefs	0.549***	0.543***	0.615***	0.560***	0.532***	0.458***	0.570***	0.537***
	(0.0411)	(0.0574)	(0.0393)	(0.0553)	(0.0385)	(0.0547)	(0.0498)	(0.0704)
Treatment * Priors		0.0132		0.111*		0.135**		0.0656
		(0.0774)		(0.0655)		(0.0636)		(0.0718)
Constant	0.150***	0.151***	0.117***	0.135***	0.0917***	0.113***	0.0611**	0.0659***
	(0.0360)	(0.0368)	(0.0378)	(0.0399)	(0.0291)	(0.0313)	(0.0239)	(0.0244)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020
R-squared	0.377	0.377	0.451	0.453	0.460	0.464	0.501	0.502

Notes. The table reports the results of an OLS regression on the parents' posterior beliefs on college attendance (0-100 scale) regressed on prior beliefs, elicited on the same scale, and treatment. Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table A.11: Posterior beliefs on college attendance on parents with a positive costs forecast gap

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Posterior beliefs no college	Posterior beliefs no college	Posterior beliefs 2-year CC	Posterior beliefs 2-year CC	Posterior beliefs 4-year Pub.	Posterior beliefs 4-year Pub.	Posterior beliefs 4-year Pvt.	Posterior beliefs 4-year Pvt.
Treatment (higher student loan interest rate)	0.0173	0.0186	-0.0123	-0.0353	-0.00302	-0.0664**	-0.00121	-0.0152
	(0.0128)	(0.0146)	(0.0142)	(0.0238)	(0.0147)	(0.0281)	(0.0106)	(0.0143)
Prior beliefs	0.523***	0.527***	0.583***	0.542***	0.545***	0.447***	0.592***	0.552***
	(0.0452)	(0.0642)	(0.0474)	(0.0661)	(0.0435)	(0.0633)	(0.0545)	(0.0761)
Treatment * Priors		-0.00764		0.0818		0.175**		0.0762
		(0.0846)		(0.0811)		(0.0732)		(0.0764)
Constant	0.156***	0.155***	0.158***	0.170***	0.0674**	0.0982***	0.0622**	0.0682**
	(0.0392)	(0.0398)	(0.0450)	(0.0464)	(0.0340)	(0.0372)	(0.0280)	(0.0286)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	784	784	784	784	784	784	784	784
R-squared	0.377	0.377	0.414	0.416	0.451	0.458	0.529	0.531

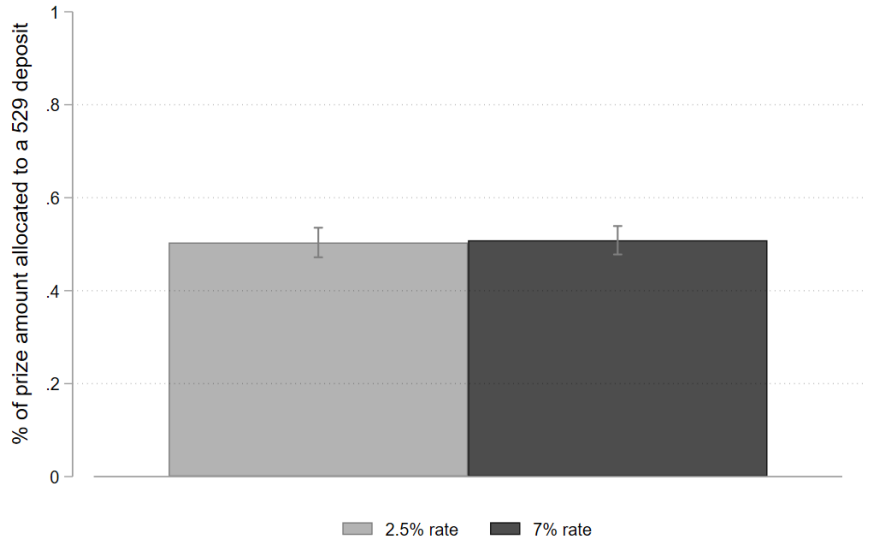
Notes. The table reports the results of an OLS regression on the parents' posterior beliefs on college attendance (0-100 scale) regressed on prior beliefs, elicited on the same scale, and treatment. The sample is restricted to the subset of respondents with a positive non-zero college costs forecast gap. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A.12: Support for loan forgiveness policies

	(1)	(2)	(3)	(4)
	Supports student loan forgiveness policies	Supports student loan forgiveness policies	Supports student loan forgiveness policies	Supports student loan forgiveness policies
Treatment (higher student loan interest rate)	-0.0272	-0.0526	-0.0505	-0.0221
	(0.0956)	(0.0989)	(0.0988)	(0.106)
Costs forecast gap			-2.55e-07	-7.65e-08
			(2.92e-07)	(4.30e-07)
Treatment * costs forecast gap				-3.62e-07
				(5.14e-07)
Constant	1.038***	0.893***	0.877***	0.866***
	(0.0694)	(0.247)	(0.248)	(0.248)
Controls	No	Yes	Yes	Yes
Observations	1,020	1,020	1,020	1,020

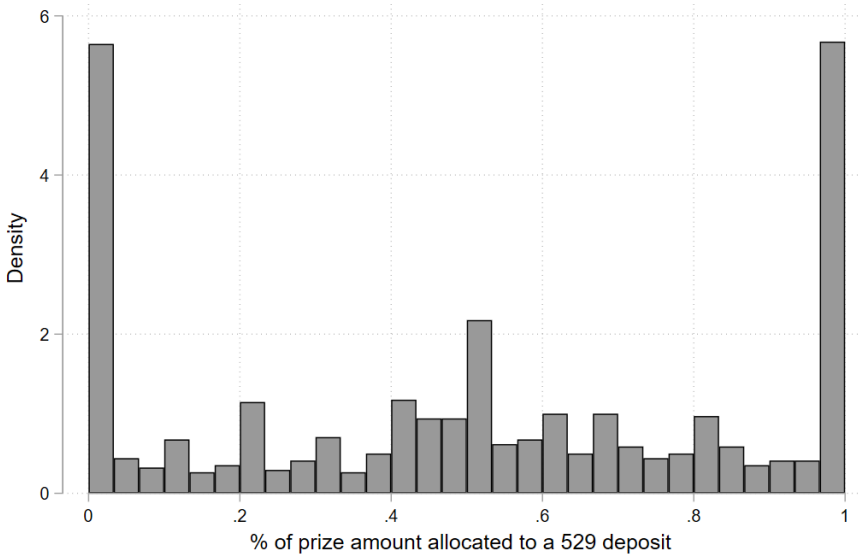
Notes. The table reports the results of an OLS regression on the parents' support for student loan forgiveness policies. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Figure A.1: Preferences for college savings account deposit, by treatment group



Notes. The graph shows the parents' preferred share of the $500 prize to be received in the form of a deposit into an existing or new 529 college savings account, by treatment group.

Figure A.2: Preferences for college savings account deposit



Notes. The graph shows the histogram distribution of parents' preferred share of the $500 prize to be received in the form of a deposit into an existing or new 529 college savings account.

Figure A.3: Relationship between stated saving goal and revealed college savings preferences



Notes. The binscatter graph shows the relationship between respondents' stated final saving goals, after future cost correction, and their preferences for lottery share as deposit into a new or existing 529 college savings account.

Figure A.4: Survey feedback



Notes. The image shows the word cloud of the 60 most frequent words automatically detected from the survey comments of the 70% of respondents who didn't leave this optional question blank. We excluded comments such as "none", "nothing", "na", "nope".

B Online Appendix

B.1 Study materials

Figure B.1: Survey questions eliciting child's future wage

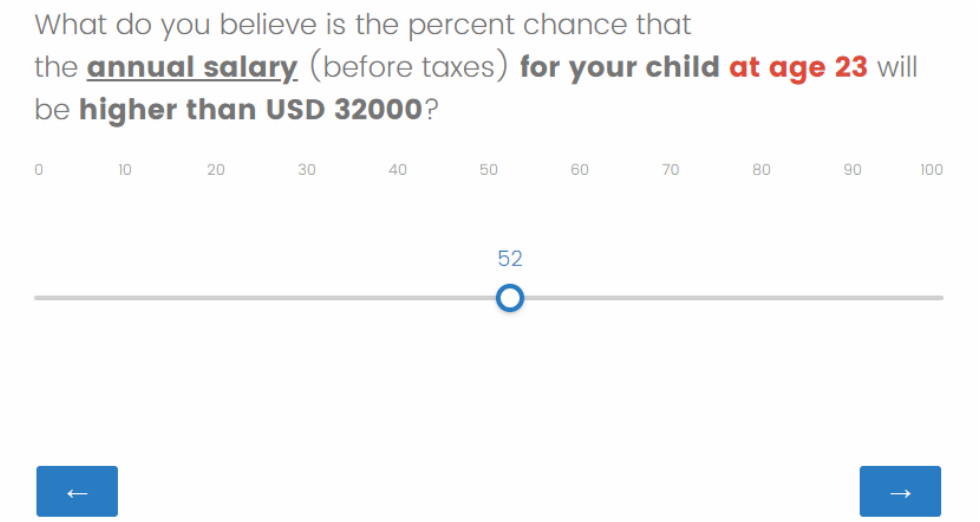


Figure B.2: Survey questions display outcome of financial decisions

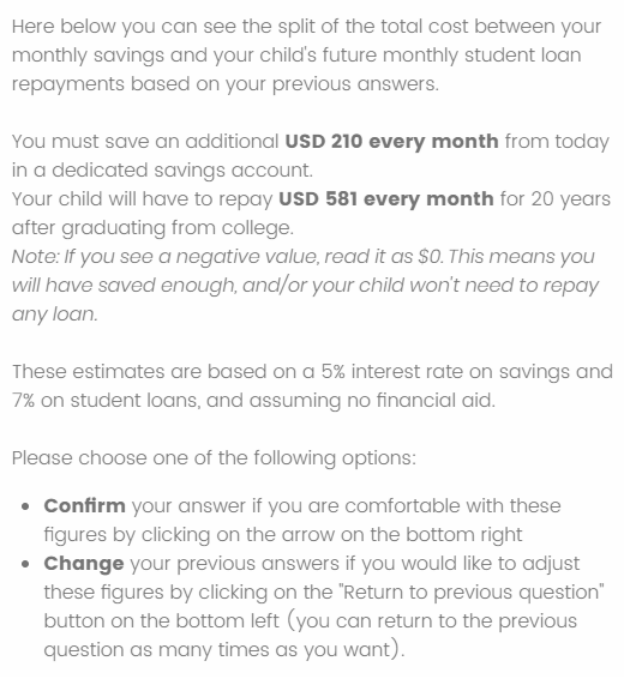


Figure B.3: Survey questions display outcome of financial decisions

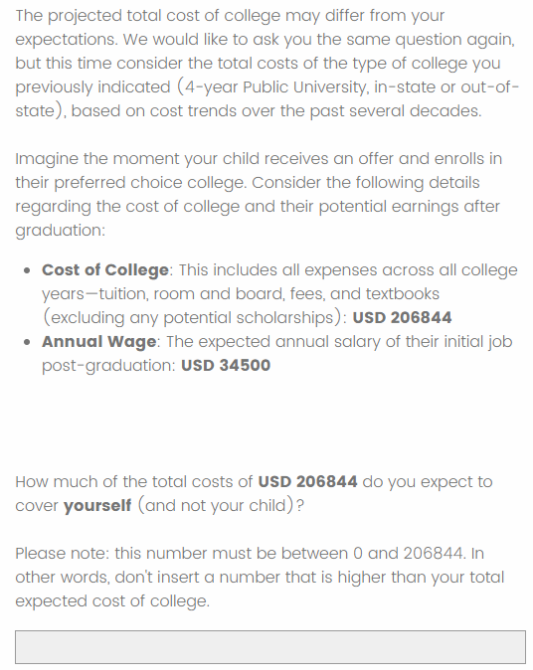
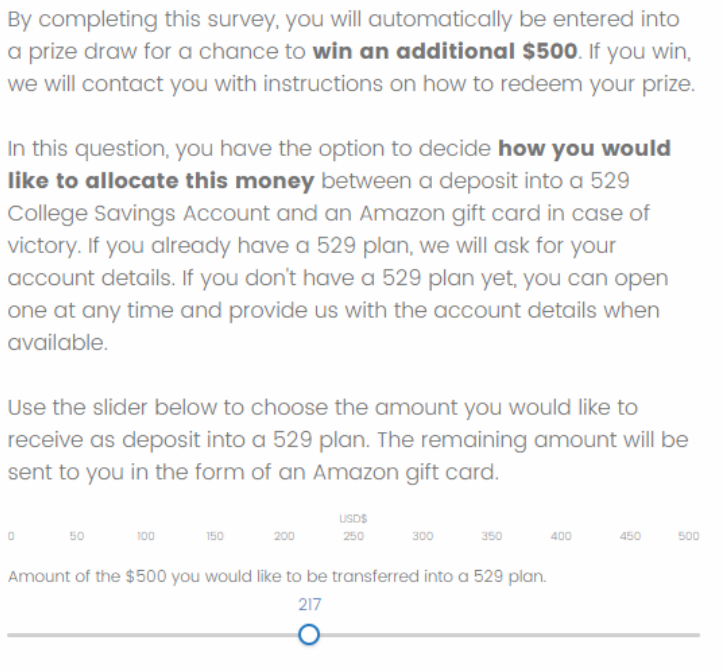


Figure B.4: Survey questions eliciting preferences for 529 CSA deposit



A copy of entire survey can be fund here.