

INVITED REVIEW OPEN ACCESS

The Value of Holistic Financial Advice

Shlomo Benartzi

Behavioral Decision-Making Group, UCLA Anderson School of Management, Los Angeles, California, USA

Correspondence: Shlomo Benartzi (benartzi@savemoretomorrow.org)

Received: 12 August 2024 | **Revised:** 29 December 2024 | **Accepted:** 2 January 2025

ABSTRACT

Financial advice has historically been narrowly focused on investing decisions, which has led to skepticism from researchers and policymakers about its value, both in terms of the net alpha and personalization level of advised portfolios. This article explores the potential value of broader, or holistic, financial advice that also covers savings, debt and insurance decisions, which are relevant to a much broader population, not just those with enough wealth to care about investment alpha. The results show that there's tremendous value in holistic financial advice, which is worth \$4384 per year or 7.5% of annual income for the typical household and translates into 2472 bps of the median 401(k) account balance. More importantly, this type of advice can be especially valuable for those with lower income who historically have been underserved. While policymakers have traditionally focused on the costs of financial advice, this research suggests that they should also be concerned about ensuring low and middle-class households have access to valuable holistic guidance, which is becoming increasingly affordable by leveraging AI and other technologies.

1 | Introduction

In recent years, government regulators have taken an increasingly skeptical view of the value provided by investment advisors. This has led to several new regulations, including additional disclosures around fees, broadening the definition of a fiduciary, and strict guidelines with respect to IRA rollovers. Employers are also increasingly skeptical as fiduciaries, worried that financial advice might not be worth the cost.

Yet, decades of research in behavioral economics suggest people need extensive help when it comes to financial decision making, especially given the challenges of household finance in the 21st century (Benartzi and Thaler 2007; Thaler and Benartzi 2004; Benartzi 2012; Benartzi and Thaler 2013; Beshears et al. 2018). Furthermore, digital advisors should be able to provide advice at a lower cost, as evidenced by the influx of “robo-advisory” services offering investment advice for a fraction of the cost of human advisors. With the advent of financial advisory platforms using AI technology, the cost is falling even further—we're already seeing select digital advisors offering guidance at no cost.

In addition, digital advisors can be more transparent and auditable than human advisors. In theory, this should make it easier to identify and correct for any self-interested recommendations.

Given the lower cost and increased transparency of digital advice, why is there so much continuing skepticism about the cost-benefit tradeoff of financial advice?

Narrow framing is one likely explanation, as policymakers have exclusively focused on a cost-benefit analysis of *investment* advice. For instance, a typical financial advisor might charge 1% per year of the advised investments. Yet, a recent study has shown that advised clients underperform the benchmark, earning a net alpha between negative 2% and 3% per year (Linnainmaa, Melzer, and Previtero 2021). Research also shows that human advisors struggle to personalize the investment portfolio based on client preferences, often inflicting their own personal preferences on their clients (Foerster et al. 2017).

In this article, we focus on the potential value of delivering financial advice in other domains, such as savings, insurance and debt management. We refer to such advice as *holistic*

This is an open access article under the terms of the [Creative Commons Attribution](https://creativecommons.org/licenses/by/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2025 The Author(s). *Financial Planning Review* published by Wiley Periodicals LLC on behalf of Certified Financial Planner Board of Standards, Inc.

TABLE 1 | The value of sure wins by domain.

	Gain per winner (\$)	Gain per winner (% of pay)	Percent of winning employees	Average win across all (\$)	Average win across all (% of pay)
Savings	\$1242	1.63%	31.3%	\$389	0.51%
Insurance	\$510	2.00%	61.0%	\$311	1.22%
Debt	\$2632	3.88%	20.0%	\$526	0.78%
Total	\$4384	7.51%		\$1226	2.51%

financial advice and measure its benefits. Of course, holistic financial advice can also be defined even more broadly and include domains such as human capital. This article argues that the potential value of holistic financial advice is so significant, and the cost is falling so quickly with new technology, that even an approximate cost–benefit analysis will justify the cost.

While it's true that households can currently get advice in these different domains, the advice is often fragmented. In order to get the equivalent of holistic advice, a person would need access to a registered investment advisor, a loan broker, a debt counselor and an insurance agent. This presents significant obstacles, especially for lower income individuals. In addition, many of these financial choices are interlinked, and benefit from coordination. For example, the decision to buy long-term care could affect how quickly you can afford to draw down your assets in retirement, or the size of your bequest. The decision to buy a high-deductible medical plan could affect how much a household should put aside in emergency savings.

It is obviously difficult to evaluate the full impact of financial advice. In part, this is because financial advice typically involves tradeoffs and uncertainty. For example, a parent can take her daughter for ice cream today or, alternatively, save the money in a 401(k) plan and take multiple grandkids for ice cream in the future. It is not clear which strategy is better.

To address these issues, this article focuses on situations with sure wins. These situations are much more common than is typically assumed, especially if one looks beyond the narrow space of investment advice. While investment advice is needed, it shouldn't be the *only* type of advice. We will focus on three situations—savings, debt and insurance—in which financial guidance can offer people an arbitrage opportunity, giving them measurable upside with no downside. These sure win situations are the equivalent of getting ice cream now and in the future.

These arbitrage opportunities are big enough to significantly impact the financial wellbeing of the typical American household. When holistic advice is evaluated, it can be worth \$4384 per year, 7.5% of annual income, or 541 bps assuming an average 401(k) account balance for those who need advice in multiple categories.¹ (If we look at the median account balance, which is more representative of most workers, this holistic advice is worth 2472 bps. Of course, given the skewness of the distribution, the value of advice is very sensitive to account balance.)

Of course, not everyone will need advice and guidance to the same degree. For example, if you're already debt-free, you won't need help refinancing your loans. However, even after factoring in the variability in the need for advice, holistic financial advice is worth \$1230, 2.5% of income, or 151 bps across all workers. (If using the median account balance, it is worth 693 bps.)

The potential benefits of holistic advice are particularly necessary and impactful for low-income households. For example, choosing the right insurance has a 10 times larger impact on annual income for lower-income households, relative to higher income households (Bhargava, Loewenstein, and Benartzi 2017a). Although professional financial advice has been treated like a luxury good, reserved for households with the most wealth, lower income and underserved households could actually benefit far more from affordable and holistic financial advice.

While this article focuses on the potential value of holistic financial advice, there is likely to be gap between potential value and realized value due to longstanding issues with advice take-up rates (Fernandes, Lynch, and Netemeyer 2014). This is due to a variety of factors, include scarcity of attention and, when it comes to digital advice, algorithmic aversion, which leads people to reject advice that isn't delivered by a human (Greig et al. 2022; D'Acunto and Rossi 2023).

Clearly, the potential value of financial advice is extremely high. However, by using the right mix of digital and human advice, the cost of advice can be significantly reduced, further boosting its ROI. Although regulators remain concerned about the cost of financial advice, it's the *absence* of holistic financial advice that turns out to be so expensive.

2 | Sure Win 1: Retirement Savings

Research by James Choi, David Laibson and Brigitte Madrian finds that nearly 40 percent of older workers are leaving “\$100 bills on the sidewalk” (Choi, Laibson, and Madrian 2011). That's because they are failing to maximize the company match in their 401(k) plan. While some younger workers might have reasons to not maximize the match—in many instances, it's smarter to pay off your expensive debt first—workers older than 59.5 can cash out their contributions *and* the generous match at many companies. (Those younger than 59.5 can still benefit from the match, provided they're patient.)

For the older workers studied by the scientists, the failure to maximize the match proved quite costly. While there is a large

amount of variability across different companies in terms of average win per employee, the median company displayed an average potential win worth 1.63% of annual salary, or \$1242 per worker (see Table 1).²

Some might object that these benefits from advice are short-lived, as people will eventually learn how to maximize their match. However, those older workers had a mean tenure of 16 years, and still failed to maximize their match. Without actionable advice, they are unlikely to ever realize the sure win.

Most employees are not in their 60s, and thus can't immediately benefit from this sure win. However, there are additional arbitrage opportunities in the savings domain that apply to workers of *all* ages. Consider research by Taha Choukhmane, Lucas Goodman and Cormac O'Dea. They looked at couples who both have access to 401(k) accounts with employer matches. To optimize their benefit, couples should increase their contributions to the employer with the higher match. Unfortunately, roughly 25% of couples fail to do this, which costs them an average of \$700 per year (Choukhmane, Goodman, and O'Dea 2021). These couples can surely benefit from professional financial advice.

Furthermore, even if workers are young and single, they can still benefit from other sure wins in the savings domain. For instance, people with student debt can benefit from new provisions related to employer matches and student debt. In this case, workers can continue to pay off their education loans while their employer deposits their match into their 401(k) account. If their employer offers such a match program, employees simply need to inform their employer that they are paying off their debt in order to receive the match.

Others might object that many people think they can manage their finances on their own. However, the available evidence suggests that the vast majority of these people are still likely to benefit from financial advice. Research I conducted with Nobel Laureate Richard Thaler showed that 80% of those who declined investment advice, and created their own portfolios, actually preferred the professional portfolios when shown the impact of their selections on retirement outcomes (Benartzi and Thaler 2002).

Far more advice is needed than people realize.

3 | Sure Win 2: Debt Management

Although financial advice has typically focused on the management of assets, American households carry more than \$16.5 trillion in debt, including mortgages, as of 2022.³ This amount exceeds the value of all defined contribution retirement plans by \$7.2 trillion,⁴ which is why holistic financial advice should also help households manage their debt.

Research by Benjamin Keys, Devin Pope and Jaren Pope found that about 20% of households with good credit fail to refinance their mortgage despite lower available rates, with the average household paying \$2632 extra per year (Keys, Pope, and

Pope 2016). For the typical worker, that's equivalent to roughly 3.88% of their annual income.⁵

Furthermore, because the mortgage is almost always the largest single expense for homeowners, effective refinance strategies can save them large sums of money, which they can invest in ways that boost their financial wellbeing. Over the lifetime of the mortgage, after factoring in complexities such as the probability of the household moving, the cost of refinance, and taxes, the researchers estimate a gain of \$15,797.⁶

Obviously, mortgage rates fluctuate over time. There will be periods when more people will benefit from refinancing, and periods when fewer will benefit. But through all the ups and downs, one constant remains: people will need holistic financial advice to ensure they aren't wasting money on their debt. But refinancing is not just about saving money when rates decline—it's also about managing risks. In particular, refinancing is relevant for households with adjustable-rate mortgages who have little financial buffer, and thus might be forced into foreclosure when their payments increase.

But what if there aren't any opportunities to refinance the mortgage, either because rates have risen, or the household doesn't own a home? There are still likely to be savings from helping people manage their other forms of debt. Consider credit cards. Recent research by John Gathergood and colleagues finds that households fail to prioritize repayment for credit cards with higher interest rates (Gathergood et al. 2019). For households with five or more credit cards, this mistake costs them, on average, \$1571 per year.⁷ Just imagine how else that money could be used to improve their financial wellbeing.

Many households also choose the wrong credits cards. For example, there is significant price dispersion across various credit cards. Unfortunately, research by Victor Stango and Jonathan Zinman finds that many card shoppers fail to identify the better alternatives. This leads shoppers versus non-shoppers to pay interest rates that "are as different as those paid by borrowers in the best versus worst credit score deciles" (Stango and Zinman 2016).

4 | Sure Win 3: Insurance

Research by Saurabh Bhargava, George Loewenstein and Justin Sydnor found that 61% of workers chose the wrong health insurance plan (Bhargava, Loewenstein, and Sydnor 2017b). For these workers, it was a costly error, leading them to overspend by an amount equivalent to 24% of the typical premium. This is equivalent to losing \$510 per year, or roughly 2% of their annual income.⁸ This is an especially problematic mistake given that many people now purchase health insurance online, and rely on websites that can exacerbate these mistakes (Bhargava, Loewenstein, and Benartzi 2017a).

Why do so many people choose the wrong plan? They are drawn to insurance options with lower deductibles, but fail to realize that the additional premium cost is disproportional. For example, in the plans studied by the researchers, employees had to

pay more than \$500 with certainty in additional premiums to reduce their deductible from \$1000 to \$750, resulting in a potential cost-savings of just \$250, or half of the increase in premiums. This means they'll be paying more for a low-deductible plan, regardless of how much health care they consume (Brot-Goldberg et al. 2017).⁹

Taken together, these examples of sure wins from the domains of savings, debt and insurance could add up to a 7.5% pay raise for the typical worker, giving them an additional \$4384 per year in income. Since advice is often charged as a percentage of investable assets, we also calculated the value of advice relative to the average and median 401(k) account balances, which is 541 and 2472 bps, respectively. We also considered using total household wealth as the denominator in the calculation, but the problem is that household wealth is often negative due to debt levels.

Of course, not all employees will require help across all three domains. For instance, some people might be renters, and aren't concerned about refinancing their mortgage. As a result, it's important to estimate the fraction of people who need help and the average win across *all* employees.

For savings, the average win is 1.63% of pay, but since only 31% of older workers need help arbitraging the match, the average win across all workers is 0.51% of salary (Choi, Laibson, and Madrian 2011). For debt refinancing, the average win is slightly larger at 3.88% of pay, but since this opportunity applies to 20% of homeowners, the average across all homeowners is 0.78% of salary (Keys, Pope, and Pope 2016). Improving insurance selections leads to an average win of 2.00% of salary, with 61% of workers living money on the table. This leads to average win of 1.22% across all workers (Bhargava, Loewenstein, and Sydnor 2017b). Interestingly, these calculations suggest that often overlooked elements of holistic financial advice—debt and insurance—generate more value than the retirement savings interventions that are more reflective of traditional financial advice.

In total, these wins generate the equivalent of a 2.51% salary increase across all employees. Translated into basis points, the numbers are 151 and 693 using the average and median 401(k) account balances, respectively.

One important caveat is that there's very little data on holistic financial planning, as it has yet to be widely implemented. As a result, we are forced to add numbers from different studies that use different populations with different income levels. Although these are difficult numbers to aggregate, we expect the total projected value of advice to become more precise as more data and research become available.

If none of these sure wins are relevant for a given worker, does that mean he or she should skip financial advice? Not at all. These are just three easily measured examples of sure win situations. There are many more, including entire categories I have not addressed, such as taxes. Consider a study of the earned income tax credit (EITC) (Bhargava and Manoli 2015). Approximately, 25% of eligible households fail to claim the

credit (Plueger 2009), leading to an average foregone gain of \$1681.¹⁰ That's equivalent to more than a month of salary for these households.

5 | Probable Wins

In addition to the sure wins listed above, holistic advice can also generate highly probable wins that are not guaranteed, yet can still add large amounts of value.

Consider research on the Social Security claiming decisions of American workers by David Altig, Laurence Kotlikoff and Victor Yifan Ye (Altig, Kotlikoff, and Ye 2022). They find that virtually all Americans should delay claiming until age 65, and 90% should delay claiming until age 70. Unfortunately, only 10% of people actually do so. For workers who claim too early, the median loss is \$182,370. This mistake is particularly costly for lower-income workers: their median loss is nearly 16% of retirement income, with one in four losing more than 27% of retirement income. (Of course, not all workers have sufficient savings to delay claiming until age 70. However, every month of delay they can afford will still lead to an increase in their lifetime benefits.) While these wins aren't certain—you might be one of the unlucky retirees who dies at a younger age—we shouldn't discount that \$182,370 gain to \$0 just because there's a chance the strategy won't *always* work.

6 | Non-Monetary Wins

The above wins focused on the monetary aspect of improved financial choices as measured by increases in income. We should not forget or discount, however, the possibility of non-monetary wins. Consider a common choice faced by millions of Americans: should they try to save money by buying generic drugs? Given the high cost of prescribed medicines, roughly 30% of Americans either skip doses, take an over-the-counter treatment instead, or fail to fill a prescription (Hamel et al. 2022). While generic drugs might seem beyond the scope of financial advice, and beyond the expertise of financial advisors, new technologies such as AI can help advisors offer guidance on a far wider range of financial decisions.

By encouraging people to learn more about generic drugs, AI chatbots can help them “win” back 80 percent of the cost of their medications, which is the monetary win. That, in turn, can help them take their medicine as prescribed, which is likely to improve their health and provide a critical non-monetary win.

These non-monetary wins might be more common than it seems at first glance, given the high levels of financial stress reported by American workers. That stress impacts many aspects of life, even causing truck drivers to get into *preventable* accidents (Meuris and Leana 2018). Similarly, older employees approaching retirement report outliving their money in retirement as a leading concern.¹¹ Providing them with a sustainable retirement income plan could provide significant emotional benefits with tremendous non-monetary value.

7 | Not All Wins Are Created Equal

These wins are particularly impactful for low-income households. Take health insurance. While approximately 30% of workers with annual incomes above \$100,000 chose the wrong health insurance plan, nearly 70% of workers making less than \$35,000 chose the wrong plan (Bhargava, Loewenstein, and Sydnor 2017b). They also see a much larger benefit from improved insurance selection—workers with the lowest income benefit five to ten times more, as measured by gains as a percentage of salary, than workers with higher incomes.

The best way to get sure wins for *everyone*, including low-income households, is to eliminate those options that are sure losers. In the case of health insurance, the advice might actually be implemented by the employer, as they should consider eliminating suboptimal plans that offer low deductibles with disproportionately high premiums.

However, making it easy to avoid losers by simply removing them from the consideration set is not always possible. Consider, for example, financial aid for low-income households. The challenge here is not the existence of losers—it's the difficulty of winning, which requires extensive paperwork during the application process.

Eric Bettinger, Bridget Terry Long and Philip Oreopoulos showed that auto-filling the FAFSA financial aid application using existing tax records increased college enrollment rates among low to moderate income students by approximately 25% (Bettinger et al. 2012). Automatically completing financial forms is likely to also boost earned income tax credit applications, refinance applications and other wins that requires time-consuming paperwork.

The dramatic impact of such interventions demonstrates the benefit of making the right choice the easy choice. Although traditional financial advice has focused on improving the investment portfolios of those who have already accumulated significant wealth, holistic guidance combined with a “make it easy” approach can greatly expand the pool of underserved households who could meaningfully benefit from advice. In some cases, it can even make it possible for students to attend college. For those who are concerned that the impact of advice is short-lived, it's important to remember those situations in which the advice is actually life-changing.

8 | Summary and Discussion

This article documents the potential value of holistic financial advice in the 21st century. When advice reflects the wide range of financial decisions the typical household faces, it can be worth \$4384 per year or 7.5% of annual income. Furthermore, the value of advice is potentially up to 10 times larger for underserved groups, such as low-income households. These people are currently getting the least guidance. But they are likely to benefit the most.

As noted above, this article provides a rough sizing exercise based on aggregating existing studies with different populations.

TABLE 2 | High-level recommendations for providing holistic advice and increasing access.

Recommendations for better advice	Recommendations for democratizing advice
1. Advice should cover saving, debt management and insurance, not just investing.	1. Policy makers should focus more on access to holistic financial advice which requires using tech for scaling.
2. Advice should be actionable and easy for people to implement.	2. Policy makers should devise a regulatory framework for new technologies such as AI as soon as possible to facilitate responsible adoption.
3. Advice should help those who need it most.	3. Policy makers should consider the “independent financial expert model” to facilitate transparent advice and address the “black box” concerns of AI technology.
4. Advice should optimize the mix of humans and technology to balance algorithmic aversion and the scale of technology.	4. Policy makers need to agree on the proper tradeoff between user privacy and the data sharing needed to personalize holistic advice.

Additional research is needed to obtain more precise estimates of the value of holistic advice.

The good news, however, is that the cost of advice is rapidly declining. If current trends hold, the costs of holistic advice are likely to become negligible in the near future. One popular investment robo-advisor, for instance, charges \$48 a year to manage accounts equivalent to the median 401(k) balance. Another up-and-coming digital advisor that advises people about savings, insurance and debt management using AI technologies is offered free of charge to all Americans. With the cost already at zero, or near zero, any cost-benefit analysis justifies the value of holistic advice.

Given the likely benefits of holistic financial advice and the minimal costs, it's essential that policymakers increase access to advice, especially for the underserved. To their credit, there were some efforts to boost access, though they were limited in scope. For instance, in 2001 there was a concern that 401(k) plan providers would provide investment advice that steer participants towards higher fee funds. To address this concern, the United States Department of Labor issued a landmark opinion allowing 401(k) plans to provide investment advice for a level fee to participants, provided the advice was generated by "a computer program applying a methodology developed, maintained and overseen by an independent financial expert."¹² This letter transformed the services offered by retirement plan providers, allowing them to also help workers create well-diversified portfolios.

Fast forward to 2025. If we want to expand advice beyond investments and a worker's 401 k allocation, and capture the value-add of holistic advice, there's a new challenge. Regulators are now concerned that the black box of AI will steer people to the wrong investments and financial products. Can we learn something from the 2001 solution that set the independent financial expert model?

We need an equivalent opinion in 2025, which would encourage financial institutions to provide holistic advice by engaging with technology, either in a pure or hybrid fashion (in concert with a financial professional). One solution to consider is the independent financial expert model created by the Department of Labor in 2001. The independent expert will set the financial algorithms that will specify the advice, which will then be communicated by an AI engine such as ChatGPT. This is the best way to ensure that not only is the advice set by experts and available to every American 24/7—it is also objective, consistent, transparent, and auditable. (Because digital advice is more transparent and auditable, regulators can ensure that it's recommendations are in the best interest of the client.) A regulatory framework like this from policy makers would encourage both startups and large financial institutions to offer affordable holistic financial advice.

Furthermore, holistic financial advice can become an important tool for achieving policy goals. Policymakers continue to make significant investments to influence behavior—tax incentives, for instance, are used to encourage retirement savings. However, research suggests that many of these incentives are not efficient (Benartzi et al. 2017). Holistic advice can make existing incentives more effective, and help policy makers achieve their policy goals. See Table 2 for a summary of recommendations and

guiding principles that can help the industry and policymakers develop holistic advice platforms that are accessible, transparent and easy to use.

Even if we give all workers access to holistic advice, we still need to increase the adoption rates of advice (Stolper 2018). To ensure that these sure win opportunities lead to real income gains, future research should identify the most engaging and effective advice interventions. This research program can be roughly divided into three different categories: information architecture, choice architecture and thinking architecture.

Sure wins involving information architecture, for instance, can build on the work of Hal Hershfield and others on the impact of digitally-aged selfies on retirement savings decisions (Hershfield et al. 2011). Dan Goldstein, Hal Hershfield, Joseff Reiff and I are currently testing the impact of generative visual AI tools on engagement and adoption of retirement savings advice. In particular, using The Retirement Visualizer, we invite subjects to describe their ideal retirement, then use the AI tool to generate a vivid image of this setting. For instance, a worker might describe spending time with the grandkids at Disneyland, or fly fishing in Wyoming. We are researching whether these images engage workers and increase the likelihood of them accepting the recommended savings rates.

An additional information architecture intervention could help consumers understand the expected annual cost of different insurance policies, and thus become more likely to select the sure win option. (This approach has been shown to improve the insurance selections of consumers, Bhargava, Loewenstein, and Benartzi 2017a). While this article summarizes the cost of consumer mistakes in the health insurance domain, similar mistakes are likely to also impact households when selecting other forms of insurance, such as auto, home and disability. How easily can these other insurance choices be addressed with scalable nudges involving information architecture?

Sure wins involving choice architecture, meanwhile, can explore the role of defaults in various household financial decisions. For example, many cash-strapped households over-withhold income taxes, thus providing the government with a tax-free loan while simultaneously paying high interest rates on their debt (Jones 2012). Can predictive AI be used to set defaults and improve the withholding selections of workers? As a rule of thumb, we should make advice actionable and automated whenever possible.

Finally, research in thinking architecture could explore the use of query theory to improve financial decision making. Query theory is a framework for understanding the decision-making process in terms of internal "queries," or self-addressed questions. The sequence and content of these queries can impact an individual's selections. One potential use for query theory is to improve Social Security claiming decisions. As noted above, the median loss for workers who claim too early is \$182,370, with lower-income workers suffering the biggest relative losses. However, research shows that query theory can help delay social security claiming decisions by influencing the sequence of thoughts: When people think first about the benefits of delaying claiming Social Security, they are more likely to wait (Knoll et al. 2015). To create a scalable intervention using query theory,

an AI chatbot could structure the Social Security conversation and its queries so people first think about the bigger benefit that comes with delayed claiming, and only then settle on a claiming date. In short, AI can become a thinking architecture tool, helping people maximize their sure and probable wins.

Regulators have been struggling with increasing access to affordable financial advice for decades. We've made progress. However, it's important to recognize that we finally have the tools and the opportunity to deliver inexpensive, transparent and consistent advice to every American. Future research can help us deliver on this opportunity, as we test and iterate interventions that ensure the advice is adopted and effective.

Acknowledgments

Thank you to John Beshears at Harvard University, Saurabh Bhargava at Carnegie-Mellon University, James Choi at Yale University, Craig Fox at UCLA, Eric Johnson at Columbia University, John Payne at Duke University, Ehug Peleg at UCLA, and Richard Thaler at the University of Chicago for their feedback and suggestions. And thank you to Lauren Frederick at Cornell for her help with research and fact-checking.

Endnotes

- ¹ Account balance information is based on ICI Research/EBRI, "Changes in 401(k) account balances 2010–2019," June 2022, Vol 28.
- ² All numbers in 2022 dollars using [inflationtool.com](https://www.inflationtool.com). Original numbers were \$677 in losses in 1998 dollars.
- ³ <https://www.newyorkfed.org/microeconomics/hhdc>.
- ⁴ https://www.ici.org/statistical-report/ret_22_q3.
- ⁵ All numbers adjusted for inflation; original numbers were \$1920 annual loss in 2010 dollars. Average salary loss was based on real median household income of \$49,445 in 2010 dollars.
https://www.census.gov/newsroom/releases/archives/income_wealth/cb11-157.html#:~:text=Real%20median%20household%20income%20in,increase%20in%20the%20poverty%20rate.
- ⁶ All numbers adjusted for inflation; original gain was \$11,500 in 2010 dollars.
- ⁷ 926£ in 2013, converted at an exchange rate of 1.32 and adjusted for inflation using [inflationtool.com](https://www.inflationtool.com).
- ⁸ Adjusted for inflation based on original cost of \$373 in 2010 dollars.
- ⁹ As Zarek Brot-Goldberg and colleagues have shown, this recommendation has limits, as high deductible plans might cause people to avoid beneficial treatments, such as preventative care.
- ¹⁰ Adjusted for inflation using [inflationtool.com](https://www.inflationtool.com). Original amount from 2005 was \$1096.
- ¹¹ Charles Schwab survey of pre-retirees (2020).
<https://pressroom.aboutschwab.com/press-releases/press-release/2020/Schwab-Survey-Finds-High-Anxiety-Among-Pre-Retirees/default.aspx>.
- ¹² <https://www.dol.gov/agencies/ebsa/about-ebsa/our-activities/resource-center/advisory-opinions/2001-09a>.

References

Altig, D., L. J. Kotlikoff, and V. Y. Ye. 2022. "How Much Lifetime Social Security Benefits Are Americans Leaving on the Table? No. w30675. National Bureau of Economic Research."

- Benartzi, S., and R. H. Thaler. 2002. "How Much is Investor Autonomy Worth?" *Journal of Finance* 57, no. 4: 1593–1616.
- Benartzi, S. 2012. *Save More Tomorrow: Practical Behavioral Finance Solutions to Improve 401(k) Plans*. New York, NY: Penguin.
- Benartzi, S., J. Beshears, K. L. Milkman, et al. 2017. "Should Governments Invest More in Nudging?" *Psychological Science* 28, no. 8: 1041–1055.
- Benartzi, S., and R. H. Thaler. 2007. "Heuristics and Biases in Retirement Savings Behavior." *Journal of Economic Perspectives* 21, no. 3: 81–104.
- Benartzi, S., and R. H. Thaler. 2013. "Behavioral Economics and the Retirement Savings Crisis." *Science* 339, no. 6124: 1152–1153.
- Beshears, J., J. J. Choi, D. Laibson, and B. C. Madrian. 2018. "Behavioral Household Finance." In *Handbook of Behavioral Economics: Foundations and Applications 1*, edited by B. Douglas Bernheim, S. DellaVigna, and D. Laibson, 177–276. Amsterdam: Elsevier.
- Bettinger, E. P., B. T. Long, P. Oreopoulos, and L. Sanbonmatsu. 2012. "The Role of Application Assistance and Information in College Decisions: Results From the H&R Block FAFSA Experiment." *The Quarterly Journal of Economics* 127, no. 3: 1205–1242.
- Bhargava, S., G. Loewenstein, and S. Benartzi. 2017a. "The Costs of Poor Health (Plan Choices) & Prescriptions for Reform." *Behavioral Science & Policy* 3, no. 1: 1–12.
- Bhargava, S., G. Loewenstein, and J. Sydnor. 2017b. "Choose to Lose: Health Plan Choices From a Menu With Dominated Option." *Quarterly Journal of Economics* 132, no. 3: 1319–1372.
- Bhargava, S., and D. Manoli. 2015. "Psychological Frictions and the Incomplete Take-Up of Social Benefits: Evidence From an IRS Field Experiment." *American Economic Review* 105, no. 11: 3489–3529.
- Brot-Goldberg, Z. C., A. Chandra, B. R. Handel, and J. T. Kolstad. 2017. "What Does a Deductible Do? The Impact of Cost-Sharing on Health Care Prices, Quantities, and Spending Dynamics." *Quarterly Journal of Economics* 132, no. 3: 1261–1318.
- Choi, J. J., D. Laibson, and B. C. Madrian. 2011. "\$100 Bills on the Sidewalk: Suboptimal Investment in 401 (k) Plans." *Review of Economics and Statistics* 93, no. 3: 748–763.
- Choukhmane, T., L. Goodman, and C. O'Dea. 2021. "Efficiency in Household Decision-Making: Evidence from the Retirement Savings of US Couples. 114th Annual Conference on Taxation. NTA."
- D'Acurto, F., and A. G. Rossi. 2023. "Robo-Advice: Transforming Households Into Rational Economic Agents." *Annual Review of Financial Economics* 15, no. 1: 543–563.
- Fernandes, D., J. G. Lynch, and R. G. Netemeyer. 2014. "Financial Literacy, Financial Education, and Downstream Financial Behaviors." *Management Science* 60, no. 8: 1861–1883.
- Foerster, S., J. T. Linnainmaa, B. T. Melzer, and A. Previtero. 2017. "Retail Financial Advice: Does One size Fit All?" *Journal of Finance* 72, no. 4: 1441–1482.
- Gathergood, J., N. Mahoney, N. Stewart, and J. Weber. 2019. "How Do Individuals Repay Their Debt? The Balance-Matching Heuristic." *American Economic Review* 109, no. 3: 844–875.
- Greig, F., T. Ramadorai, A. G. Rossi, S. P. Utkus, and A. Walther. 2022. "Algorithm Aversion: Theory and Evidence From Robo-Advice. Available at SSRN 4301514."
- Hamel, L., L. Lopes, A. Kirzinger, et al. 2022. "Public Opinion of Prescription Drugs and Their Prices," Kaiser Family Foundation, October 20, 2022. [KFF.org](https://www.kff.org).
- Hershfield, H. E., D. G. Goldstein, W. F. Sharpe, et al. 2011. "Increasing Saving Behavior Through Age-Progressed Renderings of the Future Self." *Journal of Marketing Research* 48: S23–S37.

- Jones, D. 2012. "Inertia and Overwithholding: Explaining the Prevalence of Income Tax Refunds." *American Economic Journal: Economic Policy* 4, no. 1: 158–185.
- Keys, B. J., D. G. Pope, and J. C. Pope. 2016. "Failure to Refinance." *Journal of Financial Economics* 122, no. 3: 482–499.
- Knoll, M. A. Z., K. C. Appelt, E. J. Johnson, and J. E. Westfall. 2015. "Time to Retire: Why Americans Claim Benefits Early & How to Encourage Delay." *Behavioral Science & Policy* 1, no. 1: 53–62.
- Linnainmaa, J. T., B. T. Melzer, and A. Previtero. 2021. "The Misguided Beliefs of Financial Advisors." *Journal of Finance* 76, no. 2: 587–621.
- Meuris, J., and C. Leana. 2018. "The Price of Financial Precarity: Organizational Costs of Employees' Financial Concerns." *Organization Science* 29, no. 3: 398–417.
- Plueger, D. 2009. "Earned Income Tax Credit Participation Rate for Tax Year 2005," Internal Revenue Service Research Bulletin. <http://www.irs.gov/pub/irs-soi/09resconeitcpart.pdf>.
- Stango, V., and J. Zinman. 2016. "Borrowing High Versus Borrowing Higher: Price Dispersion and Shopping Behavior in the US Credit Card Market." *Review of Financial Studies* 29, no. 4: 979–1006.
- Stolper, O. 2018. "It Takes Two to Tango: Households' Response to Financial Advice and the Role of Financial Literacy." *Journal of Banking & Finance* 92: 295–310.
- Thaler, R. H., and S. Benartzi. 2004. "Save More Tomorrow: Using Behavioral Economics to Increase Employee Saving." *Journal of Political Economy* 112, no. S1: S164–S187.