

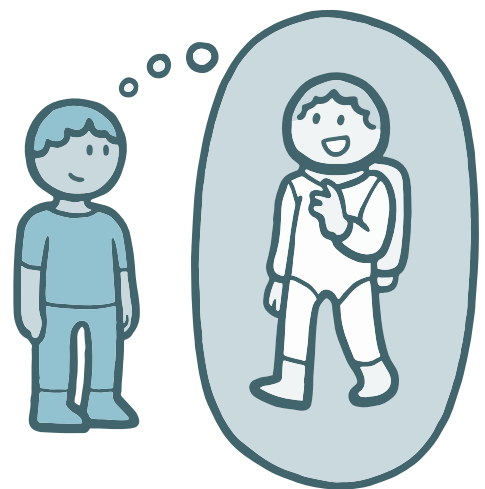


# INCREASING LONG-TERM SAVINGS

While short-term savings may be key to helping us meet survival and safety needs, long-term savings is critical in helping us move ahead in life and reach our full potentials. Long-term savings is often essential to move to the next stage in life: be that higher-level education, home ownership, or retiring from the workforce. But saving for the long-term has its own unique challenges.

One of the greatest challenges to long-term savings is Present Bias, our tendency to focus on present needs and wants to the exclusion of future needs. Human brains evolved in a world where the primary objective was simply survival, and focusing on the present makes the most sense in that world. But humans have conquered many of the elements immediately threatening them meaning that they have a future that they can look forward to. Unfortunately, our brain is still wired to focus more on the present than the future.

One indication of how difficult it is for us to connect to the future is that many of us [think of our future selves as completely](#)



[different people than ourselves now](#). When we plan for that future self, it's as though we are planning for a stranger. It makes sense that research has shown that [increasing our feelings of connection to our future selves increases our willingness to take actions to benefit our future selves](#). We are currently trying to extend that research with our study of cartoon avatars of our future selves that might be used to encourage saving for the future. Read the full case study on page [# AND INTERNAL LINK Cartoon Avatar case study].

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## Unfortunately, our brain is still wired to focus more on the present than on the future.

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Even when we are able and willing to save for the future, it can be confusing to know how much we should save. In an experiment with Ascensus, we try to solve for that complexity by encouraging users to use their projection calculator by creating a norm that users should check that they are on-track with savings. Read the full case study on [page 184](#).

In addition to directing people to existing resources, we also investigated how to communicate savings information in a way that people could make informed choices about saving for the long-term. Many people achieve long-term savings with investments that increase exponentially over time thanks to compound interest. However, we have a difficult time picturing exponential growth and tend to underestimate the benefits of exponential growth, which is known as Exponential Growth Bias. To better understand the impact of this, we are studying how the way retirement projections are presented impact people's willingness to save for retirement. Read the case study on [page 194](#). Similarly, we're also studying the psychological barriers to investing for LMI households so that they can take advantage of compound interest. You can read that case study on [page 198](#).

While building retirement savings is a perennial challenge, the year 2020 brought a new challenge: getting people to not raid their retirement accounts. With many Americans impacted by job losses during the COVID-19 pandemic, the CARES ACT eliminated the 10% early withdrawal penalty for hardship withdrawals up to \$100,000 from retirement accounts. [It's estimated that over 2 million Americans pulled money from their retirement plans in 2020; the average withdrawal was about \\$20,000 at one major plan provider, which is three times more than the average withdrawal in prior years](#). While hardship withdrawals are often used as a last resort, the hole that they leave in retirement funding can be substantial and can be difficult to refill. To blunt the severity of these withdrawals, we are working with record keeper Alight to provide people with a key moment of reflection that we anticipate will lead people to be more thoughtful about their withdrawal and

potentially reduce how much people take out of their retirement accounts. Read the full case study on [page 182](#).

Read on to learn more about each of these studies and more.



# Inciting Loss Aversion to Decrease Retirement Account Withdrawals

## BACKGROUND

While [recent analysis](#) paints a slightly better picture than previously thought, retirement account leakage continues to be a widespread issue across the American retirement landscape, estimated at more than [\\$90B annually](#). Although there is a range of expert opinions on precisely what withdrawals constitute leakage, especially considering the CARES Act and the realities of the pandemic, simply put, *leakage* is an umbrella term for withdrawals from retirement accounts for non-retirement purposes. These withdrawals undermine the long-term growth that most Americans rely on from retirement savings. The long-term growth helps to build balances that will provide financial stability in retirement.

But while we generally want to prevent leakage from retirement savings, sometimes critical financial obstacles, like medical bills or an imminent eviction, make a person's retirement savings the best of a short list of bad options for remedying a crisis. For these obstacles, some retirement accounts allow for Hardship Withdrawals for a defined set of qualifying hardships. In many of these cases, savers reasonably need access to the funds to be put to crucial purposes, but dollars withdrawn from long-term savings won't continue to accrue interest, making these withdrawals very costly in the long run.

Knowing that every unnecessary dollar withdrawn early from retirement savings represents an outsized loss over many lost years of accrual, we partnered with Alight Solutions to design an intervention to motivate retirement savers seeking a Hardship Withdrawal to withdraw only what they need.

## HYPOTHESIS AND KEY INSIGHTS

People regularly face several psychological barriers when making financial decisions with long-term impacts. Of these, we specifically wanted to address:

- » **Hyperbolic discounting:** we tend to choose smaller-more immediate rewards over larger-delayed rewards. A saver facing a hardship is even more likely to prioritize the present over the future when making decisions about retirement balances.

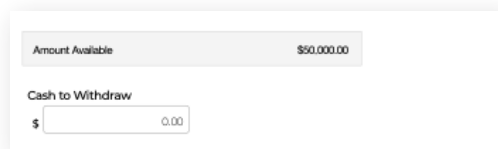
Anchoring: we tend to be influenced by reference points, even arbitrary ones, when making decisions. In this context, a saver facing a hardship may be unintentionally anchored to their total available balance even when their hardship could be resolved with a smaller withdrawal.

To help savers overcome these barriers, we embedded an intervention in the Hardship Withdrawal application flow at the precise point at which users enter how much they would like to withdraw. Importantly, our goal is not to prevent users from making withdrawals—in most cases, these users are facing real hardships that retirement funds can responsibly help resolve—but our goal is to prompt users to make their decision having taken a moment to engage their deliberative thinking to consider the real future cost of every dollar withdrawn today.

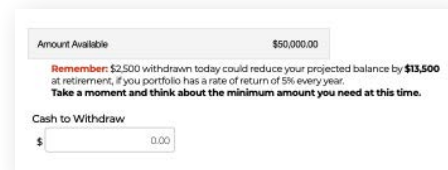
## EXPERIMENT

Our experiment randomly assigns users into one of two conditions: those receiving the treated application flow and those receiving the existing application flow as our control. In the treated application flow, users see additional language crafted to make the future losses represented by additional dollars withdrawn more salient—that is, to incite loss aversion, our tendency to see losses as more painful than the pleasure we derive from gains, so that users will discount those future dollars less. Additionally, the language encourages users to pause and engage in deliberative thinking about the withdrawal amount to challenge the potential anchor of their total amount available and establish their own competing anchor from estimating the minimum required to face the hardship.

### Control

A screenshot of the control application flow. It shows a box with 'Amount Available' and '\$50,000.00'. Below that, it says 'Cash to Withdraw' and has a text input field with '\$' on the left and '0.00' on the right.

### Treatment (Draft)

A screenshot of the treatment (draft) application flow. It shows a box with 'Amount Available' and '\$50,000.00'. Below that, there is a red 'Remember' note: 'Remember: \$2,500 withdrawn today could reduce your projected balance by \$13,500 at retirement, if you portfolio has a rate of return of 5% every year. Take a moment and think about the minimum amount you need at this time.' Below the note, it says 'Cash to Withdraw' and has a text input field with '\$' on the left and '0.00' on the right.

## RESULTS

This experiment will be finalized and launched in the first half of 2021.



# Encouraging Savers to Look at their Retirement Projections

## BACKGROUND

Americans are underprepared for retirement; the [2019 Survey of Consumer Finance](#) indicates the median value of retirement accounts is just \$65,000. One factor contributing to inadequate savings is that many Americans don't [know how much they need in retirement](#). Retirement planning tools like projection calculators can help people know whether they are on-track to save for retirement and how much they need to save now, but people often don't use these tools in their retirement planning. In a [Bankrate survey](#), only 11% of respondents used an online retirement calculator. Calculators can help people understand how contributions to retirement accounts now can impact the financial situation in the future and may provide motivation for increasing their contributions to retirement.

We partnered with Ascensus, a retirement record keeping and service provider. Their own research suggests that users who engage with their retirement calculator have higher retirement savings than users who don't. However, we don't know if that's just because people who would already save more are more likely to use the calculator, or if using the retirement calculator does indeed drive greater savings. So we partnered with Ascensus to see if we could encourage people to use their calculator and then measure whether that increases retirement fund contributions.

## HYPOTHESIS AND KEY INSIGHTS

It's not always easy to get users to start using the retirement projection calculator, but Ascensus has made it easily accessible directly off the home screen after the user has logged in. Originally, a banner on the home screen asked users to use the calculator, but the screen already told users how much their balance was projected to be at retirement as well as the estimated monthly income from their retirement savings. Giving users the numbers doesn't give them a lot of incentive to use the retirement calculator.

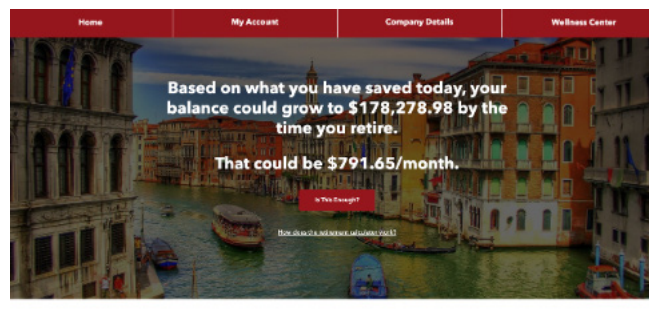
We may be able to create norms around how people interact with their account by implying that regular check-ins are part of the retirement planning process. We hypothesized that the curiosity promoted by removing the figures on the home screens would further increase motivation to use the calculator.

## EXPERIMENT

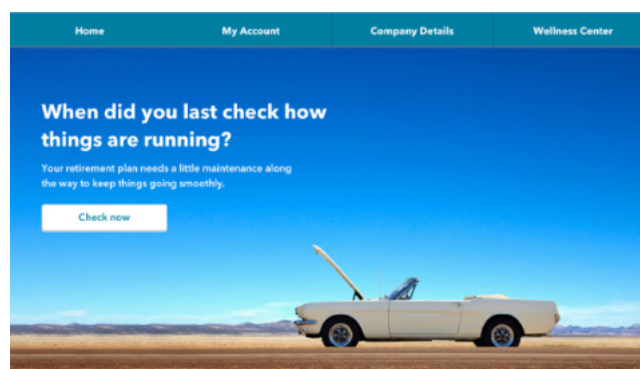
To test this hypothesis, when users log into their retirement account webpage, they are randomly assigned to see one of two the banner layouts. Half of the users will see the original version (the control) and the other half will see a redesigned banner (the treatment).

The redesigned banner incorporated ideas of ongoing maintenance of users' retirement accounts to suggest that users should regularly check their retirement projections. We also removed the retirement projection figures from the banner itself so users would need to go to the projection calculator to get the projected numbers. We are measuring which banner layout leads to more people using the retirement projection calculator and a greater increase of retirement contributions.

### Control banner



### Test banner with ongoing maintenance theme



## RESULTS

The experiment is currently in the field. We anticipate running this study for about one month to have at least 200,000 users exposed to the banners. Therefore, results are expected in the first quarter of 2021.

# Using Savings Defaults and Visuals to Increase the Amount and Frequency of College Savings Deposits

## BACKGROUND

[Research](#) shows that child savings accounts (CSAs) can increase families' financial preparation for post-secondary education and ultimately students' post-secondary enrollment. CSAs are grounded in [a theory of assets](#) that posits that when individuals and families own assets they are likely to experience psychological, social, economic, and educational gains. However, with student debt burdens reaching record highs, it is clear that families often have to take on [large amounts of debt](#) to pursue higher education.

Past behavioral studies on retirement savings accounts demonstrate that defaults matter when people decide to contribute to a savings account. For example, in their [groundbreaking work on the Save More Tomorrow program](#), Thaler and Benartzi (2004) find that defaulting employees to increase their retirement contributions in the future when they receive pay raises increased retirement savings substantially. We wanted to investigate if changing savings defaults could increase the amount families save for their children as well. To that end, we partnered with CollegeBacker, an online college savings platform that allows individuals to set up college savings accounts for their children and then invite other "backers" to donate to those savings accounts.

## KEY INSIGHTS

Since the launch of their online platform, CollegeBacker has expressed an interest in improving the size and rate of recurring contributions among their savers. In extensive discussions with CollegeBacker leadership, we discovered three key insights:

1. **One-time vs. recurring contributions:** The CollegeBacker team noted that certain segments of their user base tend to contribute irregularly, and that this can impede the ability for account holders to meet their long-term savings goals.



2. **Anchoring:** The CollegeBacker team noted that some users tend to contribute at the amount CollegeBacker anchored them to (\$25) and rarely contributed more. This too may impede the ability for account holders to meet their long-term savings goals.
3. **Present Bias:** When it comes to saving for college, present bias may also be a factor. CollegeBacker users are generally investing over the long-term (18 years for a newborn), and some users may benefit from a more visual presentation of the extent to which their present contributions may grow over nearly two decades. By reframing and visualizing the value of their present contributions, we may be able to help users better recognize the benefits of their deposits.

## EXPERIMENT

Given these insights and the priorities of CollegeBacker, we decided to start with an experiment that changes the user interface of the contributors' online portal. For the treatment group in this experiment, we changed the default contribution selection from a one-time contribution (as in the control group) to a recurring contribution.

### Control: Standard Design

The screenshot shows the 'Control: Standard Design' user interface. At the top, there is a dark blue header bar with three white buttons: 'Contribute One-time', 'Contribute Automatically', and 'Invite Backers'. Below the header, the main content area has a white background. It starts with the question 'How much would you like to contribute?' in bold. Below this is a text input field. Under the input field are three radio buttons: 'Once' (which is selected), 'Monthly', and 'Annually'. Below the radio buttons is a date selector with the text 'On: June 22, 2020' and a calendar icon. At the bottom is a blue button labeled 'Continue to Message'.

### Treatment: Monthly Deposit Default

The screenshot shows the 'Treatment: Monthly Deposit Default' user interface. At the top, there is a dark blue header bar with three white buttons: 'Contribute', 'Invite Backers', and 'Earn Backer Bucks'. Below the header, the main content area has a white background. It starts with the question 'How much would you like to contribute?' in bold. Below this is a text input field. Under the input field are three radio buttons: 'Once', 'Monthly' (which is selected), and 'Annually'. Below the radio buttons is a date selector with the text 'Starting: June 22, 2020' and a calendar icon. At the bottom is a blue button labeled 'Continue to Message'.

## RESULTS

This experiment launched in December 2020. We will continue the data collection phase until we have 1,000 individuals in both the treatment and control groups. We are currently developing options for a second experiment with CollegeBacker, which may include anchoring contribution amounts, and providing asset growth charts that allow individuals to compare the returns of different contribution options.



This project is in collaboration with the Social Policy Institute at Washington University in St. Louis.

# Changing How People View a CSA Program With Endorsements

## BACKGROUND

Many public programs like 529 programs struggle to strike a comfortable balance between their proximity to a sponsoring governmental agency with program independence. Concerns about trust and credibility are at the heart of this discomfort: On one hand, programs feel pressure to create a distinct brand. Some programs may even want to intentionally distance themselves from negative perceptions of government that may spillover to affect program participation. On the other hand, government agencies inherently offer a degree of legitimacy and recognition that an independent program is unlikely to have.

We started exploring this question in our previous partnerships with the Keystone Scholars program, a CSA offered by the Pennsylvania Treasury, and with Propel, a fintech company that helps low-income individuals manage their EBT SNAP benefits through their Fresh EBT tool. Our previous work found that advertisements that jointly displayed both the program logo and the Treasury logo together were the most effective at driving interest. We extended this work over the last year by testing whether visual and text endorsements from varying sources could further bolster perceptions of credibility and trustworthiness of the program.

## KEY INSIGHTS

To better understand how people perceived the Keystone Scholars branding, we first conducted qualitative work with mothers in Pennsylvania. During those interviews, we presented the mothers with the current Keystone Scholars marketing communications and solicited their reactions.

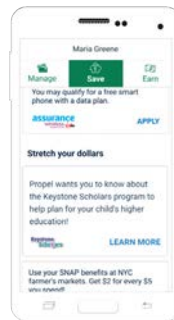
- » The Keystone Scholars program communications that used bolder and more eye-catching branding were less well received. Some mothers had reservations about the program and worried that an offer for a free \$100 from an unknown brand might be too good to be true.
- » When the communications showed that the Keystone Scholars program was part of the PA Treasury, it was viewed differently than when it was presented by itself. The people we interviewed often were unsure of what to make of the Keystone Scholars program. Including the connection to Treasury provided a cue for how to think about the program and shaped their initial impression of the program.

## EXPERIMENT

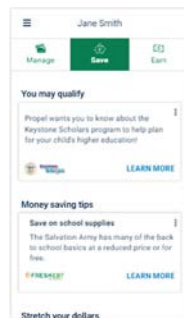
Given the importance of these contextual cues in shaping perceptions of credibility and trustworthiness, we wanted to continue iterating and refining the communications between the PA Treasury and families. Drawing on past research, we thought that including an endorsement from a trusted source or a personal testimonial would be effective in increasing perceived trustworthiness and credibility.

To test our hypothesis, we randomly presented Propel users eligible for the Keystone Scholars program with one of three different advertisements.

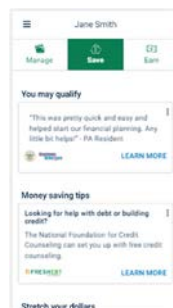
**A. An advertisement presented with only the Keystone Scholars logo and a Propel endorsement,**



**B. An advertisement presented with a combination logo and a Propel endorsement.**



**C. An advertisement presented with a combination logo with a personal testimonial.**



## RESULTS

We tracked which of the three advertisements was the most enticing to users by measuring unique clicks on the advertisement. Our analysis found that a significantly higher percentage of users expressed interest in the program when they were shown only the Keystone Scholars logo with a Propel endorsement. There is no significant difference between the other conditions.

The analysis shows that individual's perceptions of how trustworthy or beneficial a program is can be shaped by contextual cues. Ultimately, we hope that increasing perceptions of trustworthiness increase interest so that more families participate in the program as well. Propel will continue displaying the successful advertisement for Keystone Scholars moving forward.

Partner Type:  
NA

Partner Cohort:  
NA

Project Type:  
Lab Study

Project Status:  
In Design

# Learning from the Lab: Cartoon Avatars to Promote Retirement Savings

## BACKGROUND

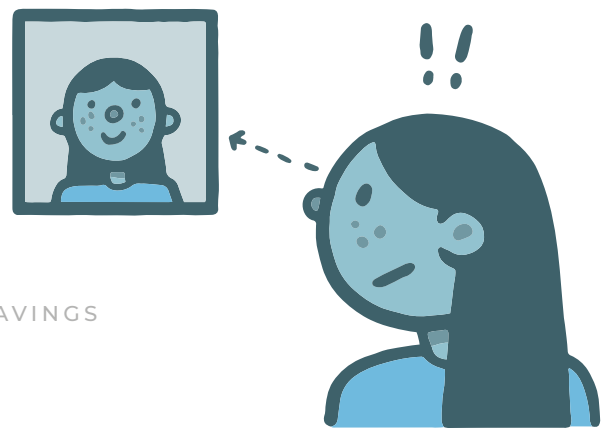
We tend to choose smaller-sooner rewards over larger-delayed ones, a concept known as temporal discounting. Temporal discounting means that we weigh benefits in the present more heavily than benefits in the future, and the further away that future is, the less we value those benefits now. Temporal discounting is one of the reasons why saving for retirement, a benefit realized decades in the future, is so difficult.

Researcher Hal Hershfield theorizes that one driver of temporal discounting is that we tend to think of our [future selves as different from our present selves](#) – and the less connected we feel to our future selves, the more we discount benefits in the future. Therefore, if we can increase a feeling of connection to ourselves in the future, we might be more prone to save for the future. Hershfield demonstrated this concept in a study in which [participants who interacted with aged, photo-realistic avatars of themselves agreed to contribute more to their retirement income than participants that interacted with avatars of their current selves](#).

However, creating interactive, photo-realistic avatars in online account pages or apps for retirement plan providers might not be feasible. However, many applications, like Apple, Facebook, and Snapchat, already use cartoon avatars within their interfaces, so we wanted to investigate whether similar cartoon avatars could also be used to increase users' connections to their future selves. If the avatars can be aged to represent the users in the future, the aged avatars might help the users to connect to their future selves and increase money saved for their future.

## HYPOTHESIS AND KEY INSIGHTS

People may have difficulty connecting to their future selves because they think of their futures selves as completely different people. People's connection to their future selves



may be linked to how much they feel they will change over time; the less changes anticipated, the higher potential connection to the future. Highlighting ways in which people remain the same across time may help improve connection to their future selves.

It is also possible that as people are making choices for the future, they are not keeping their future selves top of mind, but focusing on how the choices will impact their current selves. A more tangible form of the future self may help people place more focus on the impacts to the future self when making decisions with future implications.

We hypothesize that making one's future self more visible may make people more prone to save for the future.

## EXPERIMENT

To investigate if cartoon avatars may be used to increase users' connections to their future selves, we created an avatar generator tool and then asked study participants about their connection to future self and a hypothetical allocation to their future selves. The avatar generator tool allows users to create an avatar from the shoulders up, with different cartoon facial features; we then "aged" the avatar by selecting a gray hair color and adding wrinkles to the face. We ran a pilot study to test out our generator and people's connectedness to the avatar and their future selves. We found that both their connectedness to the avatar and the connectedness to their future selves weren't very high. Therefore, we are designing an updated avatar generator with more personalization options as well as backgrounds that can signal personal interests, like family, sports or the arts, for example. We would also like to test whether aging an avatar of the current self or having the user create an avatar of their current self is more effective at increasing connection and allocation to the future selves. The experiment is expected to launch in the first half of 2021.

Partner Type:  
NA

Partner Cohort:  
NA

Project Type:  
Lab Study

Project Status:  
In Design

# Learning from the Lab: Redesigning Retirement Savings Calculators to Nudge Users to Increase Contributions

## BACKGROUND

Retirement savings projection tools and calculators are everywhere – seemingly every financial service provider and financial institution has their own version. The variation between these many different tools is staggering, both in how they are structured and in how they communicate the results. While there has been a lot of work focused on understanding the factors that motivate contributions to retirement savings, there seems to be a gap in understanding the best way to structure these calculators.

To better understand what the best way is to structure a retirement savings calculator, we conducted a series of studies exploring their different elements and features. We were specifically interested in the usability of these calculators and what design choices would be most likely to encourage users to engage in positive behaviors like increasing contributions to their account.

## Experiment 1: Uncertainty and spend in retirement

### HYPOTHESIS AND KEY INSIGHTS

The first experiment that we conducted focused on a kind of retirement projection that displays both savings accumulation and decumulation overtime. We were interested in exploring two distinct questions related to this projection”

1. Does graphically displaying decumulation change how a user thinks about their retirement savings?
2. Does introducing uncertainty by showing multiple estimates for how savings might grow over time change how users think about their future financial wellbeing?



## EXPERIMENT

We designed a 2x2 experiment where users were randomly assigned into 1 of 4 conditions:

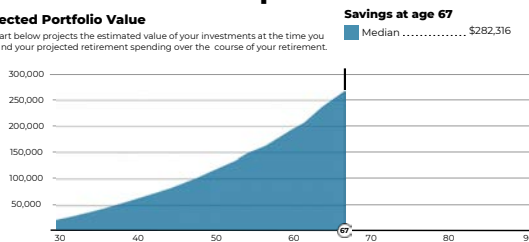
- » **Accumulation with median only:** Users saw a graph that did not show decumulation over time and only showed the median estimate.
- » **Accumulation with multiple estimates:** Users saw the same graph as in the first condition but with two estimates for future savings amounts.
- » **Decumulation with median only:** Users saw a graph that showed both accumulation and decumulation over time with only the median estimates.
- » **Decumulation with multiple estimates:** Users saw a graph as in the first decumulation condition but with two estimates for future savings amounts.

Participants reviewed the retirement projections for two different hypothetical cases – one more prepared for retirement and one less prepared. They were then to assess the future financial wellbeing of hypothetical cases, their confidence in their assessment, how accurate and useable the graph they thought was, and what they would recommend the hypothetical person to do.

### Your Retirement Snapshot

#### Projected Portfolio Value

The chart below projects the estimated value of your investments at the time you retire and your projected retirement spending over the course of your retirement.



#### Notes & Methods

The Retirement Planner runs 10,000 Monte Carlo simulations to deliver a personalized retirement projection. The simulations incorporate expected return and volatility, annual savings, income, spending goals, retirement spending, social security, and tax rules for taxable, tax-deferred, and tax-free investment accounts.

The tool allows you to explore how different variables such as your savings rate, salary growth rate, life expectancy, hypothetical investment returns, or inflation may impact your retirement outlook.

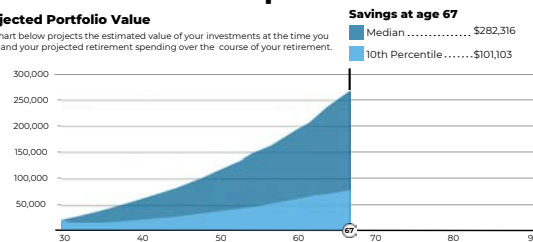
#### Details & Inputs

Marital status: Married  
Income: \$80,000  
Retirement Goal: 80% of income  
Age: 30  
Current savings: \$49,100  
Contributions: 5%  
Life expectancy: 90  
Rate of return: Moderate

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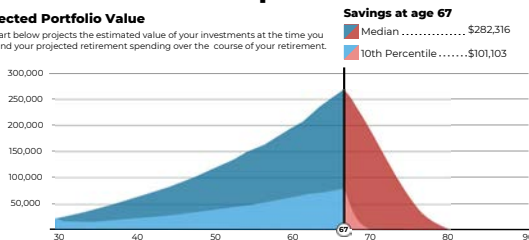
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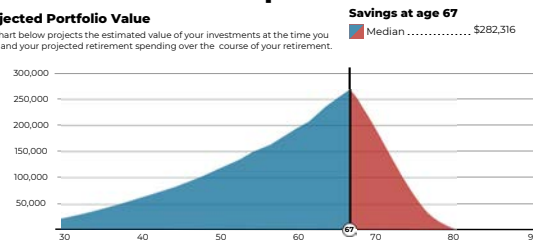
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## RESULTS

We found that how the results from a retirement projection are displayed to users significantly changes how they interact with and understand those projections. Rather than consistently moving participants' assessments of financial wellbeing in one direction, showing decumulation had differential effects: participants rated the more prepared case as even higher and the less prepared case as even lower ( $p=0.001$  and  $0.096$ , respectively). Introducing multiple estimates did not have a discernable effect.

The results of the study suggest that, perhaps unsurprisingly, people anchor on visualizations. We also saw that participants who were shown the full graph that included both accumulation and decumulation were significantly more confident in their assessments as well.

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Interestingly, the relationship between the projection and people's recommendations on behavior was not straightforward. People were much more likely to recommend the less prepared case to increase their contributions, regardless of condition. A simple comparison finds that respondents were significantly more likely to recommend increasing contributions when shown decumulation ( $p=0.035$ ). However, controlling for other factors and looking at the interaction between the two conditions suggests this relationship is likely significantly influenced by other factors.

## Experiment 2: Framing Spending in Retirement and Graphics

### HYPOTHESIS AND KEY INSIGHTS

The second experiment that we conducted used decumulation and focused the type of graphic (line chart or bar chart) and the framing of retirement spending. Once again we were interested in how graphics and framing changed users perceptions on retirement readiness and willingness to contribute to their retirement.

### EXPERIMENT

We designed a 2x2 experiment where users were randomly assigned into 1 of 4 conditions:

- » **Years of retirement covered by savings with bar chart:** Users were told how many years their retirement was expected to cover based on an assumed annual spend and the bar chart compared the years covered with the years expected in retirement.
- » **Years of retirement covered by savings with line chart:** Users were told how many years their retirement was expected to cover based on an assumed annual spend and the line chart showed when the user would run out of money.
- » **Proportion of annual expenses covered by savings with bar chart:** Users were told how much they would be able to spend in retirement based on an assumed length of retirement and the bar chart compared the amount covered with the amount expected to be needed in retirement.
- » **Proportion of annual expenses covered by savings with line chart:** Users were told how much they would be able to spend in retirement based on an assumed length of retirement and the line chart showed the decrease in balance over time.

Study participants were asked to assess their own retirement status using a projection calculator as well the status of a theoretical individual's retirement savings.

## RESULTS

We found that the graphics (bar chart or line chart) made little difference to perceptions about retirement readiness. But framing played a large part! When the projections were framed in terms of years of retirement covered, users felt much less ready. Participants were not able to stretch out their dollars to make them last longer in the years of retirement framing conditions, so it seemed as though they were more likely to run out of money. Participants in the proportion of annual expenses covered condition were much less concerned about the state of their savings, since they were primed by the framing to think their money could be stretched to last through their retirement. They didn't seem particularly concerned that the money available each year would not be enough to meet their needs or have an enjoyable life.

Partner Type:  
NA

Partner Cohort:  
NA

Project Type:  
Lab Study

Project Status:  
In Analysis

# Learning from the Lab: Making Investing Attractive for Low- to Moderate-Income Households

## BACKGROUND

[Research](#) shows that lower income households are less likely to participate in wealth-generating behaviors such as investing. While income may be part of the explanation for this investment gap, it doesn't paint the entire picture. Given the potential that investments have for long term returns, there is a need to understand the other factors (e.g., emotional, social, psychological) that drive low- to moderate-income households (LMI) to participate in or refrain from investing.

## HYPOTHESIS AND KEY INSIGHTS

We conducted online studies to better understand the factors that predict investing behavior among LMI households. In doing so, we examined two hypothesized mechanisms: risk and mental accounting.

**Risk:** [Research](#) by Barauh and Parikh indicates that risk-averse individuals are less likely to invest, and that this outcome varies depending on factors such as gender, age, and financial literacy. However, limited research has been done to understand the nature of this perceived riskiness, and how it varies by income level. LMI households may simply be more sensitive to investment risks because they are more risk-averse than higher-income households. LMI households may not understand the complexity of investing and may see investments as something beyond their financial capabilities. Therefore, we hypothesized that LMI households would perceive investment accounts as riskier than high-income groups would.

**Mental accounting:** People are more likely to spend money differently depending on where the money is coming from and where it's going. We refer to this phenomenon as "mental accounting". We hypothesized that LMI households have preconceived notions about the terms "investing" and "savings" and would therefore be less likely to invest than higher-income groups.

## EXPERIMENT

We ran two online studies to understand how investing behaviors and perceptions of investing differ among various income groups: low (<\$30,000), moderate (\$30,000 to \$48,000), middle (\$48,000 to \$73,000), and high (>\$73,000).

Study 1 explores the relationships between income levels (low, moderate, middle, and high), financial literacy, types of investment accounts owned, perception of investment risks, and individual factors such as risk propensity and demographics.

Study 2 aims to understand the factors that impact intentions to invest. We examined how risk propensity and mental accounting impact investment decisions using a hypothetical scenario where participants read about an account labeled as investing/savings that had either no, low, medium or high risk. Participants then indicated their choice to save/invest in the account, amount willing to save/invest, length of time of leaving money in the account, and likelihood of recommending the account to family.

## RESULTS

The results from Study 1 indicate that while majority of participants have financial products such as stocks, bonds, and retirement accounts, fewer LMI individuals tend to have such accounts. For instance, while approximately 45% of middle- and high-income people in our sample reported owning stocks, only 11% of low-income individuals do. We also found a positive association between risk propensity and one's perception of investment risks. In other words, an individual's decision to invest in a risky investment account was partially accounted for by their perception of whether they are generally a risky person or not. We didn't find any associations between risk propensity (averseness) and income levels, even after controlling for all demographics. We also didn't find any associations between income levels and perceptions of investment risks.

These findings suggest that one's choice to invest in either low or high-risk accounts doesn't vary by income. However, investment accounts typically have more varied risk levels. We therefore used Study 2 to examine multiple risk options as well as the mental accounting mechanism.

Study 2 was run before the pandemic. We found that account risk (e.g., chance of losing one's return) had the greatest impact on one's investment/savings decisions. Moreover, even though riskier accounts had larger associated returns, individuals seemed to be most focused on and most influenced by the possibility of losing all or part of their money. Consequently, participants were significantly more likely to opt for accounts that had lower risk and smaller returns, as opposed to accounts with higher risk and larger returns.

Individual risk propensity also played a role – as the risk associated with the account increased, those with a high-risk propensity were significantly more likely to opt for the higher risk accounts than those with a low-risk propensity. Participants put more money in lower risk accounts and left that money for longer amounts of time. Similarly, people were more likely to recommend lower risk accounts to their family and friends. The investment/savings label did not seem to affect any of these outcomes. Moreover, none of these findings varied by income. We hypothesize that the lack of significant differences may be due to methodological concerns (e.g., hypothetical investment account description didn't match people's mental models of investing, people may have been thinking about spending their refund (windfall) in a nonrealistic manner, etc.).

Overall, these findings suggest that risk matters the most; the higher the risk, the lower the desire to put money in the account. Higher risk accounts also lead people to leave less money in the account, and for shorter periods of time, regardless if it's an "investing" or "savings" account. Given that people are particularly sensitive to risk during trying times, financial service providers that aim to drive savings or investment should be mindful of how they describe their products and the associated risk.

After the start of the pandemic, we reran Study 2 with updated methodologies; we are currently analyzing the data to examine the impacts of the pandemic on these trends