



# Boost Savings with Challenges and Empowering Messages

**A STUDY WITH SAVERLIFE**

## AUTHORS



**Heidi Johnson,**  
*Director, Behavioral Economics,  
Financial Health Network*



**Necati Celik,**  
*Associate,  
Financial Health Network*

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### **The Financial Health Leaders Lab**

*The Financial Health Network helps companies incorporate behavioral science principles into their product design and rigorously test the financial health impact of their products. This research was conducted through the Financial Health Leaders Lab, a program available exclusively to Financial Health Network Members, which supports a select group of companies developing and testing innovations to improve financial health.*

*The Financial Health Leaders program is generously funded by MetLife Foundation. Learn how to join the Leaders program at [finhealthnetwork.org/what-we-do/membership/financial-health-leaders-program](https://finhealthnetwork.org/what-we-do/membership/financial-health-leaders-program).*

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## FINANCIAL HEALTH COMPONENT



# AT A GLANCE

## INNOVATION

Conducted in partnership with SaverLife, this Financial Health Leaders Lab study examines the impact of SaverLife's savings competition with **prize-linked savings, motivational text messaging, and peer comparisons.**

## IMPACT

### 01

The savings competition increased the number of people who saved during the competition by 6% and increased average savings deposits by 31%, or \$451, over six months.

### 02

Motivational text messages that used an empowering tone increased savings deposits by 53% and increased savings balances by an additional \$950 over six months, or a 7.7 times greater increase.

### 03

Providing peer comparison information did not influence savings behavior during the time period of this study, but could create a positive impact over a longer timeframe.

## APPLICATIONS

### 01

**Create savings competitions to increase the amounts that consumers deposit into savings.** SaverLife's savings competition introduced specific savings goals, which are more motivating than vague or open-ended goals, and offered the chance to win rewards over \$100.

### 02

**Encourage savings with messaging that describes overcoming obstacles and exceeding expectations, while avoiding demotivating support language.** Varying messaging tones resulted in dramatically different consumer behavior in this study, with some surprising results.

**RACE TO  
\$500**  
A savings  
competition

A prize-linked  
savings competition  
increased deposits by

**31%**

Empowering text  
messages led to  
**\$950<sub>avg</sub>**  
larger savings balances

## SECTION 1

# Innovation: Savings Competition with Prize-Linked Savings, Motivational Text Messaging, and Peer Comparisons



SaverLife is a nonprofit whose mission is to create prosperity for working families by helping them save and invest in their futures. SaverLife provides prizes, rewards, expert resources, game play, and support proven to incentivize saving and spur new behavior for the company's 450,000 members across the country. SaverLife is focused on helping working families take control of their financial future and build savings habits.

SaverLife's members face greater financial health challenges than the U.S. population on average. In 2018, 30% of its members were Financially Vulnerable, compared with 17% of people nationally.<sup>1</sup> Most of SaverLife's members are low- to moderate-income individuals. About three in five SaverLife members have savings account balances under \$100, and more than four in five have balances under \$1,000.

The Financial Health Network has found that building short-term savings is a significant issue for low- to moderate-income households in the U.S. In 2019, one in four households in the U.S. earning less than \$30,000 per year had less than one week of expenses in savings.<sup>2</sup> In addition, 42% of households earning less than \$30,000 could cover less than a month's worth of expenses, which was also the case for 30% of households earning \$30,000 to \$60,000 annually.<sup>3</sup>

### SaverLife's Scratch & Save Competition

Already popularized prize-linked savings, which provide a chance to win prizes based on savings behavior, are a key component of SaverLife's product. It offers a "Scratch & Save" competition that approximates a lottery scratch ticket to provide a weekly chance to win a \$5 cash prize for members who have saved in that week or taken other actions to improve their financial health. A number of credit unions and other institutions have also implemented prize-linked savings, popularized by the nonprofit Commonwealth through its Save To Win product.<sup>4,5</sup>

<sup>1</sup> *Big Data on Small Savings: There Is More to Saving Than Savings*, SaverLife, 2018; U.S. Financial Health Pulse: 2018 Baseline Survey Results, Financial Health Network, 2018.

<sup>2</sup> *U.S. Financial Health Pulse: 2019 Trends Report*, Financial Health Network, 2019.

<sup>3</sup> *Ibid.*

<sup>4</sup> *The State of Prize-Linked Savings*, Commonwealth, 2018.

<sup>5</sup> The Financial Health Network's Nonprofit Opportunity Fund funded the Save to Win product in 2009 as one of the earliest prize-linked savings products in the U.S.

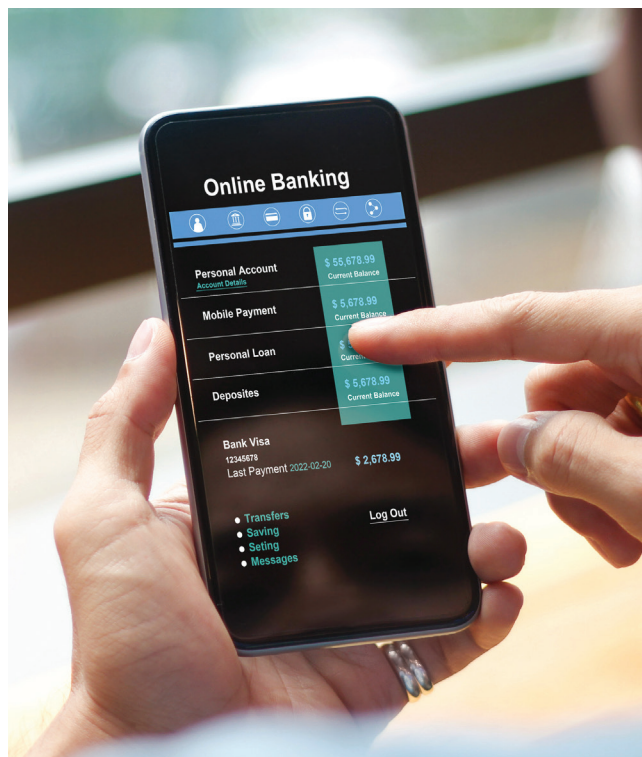
SaverLife tested the impact of several approaches to a new savings competition through the Financial Health Leaders Lab. These approaches built upon previous research by incorporating prize-linked savings, motivational text messages, and peer comparison. SaverLife anticipated this new competition would increase the number of members who chose to save, increase the amounts they saved, and lead to higher savings balances.

### Prize-Linked Savings: The Race to \$500

With the Financial Health Leaders Lab, SaverLife tested a new prize-linked savings competition called the Race to \$500, which rewarded members for making progress toward a \$500 savings goal from the end of September 2019 until the end of November 2019. Members who participated in the race by opting in from an email invitation became eligible for larger prizes as they saved more (see Appendix A). A member who increased their savings balances above thresholds of \$100, \$250, or \$500 during the race became eligible to win a prize of the same amount.

Prize-linked savings leverage people's tendency to overestimate small probabilities, such as the likelihood of winning a lottery, to drive positive financial behavior.<sup>6</sup> Gathering opportunities to win prizes through savings behavior is also appealing for people who have risk-seeking preferences. Although prize-linked savings accounts have not previously been rigorously tested against traditional savings accounts in a real-world setting in the U.S.,<sup>7</sup> academic research in a lab setting has shown that a prize-linked approach can be more effective at encouraging savings than a traditional interest-bearing savings account that offers the same expected value.<sup>8</sup> One study found that a prize-linked approach is particularly appealing for people with low savings balances, who are SaverLife's target population.<sup>9</sup>

The Race to \$500 differed from SaverLife's Scratch & Save competition by adding specific savings targets to the concept of prize-linked savings. It also provided a set timeframe for working toward the \$500 goal. These savings targets and timeframes can increase motivation by providing a specific goal.<sup>10</sup> The Race to \$500 also offered a much larger potential prize than the \$5 available through the Scratch & Save competition to increase its appeal further.



<sup>6</sup> Feliz-Ozbay et al., *Do lottery payments induce savings behavior? Evidence from the lab*, Journal of Public Economics, 2015, 126: 1-24.

<sup>7</sup> *Evidence-Based Strategies to Build Emergency Savings*, Consumer Financial Protection Bureau, 2020.

<sup>8</sup> Feliz-Ozbay et al., *Do lottery payments induce savings behavior? Evidence from the lab*, Journal of Public Economics, 2015, 126: 1-24.

<sup>9</sup> Ibid.

<sup>10</sup> Edwin Locke and Gary Latham, *New Directions in Goal-Setting Theory*, Current Directions in Psychological Science, 2006, 15(5).

## Motivational Text Messaging: Testing Tone Variance

SaverLife paired the Race to \$500 with a text messaging campaign that reminded members about the competition and encouraged them to save. SaverLife texted members once per week during the nine weeks of the Race to \$500, with motivational messages that used varying tones. Reminders about a goal, such as regular savings, are helpful for increasing the salience of the goal and mitigating the effects of limited attention.<sup>11</sup>

Each series of text messages reflected one of three personas inspired by a famous person that informed the tone of the message, while conveying the same set of information about the collective savings of members participating in the Race to \$500. Psychology and marketing researchers have

found that different framing, tones, and emphasis on the collective vs. the individual can influence responses to messaging.<sup>12</sup>

The first persona was inspired by Mother Teresa, using a supportive tone that was optimistic and encouraging. The second was an empowering tone inspired by Michelle Obama, which described savers as proving skeptics wrong and exceeding expectations. The last persona had a more commanding tone, inspired by Mr. T, and called out where savers were falling short. Figure 1 shows how the content for a week's message differed for each persona, and Appendix B provides the full set of messages for the empowering persona. While the Financial Health Leaders Lab didn't have specific predictions about which persona would be the most persuasive, SaverLife was able to test how its members responded to each through this study.

**Figure 1. Motivational Text Message Content and Tones in Week 5**



<sup>11</sup> Dean Karlan et al., *Getting to the Top of Mind: How Reminders Increase Saving*, *Management Science*, 2016, 62(12): 3393-3672.

<sup>12</sup> Hye Jin Yoon and Carrie La Ferle, *Saving Behavior Messaging: Gain/Loss Framing, Self/Family Orientations, and Individual Differences in Collectivism*, *Journal of Advertising*, 2018, 47(2): 146-160; Frederick Meunch et al., *Understanding Messaging Preferences to Inform Development of Mobile Goal-Directed Behavioral Interventions*, *Journal of Medical Internet Research*, 2014, 16(2).

## Peer Comparison: The Savings Leaderboard

SaverLife also developed a Savings Leaderboard to accompany the Race to \$500, a dashboard that displayed savings deposits that SaverLife members made. Weekly text messages encouraged members to check out how their savings deposits stacked up against the savings of other SaverLife members participating in the Race. Members could view the most recent

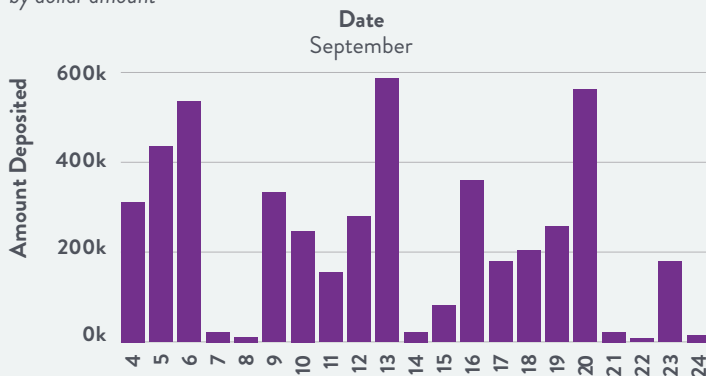
and largest savings deposits made during the Race to \$500, with a filter to display savers in their state and metro area (Figure 2). Making the savings behavior of members visible can create a norm of savings and motivate others to behave similarly. Studies have shown that describing the behavior of people who are in a similar setting (such as a shared geography) further increases the impact of the information.<sup>13</sup>

Figure 2. SaverLife Savings Leaderboard



## Savings Deposits in the Last Two Weeks

by dollar amount



## Total Amount Deposited Since September 1st

**\$5,472,389**

Today \$12,577

## Total Number of Deposits Since September 1st

**19,665**

Today 136

<sup>13</sup> Noah J. Goldstein et al., *A Room with a Viewpoint: Using Social Norms to Motivate Environmental Conservation in Hotels*, *Journal of Consumer Research*, 2008, 35: 472-482.



## SECTION 2

### Approach: Testing SaverLife’s Race to \$500

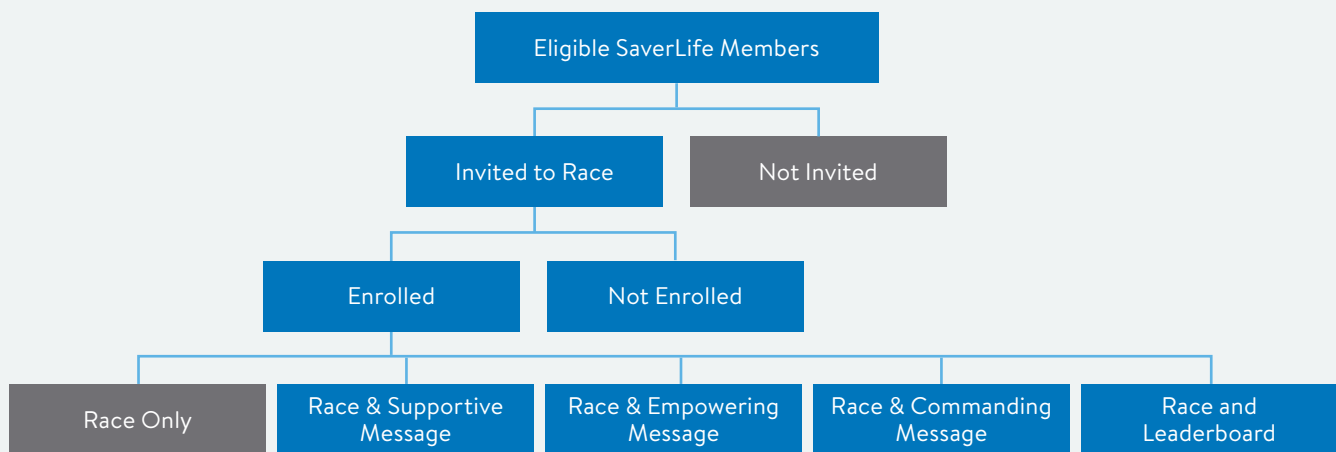
To test the impact of the various components of its savings challenge, SaverLife sent email invitations to 39,150 users who had linked both a checking and a savings account (see Appendix A).

Members who opted to “Join the Race” via a link in the email were enrolled and became eligible for prizes based on the balance in their linked savings account at the end of the race. Another 1,360 members who also had linked checking and savings accounts were not sent email invitations, to create a comparison group for those who were invited to the race (as shown in Figure 3).<sup>14</sup>

After the start of the race, a little more than 300 members of the 3,241 who had clicked the link to enroll in the race were selected to receive

motivational text messages in varying tones, while over 300 additional enrolled members were selected to have access to the race Leaderboard. Members participating in the Race to \$500 who did not have access to the motivational text messages or Leaderboard (the “Race Only” group in Figure 3) formed the comparison group for each of these additional components of the savings challenge. Figure 3 displays how SaverLife randomized access to different components of its savings challenge and highlights the comparison group for each in gray.

Figure 3. Study Design for the Race to \$500



<sup>14</sup> SaverLife provided demographic information about some of its members, which revealed potential differences between the members who were invited to the Race to \$500 and the control group members who were not invited. A larger share of the members invited to the race had missing demographic information. Among the SaverLife members for whom we had access to demographic data, those who were invited to the race had slightly higher incomes, slightly larger savings balances at the start of the race, had linked their accounts earlier, and were older relative to the members who were not invited. These comparisons are available in Appendix C, and we control for these differences in our impact analysis.

To assess the impact of SaverLife’s innovations, the Leaders Lab looked at the dollar amount of deposits to and withdrawals from the savings accounts that members had linked with SaverLife. These data provided the total dollar value of each members’ deposits and the net change in savings balances for members who were part of the study.<sup>15</sup> Savings deposits help us understand how different components of the savings challenge motivated SaverLife members to take action to save. More savings deposits do not always lead to a net positive change in balances, however, if members also withdraw more money. Looking at deposits and changes in balances helps us capture these nuances in savings behavior.

We examined outcomes for SaverLife members at two points in time: at the end of the Race to \$500, which started on September 23, 2019 and ended on November 27, 2019; and again six months after the start of the race, on March 23, 2020. Although the Race to \$500 only incentivized SaverLife members to increase their savings balances during the two-month period of the race, building a habit of savings could lead to continued higher savings deposits. We were also interested in observing whether SaverLife members continued to maintain any increase in balances that they built during the race. We focus most of our discussion on these longer-term impacts of the savings challenge, and we provide information about impacts during the race in Appendix D.

“ Although the Race to \$500 only incentivized SaverLife members to increase their savings balances during the two-month period of the race, building a habit of savings could lead to continued higher savings deposits.



<sup>15</sup> We calculated the net change in savings balances by subtracting total withdrawals from total deposits during the period of the study for each member. This calculation does not rely upon the members’ account balances at the beginning of the race, which were unavailable for some members in the study.

## SECTION 3

# Impact: Several Features Drive Large Additional Savings Deposits

**Approximately 8.3% of SaverLife members who were invited to participate in the Race to \$500 enrolled.**

### Savings Balances

Among those who signed up to participate in the race but did not receive the motivational text messages or access to the Leaderboard, 9% reached the highest goal, to increase their net savings balances by \$500.

However, compared with SaverLife members who were eligible but not invited to participate in the competition, these members did not show any greater probability of reaching the \$500 savings goal, or any discernible differences in the change of savings balances during the race or six months later.

### Savings Deposits

Inviting members to participate in the race caused a 1.5 percentage point increase in the probability that a member would make a savings deposit during the race (a 6% increase).\*

Invited members also increased the size of their savings deposits both during the two-month period of the race and during the six months following the start of the race, depositing around 30% more into savings than those who weren't invited. During the Race to \$500, this added up to an additional \$145 deposited per member,\* on average. Members invited to the race

continued to contribute a higher level of deposits to their savings accounts after the end of the race, depositing an additional \$451 after six months.\*\*

The additional savings deposits that the Race to \$500 generated are particularly notable because SaverLife members entered the race with low savings balances, most commonly under \$100. In addition, the study participants had access to other prize-linked savings opportunities through SaverLife's Scratch & Save competition.

Although the Race to \$500 didn't lead to an increase in savings balances, members may have experienced financial health benefits from their additional savings deposits by having money available to cover expenses that arose during the race and in the following months, without needing to use credit or find other ways to raise funds.

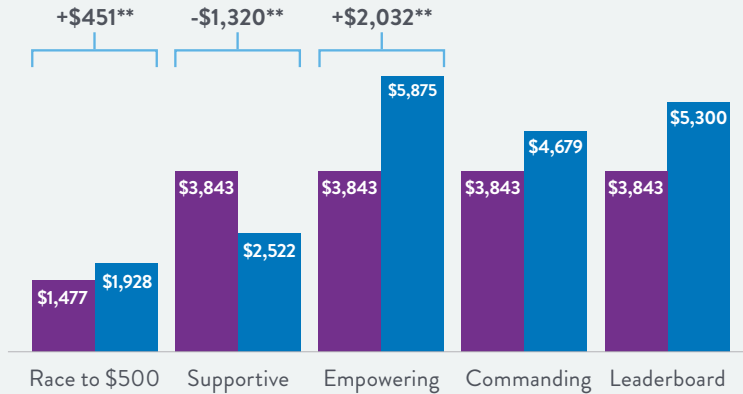
“ Invited members increased the size of their savings deposits both during the two-month period of the race and during the six months following the start of the race, depositing around 30% more into savings than those who weren't invited.

\* Statistically significant at 10% level ( $p < 0.1$ )

\*\* Statistically significant at 5% level ( $p < 0.05$ )

**Figure 4. Having Access to the Race and Empowering Messaging Caused Higher Savings Deposits After 6 Months**

The average deposits per member into savings, six months after the start of the Race to \$500

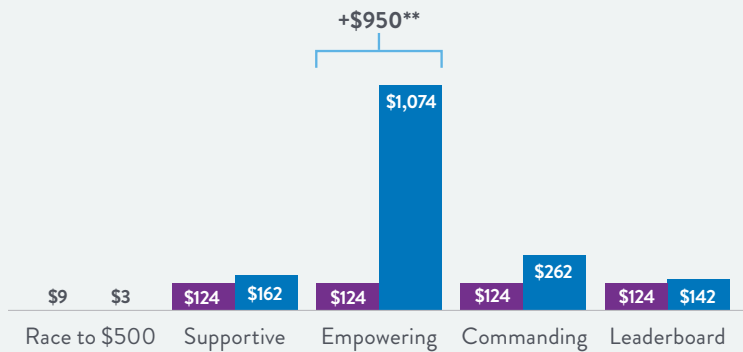


■ Comparison ■ Innovation

Note: Bars in purple show the average deposits into savings accounts for those who were in the comparison group, and the bars in blue show the average deposits into savings accounts for those who were invited to the race and its additional features. See Figure 3 for the corresponding comparison group for each. We indicate the significant differences between the treatment and control groups with brackets. Differences between bars that are not shown in brackets are not statistically significant. This analysis controls for income, age, gender, savings balances at the start of the race, and account tenure. The analysis excludes 301 users who had missing values for savings deposits during the race because they linked new accounts during the race.

**Figure 5. Empowering Messaging Increased Net Savings Balances After 6 Months**

The average net change in savings balances six months after the start of the Race to \$500



■ Comparison ■ Innovation

Notes: Bars in purple show the average net change in savings balances for those who were in the comparison group, and the bars in blue show the average net change in savings balances for those who were invited to the race and its additional features. See Figure 3 for the corresponding comparison group for each. We indicate the significant differences between the treatment and control groups with brackets. Differences between bars that are not shown in brackets are not statistically significant. This analysis controls for income, age, gender, savings balances at the start of the race, and account tenure.

## Motivational Text Messaging

The various personas for the text messaging component of SaverLife’s savings challenge had strong impacts on its members’ savings behavior, in opposite directions. Messages featuring the empowering tone had a positive impact on the savings behavior of participants who received them, while messages featuring the supportive tone had a negative impact on the savings behavior of participants who received them.

Participants who received messages in the commanding tone demonstrated no change in savings behavior, compared with those who received no messages.<sup>16</sup>

These impacts intensify over time, with larger differences that are statistically significant six months after the start of the race. We focus on these longer-term impacts here and share the shorter-term impacts (that occurred during the race) in Appendix D.

\*\* Statistically significant at 5% level ( $p < 0.05$ )

<sup>16</sup> Although members who received text messages from the commanding persona deposited a large amount of money into savings, the additional amount deposited was not statistically different from \$0 after six months ( $p = 0.46$ ). The group sizes for members receiving the text messages were relatively small (a little over 100 members each), and so we may not be able to detect an impact that might exist with a larger sample.

The empowering tone was highly effective at encouraging members both to save and maintain those savings to achieve higher net savings balances. On average, SaverLife members who received the empowering messages deposited \$2,032 more (or 53% more) into savings during the six-month period following the start of the race, compared with participants who didn't receive text messages.\*\*

Members receiving the empowering text messages also had more success at growing their savings balances over time. During the six months following the start of the race, SaverLife members receiving the empowering text messages increased their savings balances by \$950 more per member on average, or 7.7 times more,\*\* compared with participants in the race who didn't receive the text messages.

SaverLife members who received the supportive messages saved significantly less in the six months following the start of the race, compared with participants who did not receive message reminders. Their deposits were \$1,320 less on average, or 34% lower.\*\* While the text messages did not impact this group's savings balances, the lower deposits for this group are a surprising result, given that reminders typically increase savings. Previous research has found that the content of savings messages can lead to a variety of outcomes, however, although the factors influencing those outcomes remain uncertain.<sup>17</sup>

## Peer Comparison

Savings deposits for SaverLife members with access to the Leaderboard trended upward during the study, but were not statistically different from the savings deposits of participants in the race without access to the Leaderboard.<sup>18</sup> Access to

the Leaderboard also did not impact members' net savings balances. Previous studies of peer comparison effects have found that this approach has a greater impact when information is provided consistently over significant periods of time, like months or years, during which people adjust their habits.<sup>19</sup> Because SaverLife's Leaderboard was implemented relatively briefly during the two-month period of the Race to \$500, we may not be able to detect in this study any potential positive impacts if implemented over a longer timeframe.

Alternatively, the information the Leaderboard provided, such as the largest savings deposits, may not have been as motivating for members who faced greater challenges to saving. More targeted comparisons, such as to members facing similar financial situations, could help to increase members' motivation to save.



\*\* Statistically significant at 5% level ( $p < 0.05$ )

<sup>17</sup> Dean Karlan et al., *Getting to the Top of Mind: How Reminders Increase Saving*, *Management Science*, 2016, 62(12): 3393-3672.

<sup>18</sup> During the race, members with access to the Leaderboard deposited an additional \$46 above the savings of participants in the race without access to the Leaderboard, which we cannot statistically distinguish from \$0 ( $p = 0.85$ ). After six months, their additional savings deposits rose to \$1,458 with a smaller confidence interval ( $p = 0.20$ ).

<sup>19</sup> Hunt Allcott and Todd Rogers, *The Short-Run and Long-Run Effects of Behavioral Interventions: Experimental Evidence from Energy Conservation*, *American Economic Review*, 2014, 104(10): 3003-3037.

## SECTION 4

# Applications: Increase Savings with Competitions and Empowering Messaging

SaverLife's Race to \$500 savings challenge tested several approaches to motivate its members to save, which provides a rich set of insights for companies seeking to help their own customers build savings:

## 01

**Create savings competitions to increase the amounts that consumers deposit into savings.**

SaverLife members who were invited to the Race to \$500 deposited hundreds of dollars more than the members who only had access to SaverLife's Scratch & Save game. During the race, their deposits were \$145 higher on average, and this grew to an additional \$451 deposited over six months. The Race to \$500 provided the opportunity to win a large prize, particularly relative to its members' existing savings balances.

It also provided more specific goals than the Scratch & Save game by setting savings targets of \$100, \$250, and \$500 and deadlines for reaching the goals. This specificity may have helped members to direct their efforts toward saving larger dollar amounts. The impact of providing an incentivized savings competition like the Race to \$500 is likely to be even greater for companies that aren't providing other prize-linked savings opportunities.

## 02

**Encourage savings with messaging that describes overcoming obstacles and exceeding expectations, while avoiding demotivating support language.**

The tone and focus of messaging to people about their savings progress can significantly impact behavior – and in some unexpected ways. In this

study, a series of empowering text messages that focused on proving skeptics wrong created the most impact, leading to an additional \$950 increase in savings balances. A supportive tone that was straightforwardly positive was ultimately demotivating, leading to lower savings deposits.

## Connect with Us

For resources on measuring financial health, visit:

[finhealthnetwork.org/research/financial-health-measurement](https://finhealthnetwork.org/research/financial-health-measurement).

To connect with us about your financial health innovation, or to learn about the Financial Health Network's other research on financial health solutions, visit:

[finhealthnetwork.org/research/behavioral-insights](https://finhealthnetwork.org/research/behavioral-insights).



# Appendix A

## Invitation to Win Prizes Through the Race to \$500

Official Rules.' Further down, under the heading 'When you...', there is a bulleted list: '• When you...Save \$100, you could win \$100', '• When you...Save \$250, you could win \$250', and '• When you...Save \$500, you could win \$500'. At the bottom, it says 'Happy Saving! The SaverLife Team'."/>

Hi Shana,

Welcome to the Race to \$500! The Holiday Season is coming soon, and we want to help you save for those upcoming expenses. From now until Thanksgiving, we're challenging you to save for a chance to win \$500.

[Join the Race](#)

By clicking "Join the Race" you agree to the [Official Rules](#).

When you...

- When you...Save \$100, you could win \$100
- When you...Save \$250, you could win \$250
- When you...Save \$500, you could win \$500

Happy Saving!  
The SaverLife Team



# Appendix B

## Empowering Text Messages to Increase Savings

<b>Week 1</b>	There are a lot of people out there that don't think SaverLife members can save \$10,000,000 between now and Thanksgiving. Let's prove them wrong 🙌
<b>Week 2</b>	Hi Jennifer! A lot of doubters think SaverLife members can't save \$10,000,000 by Thanksgiving, but we've already saved over one million dollars. Keep proving the doubters wrong! 🙌
<b>Week 3</b>	"Success is only meaningful and enjoyable if it feels like your own." I see you, you hustler, go-getter, money maker. Keep saving! 🏆 – Your pals at SaverLife
<b>Week 4</b>	Hey Chris! We're behind the pace to reach our goal. Don't worry, there's still 5 weeks to prove doubters wrong! Save money today! – \$averLife
<b>Week 5</b>	They never would have thought we'd come this far: Halfway through the Race to 500, we're 40% of the way to our goal of \$10 million. Keep saving! 🙌
<b>Week 6</b>	We're really silencing the doubters now! We're 70% of the way to our \$10 million goal with only a few weeks left. Let's save today!
<b>Week 7</b>	SaverLife Members are proving all doubters wrong! 2 weeks left and we've saved over \$8 million together! Two more weeks to get to \$10 million.
<b>Week 8</b>	Let's end on a high note! Two more weeks to go, y'all. If we keep saving collectively, we can reach the mountaintop 🏔️
<b>Week 9</b>	Who stashed \$10 MILLION away for the holidays? You! All! Did! We can only go up from here 🙌

# Appendix C

## Group Comparisons Across Demographics

Household Income	Total	Not Invited	Invited	Race Only	Race and Supportive SMS	Race and Empowering SMS	Race and Commanding SMS	Race and Leaderboard
\$0-\$25k	13%	28%	12% <sup>1</sup>	23%	32% <sup>2</sup>	38% <sup>2</sup>	34% <sup>2</sup>	34% <sup>2</sup>
\$25k-\$50k	7%	13%	6% <sup>1</sup>	15%	14%	14%	17%	14%
\$50k-\$100k	4%	6%	4% <sup>1</sup>	11%	14%	13%	15%	10%
\$100k+	2%	2%	2%	4%	5%	4%	1%	3%
Missing	75%	51%	75% <sup>1</sup>	48%	34% <sup>2</sup>	32% <sup>2</sup>	34% <sup>2</sup>	39% <sup>2</sup>
Sample Size	40,510	1,360	39,150	2,606	112	101	113	309

Age	Total	Not Invited	Invited	Race Only	Race and Supportive SMS	Race and Empowering SMS	Race and Commanding SMS	Race and Leaderboard
18-24	3%	8%	2% <sup>1</sup>	3%	4%	5%	5%	3%
25-34	9%	18%	9% <sup>1</sup>	18%	16%	21%	23%	23% <sup>2</sup>
35-44	7%	12%	7% <sup>1</sup>	15%	21%	15%	23% <sup>2</sup>	18%
45-64	6%	9%	6% <sup>1</sup>	16%	23% <sup>2</sup>	25% <sup>2</sup>	14%	16%
65+	1%	1%	1%	3%	4%	4%	1%	2%
Missing	74%	51%	75% <sup>1</sup>	46%	32% <sup>2</sup>	31% <sup>2</sup>	34% <sup>2</sup>	38% <sup>2</sup>
Sample Size	40,510	1,360	39,150	2,606	112	101	113	309

Gender	Total	Not Invited	Invited	Race Only	Race and Supportive SMS	Race and Empowering SMS	Race and Commanding SMS	Race and Leaderboard
Female	21%	38%	21% <sup>1</sup>	49%	54%	58%	57%	49%
Male	7%	11%	7% <sup>1</sup>	17%	19%	17%	16%	21%
Non-Binary	0%	2%	0% <sup>1</sup>	0%	0%	1%	0%	0%
Missing	71%	50%	72% <sup>1</sup>	34%	27%	24%	27%	30%
Sample Size	40,510	1,360	39,150	2,606	112	101	113	309

Starting Savings Balance	Total	Not Invited	Invited	Race Only	Race and Supportive SMS	Race and Empowering SMS	Race and Commanding SMS	Race and Leaderboard
<=\$0	15%	21%	14% <sup>1</sup>	7%	8%	5%	8%	10%
\$0-\$100	27%	30%	27% <sup>1</sup>	15%	20%	31% <sup>2</sup>	28% <sup>2</sup>	20% <sup>2</sup>
\$100-\$1k	18%	22%	18% <sup>1</sup>	18%	29% <sup>2</sup>	21%	16%	24% <sup>2</sup>
\$1k-\$2.5k	6%	5%	6%	7%	7%	6%	12% <sup>2</sup>	11% <sup>2</sup>
\$2.5k+	6%	5%	6%	9%	13%	16%	13%	16% <sup>2</sup>
Missing	29%	17%	29% <sup>1</sup>	45%	22% <sup>2</sup>	22% <sup>2</sup>	23% <sup>2</sup>	19% <sup>2</sup>
Sample Size	40,510	1,360	39,150	2,606	112	101	113	309

Account Tenure	Total	Not Invited	Invited	Race Only	Race and Supportive SMS	Race and Empowering SMS	Race and Commanding SMS	Race and Leaderboard
Average Days of Account Tenure	429	168	438 <sup>1</sup>	206	245	325 <sup>1</sup>	268 <sup>2</sup>	306 <sup>2</sup>
Sample Size	40,510	1,360	39,150	2,606	112	101	113	309

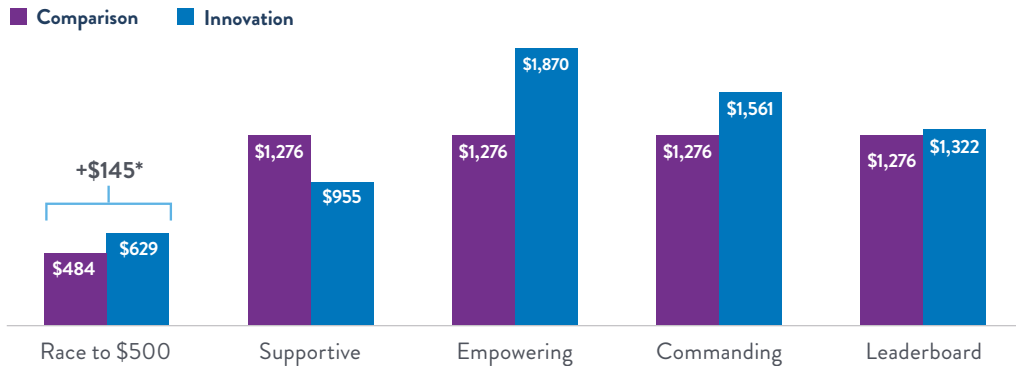
<sup>1</sup> Significantly different from the “Not Invited” group within 95% Confidence Interval.

<sup>2</sup> Significantly different from the “Race Only” group within 95% Confidence Interval.

# Appendix D

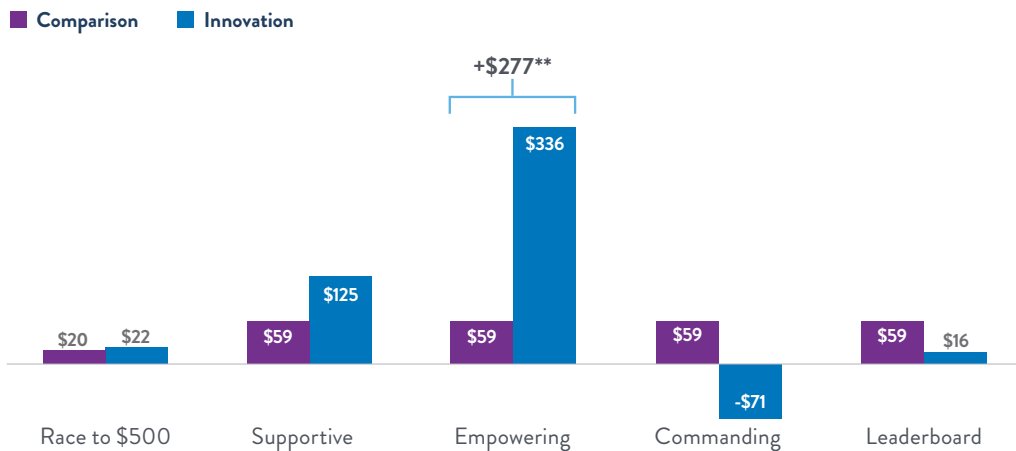
## Financial Health Impacts During the Race to \$500

**Figure D1. Having Access to the Race to \$500 Increased Deposits During the Race**  
Average deposits into savings accounts during the Race to \$500



Notes: Bars in purple show the average deposits into savings accounts for those who were in the comparison group, and the bars in blue show the average deposits into savings accounts for those who were invited to the race and its additional features. See Figure 3 for the corresponding comparison group for each. We indicate the significant differences between the treatment and control groups with brackets. Differences between bars that are not shown in brackets are not statistically significant. This analysis controls for income, age, gender, savings balances at the start of the race, and account tenure. The analysis excludes 301 users who had missing values for savings deposits during the race because they linked new accounts during the race.

**Figure D2. Empowering Messaging Had a Positive Impact on Net Savings During the Race**  
Average net change in savings balances during the Race to \$500



Notes: Bars in purple show the average net change in savings balances for those who were in the comparison group, and the bars in blue show the average net change in savings balances for those who were invited to the race and its additional features. See Figure 3 for the corresponding comparison group for each. We indicate the significant differences between the treatment and control groups with brackets. Differences between bars that are not shown in brackets are not statistically significant. This analysis controls for income, age, gender, savings balances at the start of the race, and account tenure.





\* Statistically significant at 10% level ( $p < 0.1$ )

\*\* Statistically significant at 5% level ( $p < 0.05$ )



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135 S. LaSalle, Suite 2125, Chicago, IL 60603 | 312.881.5856

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