

Achieving American Retirement Prosperity by Changing Americans' Thinking About Retirement*

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Abstract: There are many decisions that Americans have to make about retirement before, at, and after retirement. For example, Americans have to decide when to start saving for retirement, how much to save, how to invest those savings, when to retire, when to claim social security, and how to take required minimum distributions from 401(k) plans or Individual Retirement Accounts. Different things can go wrong at each of these decisions for different reasons. Many Americans, for various reasons, including insufficient energy, money, motivation, time, and understanding, do no retirement planning. Some Americans do some retirement planning, yet worry they are doing insufficient or ineffective retirement planning. A few knowledgeable or wealthy Americans do, or have done for them, sufficient and effective retirement planning. Insufficient or ineffective retirement planning causes Americans to experience decreased financial wealth, health, objective living standards, and subjective well-being in addition to suffer increased anxiety, depression, stress, and worry. Our American economy also has to deal with the resulting negative externalities of many Americans retiring into poverty. This Article analyzes how Americans can achieve retirement prosperity by changing their thinking about retirement. This Article advocates the American federal government educate Americans in thinking about retirement to utilize more thinking tools, think more mindfully, and think more societally. This Article's proposals are based on and introduce to retirement planning the field of cognitive economics.

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INTRODUCTION

In a November 29, 2015 Wall Street Journal article about the key to retirement savings,¹ Robert Powell's final question to behavioral economist Richard Thaler was: "Peter Huang, a professor at the University of Colorado Law School in Boulder, suggests in a recent paper, *Empowering People to Choose Wisely by Democratizing Mindfulness and Thinking Tools*,² that law and policy can and should empower people to choose wisely for themselves by educating people. What say you?" Thaler's answer was "I'm all for empowerment and education, but the empirical evidence is that it doesn't work. That's why I say make it easy."

While it is ironic for an educator to state the empirical evidence is that education to empower people does not work, current empirical data on the efficacy of traditional financial literacy education is at best mixed.³ Naturally, education can take on many forms, including not being about traditional financial literacy. Experiments "suggest that offering investor education, even in the form of a simple instruction, can make a substantial difference."⁴ Also, making it easy may cause individually and socially undesirable outcomes for such financial decisions as applying for mortgages.⁵ Additionally, if something is easy, people may not do it because it lacks immediacy.

How about making retirement planning engaging and fun? A study of 1,031 South Africans employed a symmetric encouragement design to randomly assign people to watch a television soap opera "Scandal!" with scripted, targeted financial messages about debt management and gambling versus "Muvhango" a similar soap opera without financial messages.⁶ The soap operas had similar past viewership profiles and

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1. Robert Powell, *Behavioral Economist Richard Thaler on the Key to Retirement Savings*, WALL ST. J., Nov. 29, 2015, 10:53 PM E.T., <http://www.wsj.com/articles/behavioral-economist-richard-thaler-on-the-key-to-retirement-savings-1448852602>.
 2. Peter H. Huang, *Empowering People to Choose Wisely by Democratizing Mindfulness and Thinking Tools*, Nov. 1, 2015, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2639953. See also Peter H. Huang, *Can Practicing Mindfulness Improve Lawyer Decision-Making, Ethics, and Leadership?* 55 HOUSTON L. REV. 63, 79-101 (2017).
 3. Daniel Fernandes et al., *Financial Literacy, Financial Education and Downstream Financial Behaviors*, 60 MGMT. SCI. 1861, 1862 (2014); Andreas Maaløe Jespersen, *What Financial Behavior Can Learn From Foraging*, Nov. 17, 2013, <http://inudgeyou.com/what-financial-behavior-can-learn-from-foraging/> (discussing this research); Richard H. Thaler, *Financial Literacy, Beyond the Classroom*, N.Y. TIMES, Oct. 6, 2013, at BU16 (discussing the same). See also William G. Gale et al., *Raising Household Saving: Does Financial Education Work?*, 72 SOC. SEC. BULL. 39, 39 (2012); Annamaria Lusardi & Olivia S. Mitchell, *The Economic Importance of Financial Literacy: Theory and Evidence*, 52 J. ECON. LIT., 5, 5 (2014).
 4. Jill E. Fisch & Tess Wilkinson-Ryan, *Why Do Retail Investors Make Costly Mistakes? An Experiment on Mutual Fund Choice*, 162 U. PA. L. REV. 605, 647 (2014).
 5. Alexandra Mondalek, *Rocket Mortgage Super Bowl Ad Criticized for Encouraging Another Housing Crisis*, TIME, Feb. 8, 2016, 1:20 PM, <http://time.com/money/4211862/quicken-loans-rocket-mortgage-super-bowl-ad/>.
 6. Gunhild Berg & Bilal Zia, *Harnessing Emotional Connections to Improve Financial Decisions: Evaluating the Impact of Financial Education in Mainstream Media*, World Bank Policy

overlapped in evening primetime.⁷ The financial storyline lasted two consecutive months, involved a leading character borrowing excessively and irresponsibly, gambling, and falling into a debt trap; and eventually seeking help to responsibly manage her debt.⁸ Scandal! viewers had significantly more financial knowledge about financial concepts and issues included in the program's storyline, especially messages the lead character delivered; were less likely to enter into retail credit or gamble; and were more likely to borrow from formal sources and for productive purposes, in comparison with Muvhango viewers.⁹ Qualitative and quantitative analyses demonstrated the importance of emotional connections with the soap opera's lead character in motivating behavior change.¹⁰ Entertainment mass media provide highly accessible, cost-effective ways of delivering some financial education messages that resonate with millions of viewers.¹¹

The non-profit Doorways to Dreams Fund designed six financial literacy video games to improve the financial capabilities and positively affect the economic lives of low- to moderate-income Americans.¹² To boost 401(k) participation and financial wellness, the office supplies retailer, Staples, offered its employees opportunities to play Bite Club, an online game in which players take on the roles of vampires managing a nightclub, and found in two districts 80% of targeted employees engaged with Staples' game portal webpage.¹³

Playing an entertaining video game can be challenging instead of easy and yet people are self-motivated to play. Motivation is a key to successful teaching and learning.¹⁴ Adrenaline, arousing brain reward centers, dopamine, engagement, excitement, positive affect, and stimulating competitive instincts are important ways

Research Working Paper 6407, Apr. 2013, <http://documents.worldbank.org/curated/en/550641468163145018/pdf/wps6407.pdf>.

7. *Id.* at 3, 15.

8. *Id.* at 3.

9. *Id.* at 18-23.

10. *Id.* at 5, 23.

11. *Id.* at 5-9, 24; Eliana La Ferrara, *Mass Media and Social Change: Can We Use Television to Fight Poverty*, 14 J. EUR. ECON. ASS'N. 791, 813-18 (2016).

12. Nick Maynard et al., *Can Games Build Financial Capability? A Financial Entertainment Report*, D2D Fund, Jan. 16, 2013,

http://www.d2dfund.org/research_publications/can_games_build_financial_capability;
Nicholas W. Maynard et al., *Can Games Build Financial Capability? Financial Entertainment: A Review*, Financial Literacy Center Working Paper, WR-963-SSA, Nov. 2012,
https://www.rand.org/content/dam/rand/pubs/working_papers/2012/RAND_WR963.pdf.

13. Consumer Financial Protection Bureau, *Financial Wellness at Work: A Review of Promising Practices and Policies*, 9, 30, 42, Aug. 2014.

14. See, e.g., Olusegun Agboola Sogunro, *Motivating Factors for Adult Learners in Higher Education*, 4 INT'L J. HIGHER EDUC. 22, 22 (2015).

to get people to become motivated to learn.¹⁵ Infusing retirement planning with aspects of play can involve and connect people.¹⁶ Prize-linked or lottery-linked savings accounts can spur people to save for retirement.¹⁷

A single 30-minute training intervention of playing a fun CSI-type film noir video game improved decision-making by military intelligence analysts and college students immediately and lastingly.¹⁸ The new field of positive computing develops technology to support human potential and well-being.¹⁹ People who started using a mobile financial app with a dashboard of net worth, income, and spending in real-time decreased their spending 15.7% on average during the four months after the app was installed relative to the three months before.²⁰

Although most Americans would like to retire when they choose to do so and enjoy a financially secure retirement, unfortunately this is unlikely to happen for many Americans.²¹ Many Americans find retirement planning and managing household finances boring, emotionally stressful, painful, and unpleasant.²² Although many

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15. Hersh Shefrin, *Born to Spend? How Nature and Nurture Impact Spending and Borrowing Habits*, 22, Apr. 2013, https://www.chase.com/online/chase_blueprint/document/JPMC_Chase_BornToSpend_FINAL.pdf.
 16. STUART BROWN & CHRISTOPHER VAUGHN, PLAY: HOW IT SHAPES THE BRAIN, OPENS THE IMAGINATION, AND INVIGORATES THE SOUL (2010).
 17. See, e.g., Emel Filiz-Ozbay et al., *Do Lottery Payments Induce Savings Behavior? Evidence from the Lab*, 126 J. PUB. ECON. 1, 1 (2015); Kadir Atalay et al., *Savings and Prize-Linked Savings Accounts*, 107 J. ECON. BEHAV. & ORG. 86, 86 (2014); Peter Tufano et al., *U.S. Consumer Demand for Prize-Linked Savings: New Evidence on a New Product*, 111 ECON. LETTERS 116, 116-18 (2011).
 18. Carey K. Morewedge, *How a Video Game Helped People Make Better Decisions*, HARV. BUS. REV. Oct. 13, 2015, <https://hbr.org/2015/10/how-a-video-game-helped-people-make-better-decisions>; Carey K. Morewedge et al., *Debiasing Decisions: Improved Decision Making With a Single Training Intervention*, 2 POL'Y INSIGHTS BEHAV. & BRAIN SCI. 129, 129 (2015).
 19. Rafael A. Calvo et al., *Editorial for "Positive Computing: A New Partnership Between Psychology, Social Sciences and Technologists"*, 6 PSYCHOL. WELL-BEING THEORY, RES., & PRAC. (2016); Rafael A. Calvo & Dorian Peters, *POSITIVE COMPUTING: TECHNOLOGY FOR WELLBEING AND HUMAN POTENTIAL* (2014); Positive Computing Website, <http://www.positivecomputing.org/>.
 20. SHLOMO BENARTZI WITH JONAH LEHRER, *THE SMARTER SCREEN: SURPRISING WAYS TO INFLUENCE AND IMPROVE ONLINE BEHAVIOR* 86-88 (2015); Yaron Levi & Shlomo Benartzi, *Economic Behavior in the Digital Age*, Preliminary Report, <https://blog.personalcapital.com/wp-content/uploads/2014/10/Economic-Behavior-in-the-Digital-Age-2014-10-04.pdf>.
 21. Sean Williams, *Here's How Much You'll Need to Save Annually to Become a Millionaire*, MOTLEY FOOL, July 17, 2016, 7:18 AM., <http://www.fool.com/retirement/2016/07/17/heres-how-much-youll-need-to-save-annually-to-beco.aspx>. See also Chipmunk's Plan for Future Better Crafted Than That Of 8 Out Of 10 Americans, Oct. 10, 2013, 2:00 p.m., THE ONION, <https://www.theonion.com/chipmunk-s-plan-for-future-better-crafted-than-that-of-1819575725> (satirizing how many Americans underprepare for their futures compared with chipmunks).
 22. Alan B. Krueger et al., *National Time Accounting: The Currency of Life*, in MEASURING THE SUBJECTIVE WELL-BEING OF NATIONS: NATIONAL ACCOUNTS OF TIME USE AND WELL-BEING 9, 44, 46-47, tbls.1.8 & 1.9 (Alan B. Krueger ed., 2009).

people find thinking about retirement to be negatively affective, the negative affect ironically is not enough to cause people to be afraid of being poor in old age.²³ This empirical finding implies many Americans likely will engage in little or suboptimal retirement planning due to procrastination and then rush to minimize their anticipated, experienced, and remembered unpleasantness. A large body of empirical and experimental research demonstrates that anticipated and experienced emotions influence financial decisions.²⁴

Effective retirement planning in America currently involves many decisions that require various types of expertise, knowledge, and reasoning abilities.²⁵ There are many decisions that Americans have to make about retirement before, at, and after retirement. For example, Americans have to decide when to start saving for retirement,²⁶ how much to save,²⁷ how to invest those savings,²⁸ when to retire,²⁹ when to claim social security,³⁰ and how to take required minimum distributions from 401(k)

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23. Elke U. Weber, *Who's Afraid of a Poor Old Age? Risk Perception in Risk Management Decisions*, in PENSION DESIGN AND STRUCTURE: NEW LESSONS FROM BEHAVIORAL FINANCE 53, 53-64 (Olivia S. Mitchell & Stephen P. Utkus eds., 2009).
 24. See, e.g., LUCY F. ACKERT & RICHARD DEAVES, BEHAVIORAL FINANCE: PSYCHOLOGY, DECISION-MAKING, AND MARKETS 168-81 (2010) (examining how pride and regret affect financial behavior); Peter H. Huang, *How Do Securities Laws Influence Affect, Happiness, & Trust?* 3 J. BUS. & TECH. L. 257, 261-73 (2008) (explaining how financial regulations impact affect, happiness, and trust on the part of investors and others); Peter H. Huang, *Moody Investing and the Supreme Court: Rethinking Materiality of Information and Reasonableness of Investors*, 13 SUP. CT. ECON. REV. 99, 102-09 (2005) (surveying how moods alter judgment and decision-making of consumers and investors); JOHN R. NOFSINGER, THE PSYCHOLOGY OF INVESTING 24-34 (summarizing how investors' views of themselves result in regret avoidance and pride seeking), 99-110 (analyzing impact of emotions on investment decisions) (4th ed., 2010).
 25. Joanne W. Hsu & Robert Willis, *Dementia Risk and Financial Decision Making by Older Households: The Impact of Information*, 7 J. HUM. CAPITAL 340, 340 (2013).
 26. Selena Maranjian, *Ready to Retire? Not Until You Read This!*, USA TODAY, Sept. 2, 2016, 3:09 PM EDT, <http://www.usatoday.com/story/money/personalfinance/2016/09/02/ready-to-retire-not-until-you-read-this/89497878/>.
 27. Sean Williams, *Here's How Americans Are Letting Nearly \$5 Trillion Go to Waste*, USA TODAY, Sept. 8, 2016, 11:27 AM E.D.T., <http://www.usatoday.com/story/money/personalfinance/2016/09/08/money-market-account-interest-rate-stocks-invest-retirement/89862928/>.
 28. *Id.*
 29. Maurie Backman, *Is 70 the New Retirement Age?*, USA TODAY, Sept. 16, 2016, 2:56 PM EDT, <http://www.usatoday.com/story/money/personalfinance/2016/09/16/is-70-the-new-retirement-age/90256526/>.
 30. Sean Williams, *4 Shocking Things Most People Don't Know About Social Security*, USA TODAY, Sept. 11, 2016, 11 AM E.D.T., <http://www.usatoday.com/story/money/personalfinance/2016/09/11/youll-be-shocked-that-most-people-dont-know-these-4-things-about-social-security/89506450/>.

plans or Individual Retirement Accounts.³¹ Different things can go wrong at each of these decisions for different reasons.

Effective retirement planning also requires certain amounts of critical thinking, curiosity, energy, money, motivation, time, and understanding. Many Americans lack sufficient amounts of these scarce resources and consequently do no retirement planning. Some Americans do some retirement planning yet are anxious and stressed over whether they are doing insufficient or ineffective retirement planning.³² A few knowledgeable or wealthy Americans do, or have done for them, sufficient and effective retirement planning. Insufficient or ineffective retirement planning imposes on individuals the costs of decreased financial wealth, health, objective living standards, and well-being in addition to increased anxiety, depression, stress, and worry. Insufficient or ineffective retirement planning leads to social costs of public expenditures to prevent many Americans from retiring into poverty. This means government spending to provide retirees with a financial safety net beyond our Social Security³³ and Medicare³⁴ benefits that include coverage of medical care³⁵ and long-term nursing home care.³⁶

The U.S. Securities Exchange Commission (SEC) Office of Investor Education and Advocacy³⁷ maintains a user-friendly, well-designed website,³⁸ which provides useful

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31. Susan Tompor, *Plan Ahead: Turning 70 Can Bring a Booming Tax Headache*, USA TODAY, Sept. 18, 2016, 8:34 AM E.D.T., <http://www.usatoday.com/story/money/cars/2016/09/18/plan-ahead-turning-70-can-bring-booming-tax-headache/90436700/>.
 32. See, e.g., Sudipto Banerjee, *Trends in Retirement Satisfaction in the United States: Fewer Having a Great Time*, 37 EMP. BENEFIT RES. INST. NOTES 1, 1, 3-7 figs.1, 2A, 2B, 3AC, 3B, 4, & 5, April 2016, https://www.ebri.org/pdf/notespdf/EBRI_Notes_04_Apr16.Ret-Satis.pdf; Brain Perlman et al., *Pensions and Retirement Security 2011: A Roadmap for Policy Makers*, 1, Nat'l Inst. on Retirement Security, Mar. 2011, http://www.nirsonline.org/storage/nirs/documents/Public%20Opinion/final_report.pdf; Robert Powell, *6 Ways to Have a Happy Retirement*, USA TODAY, May 25, 2016, 1:11 PM E.D.T., <http://www.usatoday.com/story/money/columnist/powell/2016/05/25/6-ways-have-happy-retirement/83547956/>.
 33. Social Security Administration website, *Social Security*, <https://www.ssa.gov/>.
 34. Social Security Administration website, *Medicare Benefits*, <https://www.ssa.gov/medicare/>.
 35. Maurie Backman, *Retiree Health Care Likely to Cost Way Over \$245,000 Estimate*, USA TODAY, July 18, 2016, 3:47 PM E.D.T., <http://www.usatoday.com/story/money/personalfinance/2016/07/18/healthcare-costs-in-retirement/86652164/>.
 36. Chuck Saletta, *Do You Really Need Long Term Care Insurance?*, MOTLEY FOOL, May 6, 2015, 10:07 AM, http://www.fool.com/retirement/general/2015/05/06/do-you-really-need-long-term-care-insurance.aspx?&utm_campaign=article&utm_medium=feed&utm_source=usa-today.
 37. SEC Website, *Information for the Individual Investor*, <https://www.sec.gov/investor>.
 38. SEC Website, *Investor.gov*, <https://www.investor.gov/>.

information about investing in stock markets,³⁹ the basics of investing,⁴⁰ managing and researching investments,⁴¹ information for seniors,⁴² retirement resources,⁴³ information for students,⁴⁴ and publications,⁴⁵ including: "Questions You Should Ask About Your Investments,"⁴⁶ available to be downloaded in English and Spanish. The cover of this publication displays prominently the statement: "Information is an investor's best tool."⁴⁷ A problem with this well-intentioned statement is that most Americans neither collect nor study any information about investments. How helpful and what good realistically and ultimately can information be as a tool if most Americans are cognitively unprepared to process much information before investing?

The average American investor is not Star Trek's iconic Mr. Spock.⁴⁸ American investors are mostly humans instead of Vulcans.⁴⁹ These unmistakable observations mean that mere possession or provision of information does not ensure comprehension of all the logical implications of that information. If that were the case, just disclosing financial risks would be all that is necessary to protect investors. Empirical survey evidence and experimental data reveal that some people, especially overconfident ones, disregard much relevant and readily available information when making financial decisions.⁵⁰ Emotional and psychological factors also limit how much people utilize relevant information in financial decision-making.⁵¹

This Article's central theme is that much of current and proposed American retirement policy is premised on a cognitively misleading and unrealistic model of people who have the ability, energy, motivation, time, and understanding to make informed, thoughtful retirement decisions. This is counterfactual and clearly so. Most Americans are simply too busy, confused, exhausted, misinformed, and overwhelmed

39. SEC Website, *Introduction to the Markets*, <https://www.investor.gov/introduction-markets>.

40. SEC Website, *Investing Basics*, <https://www.investor.gov/investing-basics>.

41. SEC Website, *Researching and Managing Investments*, <https://www.investor.gov/researching-managing-investments>.

42. SEC Website, *Seniors*, <https://www.investor.gov/seniors>.

43. SEC Website, *Retirement*, <https://www.investor.gov/employment-retirement/retirement>.

44. SEC Website, *Saving and Investing for Students*, <https://www.investor.gov/Saving-and-Investing-Students>.

45. SEC Website, *Publications*, <https://www.investor.gov/publications-research-studies/publications>.

46. SEC Website, *Ask Questions - Questions You Should Ask About Your Investments*, <https://www.investor.gov/Ask-Questions>.

47. *Id.*

48. *United States v. Takhalov*, 827 F.3d 1307 (11th Cir. 2016).

49. *Id.* at 23.

50. See generally María José Roa García, *Financial Education and Behavioral Finance: New Insights into the Role of Information in Financial Decisions*, 27 J. ECON. SURVEYS 297, 297 (2013) (presenting this literature and examining its implications).

51. *Id.* See generally JOHN COATES, *THE HOUR BETWEEN DOG AND WOLF: RISK TAKING, GUT FEELINGS AND THE BIOLOGY OF BOOM AND BUST* (2012) (explaining the biology and neuroscience of risk-taking).

to make informed, thoughtful retirement decisions. Most Americans are neither lazy nor stupid. Instead, most Americans realistically live in a world of information overload and being overcommitted between family and work obligations.

Our society neither advocates nor assumes that Americans be their own dentists, primary care physicians, or trauma surgeons. That would be ludicrous because dental and medical professionals acquire, through cognitively costly efforts and years of study, expertise and specialized knowledge about dental health and medicine. Indeed, the same is true of any professional, whether it be an accountant, architect, city planner, doctor, economist, financial expert, lawyer, or scientist. It makes no sense for American society to leave Americans to fend for themselves when it comes to retirement planning because planning in an effective and informed manner for retirement requires a body of expertise and specialized knowledge about, among other areas, asset allocation, federal securities regulations, federal tax law, financial markets, investments, modern portfolio theory, state tax laws, and the Employee Retirement Income Security Act (ERISA).⁵²

This Article advocates designing American retirement policy reform based on a cognitively realistic appreciation of how people behave, namely under binding and heterogeneous constraints on their energy, interest, and time. Many decisions that households make before, at, and after retirement involve behavioral or psychological considerations.⁵³ For example, many Americans do not engage in much or even any retirement planning due to fears about and a desire to avoid thinking about their own mortality.⁵⁴ Especially in Western culture, thinking about death can be challenging when people are anxious about death.⁵⁵ Retirement planning involves thinking about death because we lack knowledge about our date of death. Financial economists use the phrase longevity risk to describe this ignorance. People can estimate their longevity risk by entering personal demographic information into an online life expectancy calculator.⁵⁶ People can see how changes in education, exercise, healthy eating, income,

52. Employee Retirement Income Security Program, 29 U.S.C. ch. 18 § 1001 et seq., 1974.

53. Melissa A. Z. Knoll, *The Role of Behavioral Economics and Behavioral Decision Making in Americans' Retirement Savings Decisions*, 70 SOC. SEC. BULL. 1, 1 (2010).

54. See, e.g., ERNEST BECKER, *THE DENIAL OF DEATH* (1973); Wojciech Kopczuk & Joel Slemrod, *Denial of Death and Economic Behavior*, 5 ADVANCES IN THEORETICAL ECON. ART. 5, 1, 1 (2005); Joel Slemrod, *Thanatology and Economics: The Behavioral Economics of Death*, 93 AM. ECON. REV. 371, 371 (2003); Robin Hanson, *Fear of Death and Muddled Thinking – It Is So Much Worse Than You Think*, Aug. 2005, <http://mason.gmu.edu/~rhanson/feardie.pdf>.

55. James Neill, *Write Your Own Eulogy: A Psychological Exercise*, <http://wilderdom.com/games/descriptions/WriteYourOwnEulogy.html>.

56. Steven Petrow, *When Will You Die? 'Death Clock' Says It Knows*, USA TODAY, Jan. 23, 2016, 10:43 AM E.S.T.,

<http://www.usatoday.com/story/tech/columnist/2016/01/23/when-you-die-death-clock-says-knows/79223360/>.

and mood change their life expectancy.⁵⁷ Nonetheless, these are just estimates of unknowable probabilities.

Americans may outlive their savings unless they can hedge or insure against longevity risk by for example receiving their retirement income in the form of an annuity. Although people know that death is the last part of life, it is one thing apparently to know about death, it is another thing to think about decisions related to death, such as those involving aging, disability, long-term health care, and retirement. Interestingly, mindfulness reduces defensive responses to mortality salience.⁵⁸ Recent psychological research finds mortality salience increases power seeking by men, though not women,⁵⁹ while feeling powerful reduces death anxiety in both men and women.⁶⁰ This last finding implies that a way to reduce fear of death is to feel powerful from effective and well-informed retirement planning.

Most people have no desire to learn even the most basic concepts of financial literacy necessary to make optimal financial retirement decisions within our current private retirement system under ERISA.⁶¹ These key fundamental concepts include compound interest, diversification, inflation, and present discounted value. Many people's retirement behavior suggests they do not appreciate the power of compound interest. The rule of 72 heuristic states the number of years required to double an investment is approximately equal to 72 divided by the compound annual interest rate, expressed as a percentage. This mental shortcut may help people better visualize⁶² and understand compound interest and exponential growth,⁶³ concepts that are counterintuitive because most people think linearly about accumulating money.⁶⁴ Most people are shocked to learn that if their savings compounds at the constant annual interest rate of r percent, then half their retirement savings are generated in the first $72/r$ years of their working career and hence the importance of starting early to save for retirement.⁶⁵ In other words, "relatively few years of contributions to your

57. *Id.*

58. Christopher P. Niemic et al., *Being Present in the Face of Existential Threat: The Role of Trait Mindfulness in Reducing Defensive Responses to Mortality Salience*, 99 J. PERSONALITY & SOC. PSYCHOL. 344, 344 (2010).

59. Peter Belmi & Jeffrey Pffefer, *Power and Death: Mortality Salience Increases Power Seeking While Feeling Powerful Reduces Death Anxiety*, 101 J. APPLIED PSYCHOL. 702, 702 (2016).

60. *Id.* at 702.

61. Lusardi & Mitchell, *supra* note 3, at 6.

62. *Compound Interest*, Math is Fun Website, <https://www.mathsisfun.com/money/compound-interest.html>.

63. See, e.g., HOWARD WAINER, TRUTH OR TRUTHINESS: DISTINGUISHING FACT FROM FICTION BY LEARNING TO THINK LIKE A DATA SCIENTIST 14-18 (2015) (discussing the rule of 72 and its applications).

64. Craig R.M. McKenzie & Michael J. Liersch, *Misunderstanding Savings Growth: Implications for Retirement Savings Behavior*, 48 J. MARKETING RES. S1 (2011).

65. Thomas K. Philips, *The Rule of 72 for Lifetime Savings*, 8 J. INV. MGMT. 1, 1-4 (2010) (deriving and extending the rule of 72 to lifetime savings).

retirement plan made early in your career are equivalent to many more years of contributions made late in your career.”⁶⁶ To make this point more numerically and memorably, if one starts working at age 25 and retires at age 65, and if the investments in her 401(k) plan earn a nominal return of 7% per annum, half the terminal value of her retirement savings will be attributed to contributions she made prior to her 34th birthday, an age by which most people have not even begun to think about saving for retirement.⁶⁷

This Article advocates achieving American retirement prosperity by defaulting Americans into a low-fee diversified, retirement portfolio which tracks a broad-based stock index, such as the S&P 500. This Article advocates doing so because most Americans are not motivated to learn how to make financially optimal retirement decisions on their own. Additionally, most people do not care to even think about retirement because it is perceived as being emotionally unpleasant. Most young people just see retirement as being so distant in time from their daily lives. Giving Americans full-time jobs of being their own retirement planners is cognitively nonsensical and unrealistic. Designing statistically proven best practices to just communicate about retirement needs and the importance of retirement planning and saving to people is a daunting and challenging task just by itself.⁶⁸

This Article advocates the American federal government help Americans achieve retirement prosperity by educating Americans about how to think more effectively, mindfully, and societally about retirement planning. Education entails the provision of information. A way to think about information is as the negative of ignorance or misinformation.⁶⁹ A complementary way to think about information is that it is an aid to forming judgments and making decisions.⁷⁰ Economists call information a public good, meaning that its consumption exhibits aspects of non-exclusion and non-rivalry. It is difficult to exclude someone from information and more than one person can utilize the same piece of information simultaneously. The production of information tends to have high fixed costs and low marginal costs of distribution, reproduction, or utilization. Many problems exist with markets for public goods as opposed to private goods for which there is both exclusion and rivalry in consumption. These market failures explain why governments publicly provide through expenditures and fund through taxation many public goods, such as information.

The private sector may not find profitable to educate Americans about how to achieve retirement prosperity for at least two reasons. First, it often is more profitable

66. *Id.* at 1.

67. *Id.* at 4.

68. United States Department of Labor Website, *Successful Plan Communications for Various Population Segments*, <https://www.dol.gov/ebsa/publications/2013ACreport1.html>.

69. Stephan Lewandowsky et al., *Misinformation and Its Correction: Continued Influence and Successful Debiasing*, 13 *PSYCHOL. SCI. IN PUB. INT.* 106, 106 (2012) (examining the cognitive factors that make misinformation hard to correct).

70. See, e.g., KENNETH J. ARROW, *THE LIMITS OF ORGANIZATION* 38 (1974).

to exploit people's cognitive biases than educate them about correcting them. Second, the private sector may not be able to capture many of the benefits of Americans achieving retirement prosperity because some of those benefits are uncertain, delayed, and spillover into other domains. Even if the private sector found it profitable to educate Americans about how to achieve retirement prosperity, there are still affordability, distributional, equity, and fairness reasons for the American government to provide such education. Finally, there are positive externalities to Americans achieving retirement prosperity (such as better physical health and mental health) and correspondingly negative externalities to Americans not achieving retirement prosperity (such as when governments have to use tax dollars to deal with the individual and societal consequences of Americans retiring into poverty).

Educating Americans to change how we think about retirement should increase support for the American federal government to adopt a universal retirement planning program across all Americans. This program should offer all Americans the same small menu of retirement plans consisting of inexpensive, passively managed broad-based index funds. Such a standardized menu protects employees from too many choices, most of which are dominated in terms of price and/or performance,⁷¹ and protects employers from having to select prudent investments in addition to monitor and remove imprudent ones.⁷² Americans can still invest in more actively managed and expensive funds if they really so desire because those will not be banned. American employees and employers will contribute required tax-advantaged minimum amounts into this program. Americans can still save more for retirement above minimum required amounts. Finally, Americans will still have many other choices to make that involve personal tastes about retirement, such as how, when, where, and with whom to retire. In choosing among retirement plans, people should prefer lower fees to higher fees, all other things being equal.⁷³ Americans can still accommodate individual differences in their beliefs over the future, intertemporal preferences, risk tolerances, and worldviews by other financial (and non-financial) choices they make.

This Article should be of interest and relevance to Americans who are retired, soon retiring, or eventually retiring (that is, all Americans), people who believe a dignified and prosperous retirement is a privilege that all Americans deserve; and policy makers. This Article proceeds in three parts. Section I examines America's

71. See, e.g., Tara Siegel Bernard, *M.I.T., N.Y.U. and Yale Sued Over Retirement Plan Fees*, N.Y. TIMES, Aug. 9, 2016, http://www.nytimes.com/2016/08/10/your-money/mit-nyu-yale-sued-4013b-retirement-plan-fees-tiaa-fidelity.html?emc=edit_tnt_20160809&nlid=62968283&tntemail0=y&r=5&referer=; Rick Seltzer, *Retirement Plan Roulette*, INSIDE HIGHER ED, Aug. 18, 2016, <https://www.insidehighered.com/news/2016/08/18/retirement-plan-lawsuits-could-be-just-beginning>.

72. *Tibble v. Edison 'Int'l*, 135 S. Ct. 1823 (2015).

73. All other things are not equal in the sense that lower fee, passively managed, broad-based index funds historically, typically outperform higher fee, actively managed funds.

looming retirement crisis. Section II briefly surveys some existing and proposed American retirement policies. Section III advocates and analyzes changing Americans' thinking about retirement by encouraging Americans to adopt the thinking tools of thinking architecture and thinking technology, think more mindfully, and think more societally about retirement. Existing and proposed policies to improve American retirement are based on insights from economic theory and behavioral economics. This Article's proposals introduce cognitive economics to retirement planning and in so doing, also economic analysis of law more generally. A conclusion summarizes the Article.

I. America's Retirement Crisis

A number of recent financial crises, turmoil, and volatility are salient reminders that retirement planning entails daunting and overwhelming tasks for most people by themselves and even with assistance from others. Although there is a retirement planning marketplace consisting of advice, books, courses, insurance, investments, online services, planning, and software among other products; most Americans are unsure about who is trustworthy or even competent and knowledgeable about retirement planning. The benefits of personalized financial advice vary over an individual's life and outweigh the benefits from costly simple portfolios, including Target Date Funds (TDF), also known as lifecycle, dynamic-risk, or age-based funds, which are mutual funds whose asset allocation adjusts to be more conservative over time as the target date, usually at retirement, approaches.⁷⁴

People's actual consumer and financial decision-making differs from normative models in general and in particular markets.⁷⁵ There is field and laboratory experimental evidence that people display systematic cognitive biases and hold incorrect beliefs in many settings.⁷⁶ A branch of microeconomics known as behavioral industrial organization analyzes how markets with imperfectly competitive firms and imperfectly rational consumers result in what are termed "behavioral market failures,"⁷⁷ such as firms engaging in excessively complex pricing plans and spurious

74. See, e.g., Hugh Hoikwang Kim et al., *When and How to Delegate? A Life Cycle Analysis of Financial Advice*, Pension Research Council (Mar. 2016), <https://pensionresearchcouncil.wharton.upenn.edu/wp-content/uploads/2016/07/WP2016-1-Kim-et-al..pdf>.

75. See, e.g., Douglas G. Baird, Richard A. Epstein, & Cass R. Sunstein, *Symposium on the Law and Economics of Consumer Choice*, 73 J. U. CHI. L. REV. 1, 1 (2006) (asking how law and markets can and should respond to behavioral patterns of consumer choice over time and particularly in consumer credit markets).

76. See generally Stefano DellaVigna, *Psychology and Economics: Evidence from the Field*, 47 J. ECON. LITERATURE 315, 318-56, 359-60 (2009) (surveying this data).

77. See generally RAN SPIEGLER, *BOUNDED RATIONALITY AND INDUSTRIAL ORGANIZATION* (2011) (providing behavioral economic models of industrial organization). See also DellaVigna, *supra* note 76, at 361-62 (2009) (same); Glenn Ellison, *Bounded Rationality in Industrial*

product variety.⁷⁸ In particular, many consumers exhibit apathy, confusion, context-dependency, dynamic inconsistency, and inertia of decision-making in the markets for cell phones, credit cards, and mortgages.⁷⁹

Behavioral economist and 2001 economics Nobel Laureate⁸⁰ George Akerlof and economist William Dickens operationalize the psychological theory of cognitive dissonance in an economic model with three features.⁸¹ First, people have preferences about their beliefs related to possible futures. Second, people have partial control over their beliefs in the information sources to which they choose to selectively pay attention and use in updating their beliefs. Third, once people choose their beliefs, those beliefs have the inertia to persist over time. Akerlof and Dickens apply their model to explain that a desire to avoid cognitive dissonance implies that some people “would simply prefer to not contemplate a time when their earning power is diminished, and if the very fact of saving for old age forces persons into such contemplations, there is an argument for compulsory old age insurance.”⁸²

In today’s vast financial marketplace of products related to retirement, many of us face a dazzling plethora of bewildering alternatives. Because we also typically do not like to admit being financially challenged and perplexed, we may end up baffled and confused by so many financial choices related to retirement, not seeking help from professional financial advisors with retirement planning. When we seek advice, we often are overly trusting and unable to discern the independence and quality of advice. There is also experimental psychological research finding that people’s incidental moods affect whether people take advice they receive.⁸³

As a society, we should not expect most Americans will plan well for their retirement left on their own because doing so entails a non-trivial set of difficult cognitive tasks and it is unclear who is a trustworthy advisor. We also should not be surprised when some Americans fall victim to financial scams because being vigilant

Organization, in 2 ADVANCES IN ECONOMICS AND ECONOMETRICS: THEORY AND APPLICATIONS 142 (Richard Blundell et al. eds., 2006) (surveying early literature).

78. SPIEGLER, *supra* note 77, at 7, 183-85.

79. See generally OREN BAR-GILL, SEDUCTION BY CONTRACT: LAW, ECONOMICS, AND PSYCHOLOGY IN CONSUMER MARKETS (2012) (outlining a general theory and presenting detailed case studies of those three markets).

80. Nobel Prize Website, *The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2001*, http://www.nobelprize.org/nobel_prizes/economics/laureates/2001/akerlof.html.

81. George A. Akerlof & William T. Dickens, *The Economic Consequences of Cognitive Dissonance*, 72 AM. ECON. REV. 307, 307 (1982). See also Corey L. Guenther & Mark D. Alicke, *Self-Enhancement and Belief Perseverance*, 44 J. EXPERIMENTAL SOC. PSYCHOL. 706 (2008) (presenting related experimental evidence).

82. *Id.* at 317.

83. Francesca Gino et al., *Incidental Emotions Influence Advice Seeking and Taking*, 102 J. PERSONALITY & SOC. PSYCHOL. 497, 497 (2012); Francesca Gino & Maurice Schweitzer, *Blinded by Anger or Feeling the Love: How Emotions Influence Advice Taking*, 93 J. APPLIED PSYCHOL. 1165 (2008).

is cognitively demanding. There are visceral horror stories about elderly people being tricked by con artists into buying complicated, excessive risky, inappropriate, and overpriced financial products, including annuities and life insurance.⁸⁴ Many people, including actress Kyra Sedgwick and her actor husband Kevin Bacon,⁸⁵ lost part of their life savings from being the victims of securities fraud that Bernie Madoff, a charismatic and charming con artist, masterminded in an estimated \$65 billion Ponzi scheme.⁸⁶

A. A Broken Three-Legged Stool

Retirement planning is more challenging and risky in America than ever before due to changes in what has been termed retirement's three-legged stool,⁸⁷ consisting of Social Security benefits, pension plans, and private savings instruments. The first change involves America's often maligned and more often misunderstood Social Security system,⁸⁸ also known as the Old-Age, Survivors, and Disability Insurance federal program.⁸⁹ America faces large demographic changes as 77.3 million baby boomers, born between 1946 and 1964, have started to retire. The U.S. Census Bureau projects the group of people who are sixty-five and older will grow by 50% between 2015 and 2030.⁹⁰ There are proposals to expand Social Security.⁹¹

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84. Robert Powell, *Tools, Tips Help Older Investors Beat Financial Scams*, USA TODAY, May 18, 2016, 6:22 P.M. E.D.T., <http://www.usatoday.com/story/money/columnist/powell/2016/05/18/insurance-annuities-scams-seniors-older-investors-financial-fraud/80581132/>.
85. Jessica Pressler, *Madoff's Latest Victims: Kevin Bacon and Kyra Sedgwick*, NEW YORK MAGAZINE WEBSITE NEWS & FEATURES, Dec. 30, 2008, http://nymag.com/daily/intel/2008/12/madoffs_latest_victims_kevin_b.html.
86. See generally TAMAR FRANKEL, *THE PONZI SCHEME PUZZLE* (2012) (explaining the common patterns and characteristics of conmen and their victims); DIANA B. HENRIQUES, *THE WIZARD OF LIES* (2011) (reporting on the details of Madoff's entire career); HARRY MARKOPOLOS, *NO ONE WOULD LISTEN: A TRUE FINANCIAL THRILLER* (2010) (providing a firsthand account of whistleblower Markopolos' investigation of Madoff); *CHASING MADOFF* (Cohen Media Group, 2011) (offering a documentary account of Markopolos' pursuit of Madoff).
87. RANA FOROOHAR, *MAKERS AND TAKERS: THE RISE OF FINANCE AND THE FALL OF AMERICAN BUSINESS* 241-43 (2016). See also Rana Foroohar, *2030: The Year Retirement Ends*, TIME, June 19, 2014, <http://www.novim.org/illinois-pension-problem-how-big-is-it-really-23/>.
88. Sean Williams, *Six Social Security Facts You're Probably Not Aware Of*, USA TODAY, Sept. 24, 2016, 6:32 A.M. E.D.T., <http://www.usatoday.com/story/money/personalfinance/2016/09/24/6-social-security-facts-youre-probably-not-aware-of/90182470/>.
89. Trust Funds 42 U.S.C. § 401 (2010).
90. United States Government Accountability Office, *Retirement Security: Most Households Approaching Retirement Have Low Savings*, GAO-15-419, May 2015, <http://www.gao.gov/assets/680/670153.pdf>.
91. See e.g., Dan Caplinger, *Should Social Security's Minimum Benefit Go Up?*, USA TODAY, Sept. 14, 2016, 11:39 A.M. E.D.T., <http://www.usatoday.com/story/money/personalfinance/2016/09/14/should-social-securitys-minimum-benefit-go-up/90222150/>; STEVEN HILL, *EXPAND SOCIAL SECURITY NOW!: HOW TO ENSURE AMERICANS GET THE RETIREMENT THEY DESERVE* (2016).

The decision of when Americans begin to claim their Social Security benefits is an irreversible, one-time decision that almost half of Americans choose to be as early as is legally possible,⁹² which is likely too soon because Americans “are retiring earlier, living longer, and not saving enough for retirement.”⁹³ In 2012, the average Social Security monthly benefit of \$2,051 for a retiree and spouse replaced on average just 17% of pre-retirement income.⁹⁴ Determining the optimal claiming age is complicated⁹⁵ and requires choosing a rate to discount future money into current dollars.⁹⁶ The General Accounting Office (GAO) issued a report finding that many people do not fully understand important details about Social Security rules affecting retirement benefits,⁹⁷ despite the Social Security Administration (SSA) providing a lot of information in its webpages and publications,⁹⁸ including eleven interactive calculators.⁹⁹ The GAO report made six recommendations to the SSA about improving the information provided in-person and online during the claims process.¹⁰⁰ The SSA generally concurred with the recommendations of the GAO report.¹⁰¹

The Consumer Financial Protection Bureau (CFPB) provides a user-friendly, well-designed website, “Planning for Retirement,” that, once you enter your date of birth and highest annual work income, calculates your full benefit claiming age, at which you will receive your full Social Security benefit without any reductions, and colorfully displays bar graphs depicting how changing your choice of claiming age affects your Social Security retirement benefits monthly and annually.¹⁰² This is a wonderful resource and terrific example of how to help Americans make a more informed choice

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92. Maurie Backman, *Here's How the Average Retiree Loses \$4,000 Per Year*, USA TODAY, Aug. 6, 2016, 6:30 A.M. E.D.T., <http://www.usatoday.com/story/money/personalfinance/2016/08/06/social-security-early-cost-retiree/87518858/>.
93. Melissa A. Z. Knoll et al., *Time to Retire: Why Americans Claim Benefits Early & How to Encourage Delay*, 1 BEHAV. SCI. & POL'Y J. 53, 53 (2015).
94. Kenneth G. Dau-Schmidt, *Promises to Keep: Ensuring the Payment of Americans' Pension Benefits in the Wake of the Great Recession*, 52 WASHBURN L. J. 393, 396 (2013).
95. Russ Wiles, *Avoid These 5 Common Social Security Screw-Ups*, USA TODAY, Sept. 30, 2016, 10:58 A.M. E.D.T., <http://www.usatoday.com/story/money/personalfinance/2016/09/30/social-security-common-mistakes-claim-early/90744102/>.
96. Brian J. Aleva, *Discount Rate Specification and the Social Security Claiming Decision*, 76 SOC. SECURITY BULL. 1, 1 (2016).
97. United States Government Accountability Office, *Social Security: Improvements to Claims Process Could Help People Make Better Informed Decisions About Retirement Benefits*, 11-19, GAO-16-786, Sept. 14, 2016, <http://www.gao.gov/products/GAO-16-786>.
98. *Id.* at 20-21.
99. *Id.* at 21-22, 43.
100. *Id.* at 32-33.
101. *Id.* at 44-48.
102. Consumer Financial Protection Bureau Website, *Planning for Retirement: Before You Claim*, <http://www.consumerfinance.gov/retirement/before-you-claim/>.

about retirement. It is also an example of helping people make better use of existing information by reframing or repackaging it.¹⁰³

The second change is the dramatic reduction in what are known as defined benefit (DB) pensions, which promise some defined monthly retirement benefit that is a fixed amount or determined by a formula based upon an employee's age, earnings history, and employment length. To raise profit margins or avoid bankruptcy,¹⁰⁴ most American corporations discontinued DB pensions, which resulted in a widening of American economic inequality.¹⁰⁵ The majority of current American DB pensions are in the public as opposed to the private sector. Unfortunately, most state and local governments have underfunded their DB pensions because of unreasonably and overly optimistic promises to employees.¹⁰⁶ In 1935, the original intent of the Social Security Act¹⁰⁷ was merely to supplement DB pensions and individual savings. Over time, with the disappearance of DB pensions and reduced individual savings due to increasing economic insecurity, many Americans now intend to rely on Social Security benefits as their sole retirement income source.¹⁰⁸ In a national telephone survey of 800 Americans age twenty-five or older, 77% believe the disappearance of pensions makes it more difficult for workers to achieve the American Dream.¹⁰⁹

The third change is the massive proliferation of what are known as defined contribution retirement (DC) plans, which are funded by periodic, known contributions by employees, employers, or both into accounts with the returns in retirement being uncertain, unguaranteed, and based on earnings from investments of the funds in those accounts. Familiar examples of DC retirement plans are Individual Retirement Accounts, corporate 401(k) plans, 403(b) Tax-Sheltered Annuity plans available for certain employees of public schools, employees of certain tax-exempt organizations, and certain ministers, and 457 plans available for certain government employees and non-government employees, including independent contractors. The 401(k), 403(b), and 457 plans are named after sections 401(k), 403(b), and 457 of the United States federal tax code, respectively. All three of these plans are tax-

103. Jack B. Soll et al., *A User's Guide to Debiasing*, in II WILEY-BLACKWELL HANDBOOK OF JUDGMENT AND DECISION MAKING 924, 925, 944 (Gideon Keren & George Wu eds., 2016), <https://faculty.fuqua.duke.edu/~jpayne/bio/Debiasing%20SollMilkmanPayne%20R2%20FINAL.pdf>.

104. ROGER LOWENSTEIN, *WHILE AMERICA AGED: HOW PENSION DEBTS RUINED GENERAL MOTORS, STOPPED THE NYC SUBWAYS, BANKRUPTED SAN DIEGO, AND LOOM AS THE NEXT FINANCIAL CRISIS* 9-79 (2008).

105. Michael Molinski, *Disappearing Pensions Hurt U.S. Economy as well as Workers*, USA TODAY, Apr. 23, 2016, 8:30 A.M. E.D.T., <http://www.usatoday.com/story/money/2016/04/23/pensions-economy-workers/83292892/>.

106. FOROZHAR, *supra* note 87, at 242, n.7; LOWENSTEIN, *supra* note 104, at 81-219.

107. Trust Funds 42 U.S.C. § 401 (2010).

108. Amy Traud et al., *American Retirement Accounts*, Dēmos, Sept. 4, 2012, <http://www.demos.org/publication/american-retirement-accounts>.

109. Perlman, *supra* note 32, at 4, 11, 12 fig.10.

advantaged, employer-offered retirement vehicles, with the primary difference among them being the nature of the employer who can sponsor the plans. As of June 30, 2014, \$4.4 trillion or 18% of the \$24 trillion of Americans' retirement assets are located in DC retirement plans.¹¹⁰ While the average American 401(k) balance is an encouraging \$72,383, the median American 401(k) balance is much lower at only \$18,433.¹¹¹

In a recent, informative, and thoroughly researched book,¹¹² William Birdthistle, a law professor at Chicago-Kent College of Law, explains how America's current retirement system is effectively a large national experiment with our personal finances.¹¹³ He points out how the implicit hypothesis of this unprecedented social financial experiment is that Americans will provide for retirement by ably managing 401(k) plans.¹¹⁴ He observes the current evidence suggests this hypothesis is grossly false.¹¹⁵ He notes as 10,000 baby boomers retire each day for the next fifteen or so years, we will know if this grand experiment failed.¹¹⁶ If there are financial shortfalls, "millions of Americans will suffer impoverished futures that will trigger severe individual and societal challenges for the United States."¹¹⁷

Birdthistle identifies three obstacles to Americans being successful at retirement planning.¹¹⁸ First, mutual funds are structured to reward asset accumulation instead of portfolio returns because investment advisors are paid a percentage of the assets under their management.¹¹⁹ Second, most of the 90 million Americans who utilize mutual funds as their retirement investment vehicle have neither the time nor the training to adequately plan for their retirement.¹²⁰ Third, some mutual fund industry

110. Investment Company Institute, *How Large are 401(k)s?*, Sept. 2014, https://www.ici.org/policy/retirement/plan/401k/faqs_401k.

111. Michael Douglass, *What's the Typical American's 401(k) Balance? (Hint: Less Than \$100,000)*, USA TODAY, July 13, 2016, 12:09 P.M. E.D.T., <http://www.usatoday.com/story/money/personalfinance/2016/07/13/average-american-401k-balance/86663126/>.

112. WILLIAM A. BIRDTHISTLE, *EMPIRE OF THE FUND: THE WAY WE SAVE NOW* (2016). See also Richard Eisenberg, *Why Mutual Funds and 401(k)s May Be Hazardous to Your Wealth*, FORBES, July 26, 2016, 3:33 P.M., <http://www.forbes.com/sites/nextavenue/2016/07/26/why-mutual-funds-and-401ks-may-be-hazardous-to-your-wealth/#2865a1aa2afe> (reviewing the book); YouTube, *Empire of the Fund - Book Trailer*, June 25, 2015, https://www.youtube.com/watch?v=Hry8A_0ofzc; YouTube, *Empire of the Fund - A Book Trailer in Verse*, June 15, 2015, <https://www.youtube.com/watch?v=F3WxNAAgTMI> (summarizing the book's contents in a humorous trailer-in-verse, inspired by the play Hamilton).

113. BIRDTHISTLE, *supra* note 112; William Birdthistle, *Empire of the Fund: The Way We Save Now*, HARVARD L. SCH. F. ON CORP. GOVERNANCE AND FIN. REG., July 18, 2016, <https://corpgov.law.harvard.edu/2016/07/18/empire-of-the-fund-the-way-we-save-now/>.

114. Birdthistle *supra* note 113.

115. *Id.*; BIRDTHISTLE, *supra* note 112, at 11-13.

116. Birdthistle *supra* note 113.

117. Birdthistle *supra* note 113.

118. Birdthistle *supra* note 113; BIRDTHISTLE, *supra* note 112, at 2.

119. Birdthistle *supra* note 113; BIRDTHISTLE, *supra* note 112, at 50-54.

120. Birdthistle *supra* note 113; BIRDTHISTLE, *supra* note 112, at 9-11, 207.

members engage in unethical, if not illegal behavior, such as high fees,¹²¹ soft dollars,¹²² unfair valuations,¹²³ late trading,¹²⁴ market timing,¹²⁵ and selective disclosures.¹²⁶

Paul Secunda, a professor who is the director of the labor and employment law program at Marquette University Law School,¹²⁷ recently criticized America's dependence on 401(k) plans because 401(k) plans are consumer-driven, employer-centered, expensive, inaccessible, and voluntary.¹²⁸ Secunda called 401(k) plans "a type of corporate-inspired form of elder abuse in America."¹²⁹ Secunda cites Australia's Superannuation Guarantee as a successful paternalistic workplace retirement model that provides a comparatively inexpensive, mandatory, private, and universal workplace retirement system.¹³⁰ Secunda outlines "a vision for transformation of American 401(k) retirement system into an efficient and sustainable superannuation model based on behavioral economic insights from the Australian workplace retirement system."¹³¹ Dana Muir, the Arthur F. Thurnau Professor of Business Law at the Stephen M. Ross School of Business at the University of Michigan,¹³² also believes that Australia's retirement system provides lessons from which American regulators can learn.¹³³ It is instructive to examine how America compares with other countries

121. BIRDTHISTLE, *supra* note 112, at 71-88.

122. BIRDTHISTLE, *supra* note 112, at 89-98.

123. BIRDTHISTLE, *supra* note 112, at 99-111.

124. BIRDTHISTLE, *supra* note 112, at 112-21.

125. BIRDTHISTLE, *supra* note 112, at 122-32.

126. BIRDTHISTLE, *supra* note 112, at 133-38.

127. Marquette University Law School, Paul M. Secunda, <https://law.marquette.edu/faculty-and-staff-directory/detail/5431766>.

128. Paul M. Secunda, *The Behavioral Economic Case for Paternalistic Workplace Retirement Plans*, 91 INDIANA L.J. 505, 505 (2016).

129. *Id.* at 505.

130. *Id.* at 505.

131. *Id.* at 505-06.

132. University of Michigan's Ross School of Business Website, Dana M. Muir, <https://michiganross.umich.edu/faculty-research/faculty/dana-muir>.

133. Dana M. Muir, *Choice Architecture and the Locus of Fiduciary Obligation in Defined Contribution Plans*, 99 IOWA L. REV. 1, 6, 23-24 (2013).

in crafting social policies about retirement.¹³⁴ America ranked nineteenth for three consecutive years in an international survey of comparable retirement security.¹³⁵

It would be wonderful if American employees were able to trust that our choice-centric, private-sector DC system would lead them into retirement prosperity, instead of retirement poverty. Unfortunately, the lucrative business of DC retirement plans is rife with financial conflicts of interests and so American households often are advised and misled to hold high-cost actively managed mutual funds that underperform low-cost and no-cost index funds.¹³⁶ A 2013 PBS *Frontline* documentary, *The Retirement Gamble*, "raises troubling questions about how America's financial institutions protect our retirement savings."¹³⁷ In a national survey conducted from December 14 through December 30, 2010 of 803 American 401(k) plan participants ages twenty-five and older living in households with telephones, 77% were unaware they pay any fees to their 401(k) plan provider and when informed of these fees, 62% were unaware of the fee amounts they are paying for maintenance of their accounts.¹³⁸ Typical 401(k) fees are around 1% of the total assets under management, which may not sound like much,¹³⁹ except for the fact 401(k) fees compound over time just like and at the same rate as 401(k) portfolio returns do.¹⁴⁰ It is easy to see how 401(k) fees reduce 401(k) returns by utilizing an online investment fee calculator.¹⁴¹ A 401(k) fee of 1% over 40 years could reduce 401(k) returns by \$590,000.¹⁴²

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134. Michael Molinski, *Delayed Retirement Is Both a Symptom and a Cause of a Troubled Economy*, USA TODAY, July 23, 2016, 10:29 A.M. E.D.T., <http://www.usatoday.com/story/money/2016/07/20/delayed-retirement-economy-problem-productivity/87099454/>. See also Molinski, *supra* note 105; Pew Research Center, *Attitudes About Aging: A Global Perspective in a Rapidly Growing World*, Jan. 30, 2014, <http://www.pewglobal.org/files/2014/01/Pew-Research-Center-Global-Aging-Report-FINAL-January-30-20141.pdf>.
135. Tyler Cowen, *Why Trump's Prosperous Supporters Are Angry, Too*, BLOOMBERG, July 19, 2016, 9:50 A.M. EDT, <http://www.bloomberg.com/view/articles/2016-07-19/why-trump-s-prosperous-supporters-are-angry-too>.
136. FOROOHAR, *supra* note 87, at 242-48.
137. *Frontline: The Retirement Gamble* (PBS television broadcast, Apr. 23, 2013), available at <http://www.pbs.org/wgbh/frontline/film/retirement-gamble/>.
138. Lona Choi-Allum, *401(k) Participants' Awareness and Understanding of Fees*, AARP Website, <http://www.aarp.org/work/retirement-planning/info-02-2011/401k-fees-awareness-11.html>.
139. Selena Maranjian et al., *Three Things Your Financial Advisor Isn't Telling You*, USA TODAY, July 17, 2016, 8:01 A.M. E.D.T., <http://www.usatoday.com/story/money/personalfinance/2016/07/17/3-things-your-financial-adviser-isnt-telling-you/86621770/>.
140. *Id.*
141. See, e.g., Byupside Website, *Investment Fee Calculator - See How Fees Reduce Your Returns*, <http://www.buyupside.com/calculators/feesdec07.htm>. See also PBS, *The "Tyranny of Compounding Costs"*, May 16, 2006, <http://www.pbs.org/wgbh/pages/frontline/retirement/etc/tyranny.html>.
142. Dayana Yochim & Jonathan Todd, *How a 1% Fee Could Cost Millennials \$590,000 in Retirement Savings*, <https://www.nerdwallet.com/blog/investing/millennial-retirement-fees-one-percent-half-million-savings-impact/>.

William F. Sharpe, a 1990 economics Nobel laureate,¹⁴³ Stanford Business School Finance Professor Emeritus, and co-developer of the famous capital asset pricing model¹⁴⁴ estimated that under plausible conditions someone who chose low-cost retirement funds could have a 20% higher living standard in retirement than a comparable retiree who chose to hold and pay for high-cost retirement funds.¹⁴⁵ John C. Bogle, who created the first index mutual fund in 1975 and is the founder and retired CEO of the Vanguard Group, estimates that over time, low-cost index funds return 65% more wealth to retirement plan investors than high-cost actively managed funds.¹⁴⁶ Yale Law School professor Ian Ayres and University of Virginia Law School professor Quinn Curtis computed that for 16% of their sample of 3,534 401(k) plans with \$120 billion in total assets, the higher fees of actively managed funds in excess of low-cost index funds exceeded the lifetime tax savings from holding 401(k) plans over a 35-year working career.¹⁴⁷ They also documented that much of the menu of mutual funds being offered to Americans do not substantially add to diversification and charge significantly higher fees than comparable, existing funds.¹⁴⁸

Warren Buffet, “arguably the best stock picker of all time, . . . had some harsh words to say about hedge funds and investment consultants, saying they are often detrimental for anyone who follows their advice.”¹⁴⁹ Buffet has consistently advised “that most investors’ best bet is to put their money into a low-fee S&P 500 index fund that will simply match the market’s performance over time.”¹⁵⁰ The rationale underlying Buffet’s advice is that although the marketing phrase “actively managed” may sound like a team of managers and other professionals are watching over and taking care of your investments 24/7, there are high costs that you pay for that over just passively buying a broad-based index fund that has low costs. “Buffett’s point is that passive investors can do better than “hyperactive” investments, whose managers and other professionals charge hefty fees. Over time, these fees can lower your potential returns by thousands of dollars.”¹⁵¹ Empirical research finds actively

143. Nobel Prize Website, *Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 1990*, http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1990/.

144. William F. Sharpe, *Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk*, 19 J. FIN. 425, 425 (1964).

145. William F. Sharpe, *The Arithmetic of Investment Expenses*, 69 FIN. ANALYSTS J. 34, 34 (2013).

146. John C. Bogle, *The Arithmetic of “All-In” Investment Expenses*, 70 FIN. ANALYSTS J. 14, 14 (2014).

147. Ian Ayres & Quinn Curtis, *Beyond Diversification: The Pervasive Problem of Excessive Fees and “Dominated Funds” in 401(k) Plans*, 124 YALE L.J. 1476, 1501 (2015).

148. *Id.* at 1476, 1504-06.

149. Matthew Frankel, *Warren Buffett: This is the Best Investment Most People Can Buy*, USA TODAY, July 6, 2016, 12:26 p.m. EDT, <http://www.usatoday.com/story/money/2016/07/06/warren-buffett-this-is-the-best-investment-most-people-can-buy/86549556/>.

150. *Id.*

151. *Id.*

managed funds charge higher fees than and perform worse in terms of returns than index funds.¹⁵² Buffet's

general point is that a passive S&P 500 investor is going to do just as well as American industry does, which, throughout history, has done pretty well. Over the long run, and over multi-decade time periods along the way, the S&P 500 has averaged total returns of nearly 10% per year.¹⁵³

Actively managed funds charge high fees in comparison to passively managed index funds. The difference can be 2% versus 0.02%, in which case that actively managed fund charges a fee, also known as an expense ratio, 10 times as high as that passively managed index fund charges. Mutual funds are one of the few items most Americans buy without knowing the item's price!¹⁵⁴ Another item that Americans "consume" without knowing its price is medical care, e.g., ambulance transportation, emergency room visits, intensive care, surgical procedures, and x-rays. Medical insurance usually partially covers the cost of medical care. Amino,¹⁵⁵ a new smartphone app,¹⁵⁶ provides real-time price estimates for medical procedures to help consumers worried about out-of-pocket costs. Economics Nobel Laureate Kenneth Arrow¹⁵⁷ wrote a seminal article,¹⁵⁸ explaining why the free market system fails to allocate medical care optimally¹⁵⁹ and in so doing, created the field of health economics.¹⁶⁰ Uncertainties associated with retirement planning are similar to uncertainties associated with medical care because individuals are uncertain about how much and when they will have to spend possibly large amounts on medical care and retirement. Americans face large risks over the size and timing of medical care and retirement expenditures. Also, a large part of retirement spending is on expensive medical care, especially disproportionately large, near end-of-life healthcare costs.¹⁶¹

152. VANGUARD, *Principle 3: Minimize Cost, Markets are unpredictable. Costs are forever.*

<https://personal.vanguard.com/us/insights/investingtruths/investing-truth-about-cost>.

153. Frankel, *supra* note 149.

154. Choi-Allum, *supra* note 138.

155. Amino Website, <https://amino.com/cost/>.

156. Jayne O'Donnell & Laura Ungar, *New Tool Searches Health Prices by Doctor, Insurance, USA TODAY*, July 12, 2016, 10:35 A.M. EDT,

<http://www.usatoday.com/story/news/nation/2016/07/12/new-tool-searches-health-prices-doctor-insurance/86941678/>.

157. *Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 1972*, http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1972/.

158. Kenneth J. Arrow, *Uncertainty and the Welfare Economics of Medical Care*, 53 AM. ECON. REV. 941, 941 (1963).

159. Paul Krugman, *Why Markets Can't Cure Healthcare*, N.Y. TIMES, July 25, 2009, 5:07 p.m., http://krugman.blogs.nytimes.com/2009/07/25/why-markets-cant-cure-healthcare/?_r=0.

160. William D. Savedoff, *Kenneth Arrow and the Birth of Health Economics*, 82 BULL. WORLD HEALTH ORG. 139, 139 (2004).

161. See, e.g., BIRDTHISTLE, *supra* note 112, at 8.

In 2012, Robert Hiltonsmith, a policy analyst in the economic opportunity program at Dēmos, a non-partisan public policy research and advocacy organization founded in 2000, wrote a policy brief about hidden and excessive fees of American individual retirement savings accounts.¹⁶² Hiltonsmith estimated that, “over a lifetime, fees can cost a median-income two-earner family nearly \$155,000 and consume nearly one-third of their investment returns.”¹⁶³ Hiltonsmith points out how: “Financial services companies can get away with charging higher-than-necessary fees for a number of reasons, namely: the savers’ lack of information, the inefficiency of financial markets and individualized investing, and the substantial costs—both in money and time—associated with switching between investment brokers.”¹⁶⁴ Hiltonsmith also “argues for a wholesale reform of this country’s broken private retirement system.”¹⁶⁵

In a blog post, Hiltonsmith notes that during the financial crises in 2008, “the securities industry lost over \$2 trillion in workers’ hard-earned 401(k) and IRA savings”¹⁶⁶ and “the number that really drives home the need for reform is the more than \$120 billion that the industry took home in compensation and commissions the same year it lost \$2 trillion in savers’ wealth.”¹⁶⁷ In 2010, Hiltonsmith wrote another policy brief advocating replacing instead of merely reforming America’s current broken 401(k) system.¹⁶⁸

A coalition of organizations concerned about the future of retirement in America, Retirement USA, “enumerated twelve principles that any retirement reform should satisfy to be a sufficient replacement for the traditional pension. Three of these are ‘core principles’, vital aspects of any retirement reform— universality, security, and adequacy.”¹⁶⁹ Universality means all American retirees are covered by a retirement plan supplementing Social Security benefits.¹⁷⁰ Security means retirees do not bear longevity risk or market risk because they will receive a lifetime stream of retirement income.¹⁷¹ Adequacy means retirees get enough income to maintain pre-retirement standards of living.¹⁷²

162. Robert Hiltonsmith, *The Retirement Savings Drain: The Hidden & Excessive Costs of 401(k)s*, Dēmos, May 29, 2012, <http://www.demos.org/publication/retirement-savings-drain-hidden-excessive-costs-401ks>.

163. *Id.*

164. *Id.*

165. *Id.*

166. Robert Hiltonsmith, *Your Retirement For A Thousand Fees*, AM. PROSPECT (Nov. 14, 2012), <http://prospect.org/article/your-retirement-thousand-fees>.

167. *Id.*

168. Robert Hiltonsmith, *The Failure of the 401(k): How Individual Retirement Plans Are A Costly Gamble for American Workers*, Dēmos, Nov. 9, 2010, <http://www.demos.org/publication/failure-401k-how-individual-retirement-plans-are-costly-gamble-american-workers>.

169. *Id.* at 19.

170. *Id.* at 19, 21.

171. *Id.* at 19, 21.

172. *Id.* at 19, 21.

The nine remaining, supporting principles are:¹⁷³ (1) shared responsibility for retirement among employees, employers, and the government; (2) required contributions by employees, employers, and the government; (3) mandatory contributions that are pooled and professionally managed to minimize costs and financial risks; (4) payouts only at retirement, meaning no loans or early withdrawals, except for permanent disability; (5) payouts that are made over the whole lifetime of retirees and their surviving spouses, domestic partners, and former spouses; (6) portable benefits when workers change jobs; (7) additional voluntary savings, including reasonable limits for tax-advantaged contributions; (8) efficient, transparent administration by a government agency or non-profit, private institutions that are governed by a board of trustees that includes employee, employer, and retiree representatives; and (9) effective oversight by a government regulator dedicated only to promote American retirement security.

Hiltonsmith analyzes proposed retirement reform policies that have received the most attention:¹⁷⁴ the Urban Institute's "Super Simple Savings Plan,"¹⁷⁵ the ERISA Industry Committee's "New Benefit Platform for Life Security,"¹⁷⁶ the Obama administration White House Middle Class Task Force's "Automatic IRA" proposal,¹⁷⁷ and the Economic Policy Institute and Bernard Schwartz Center for Economic Policy Analysis at the New School's "Guaranteed Retirement Accounts."¹⁷⁸ Hiltonsmith concludes that while all four proposed reforms are improvements over America's current, broken retirement system, only the last reform, Guaranteed Retirement Accounts, meets all twelve of the reform principles that Retirement USA establishes.¹⁷⁹

173. *Id.* at 21.

174. *Id.* at 7. tbls., 20, 22, 23, 24.

175. Pamela Perun & C. Eugene Steuerle, *Why Not A "Super Simple" Saving Plan for the United States?*, The Urban Institute, 2008, <http://www.urban.org/sites/default/files/alfresco/publication-pdfs/411676-Why-Not-a-quot-Super-Simple-quot-Saving-Plan-for-the-United-States-.PDF>.

176. ERISA Industry Committee, *A New Benefit Platform for Life Security*, 2007, <http://www.eric.org/uploads/doc/resources/NewBenefitPlatform.pdf>.

177. White House Task Force on the Middle Class, *Annual Report*, 25-26, Feb. 2010, <https://obamawhitehouse.archives.gov/sites/default/files/microsites/100226-annual-report-middle-class.pdf>.

178. Teresa Ghilarducci et al., *Now is the Time to Add Retirement Accounts to Social Security: The Guaranteed Retirement Account Proposal*, Schwartz Center for Economic Policy Analysis, The New School, June 2015,

http://www.economicpolicyresearch.org/images/docs/retirement_security_background/GRA_3.0.pdf.

179. Hiltonsmith, *supra* note 168, at 7. tbls., 20, 22, 23, 24.

B. Retirement Survey Data

In July of 2016, the Financial Industry Regulatory Authority (FINRA) Investor Education Foundation released *Financial Capability in the United States 2016*,¹⁸⁰ a report drawing on data from the 2015, 2012, and 2009 National Financial Capability Study State-By-State Surveys, each of which were nationwide online surveys of more than 25,000 American adults. The report found that only 39% of respondents have tried figuring out their retirement savings needs;¹⁸¹ 56% surveyed worry about running out of money in retirement;¹⁸² 43% of Social Security beneficiaries have some difficulty making financial ends meet;¹⁸³ only 37% of respondents correctly answered at least 4 of 5 financial literacy quiz questions, which is down 2% from 2009;¹⁸⁴ only 14% answered correctly all 5 of those questions;¹⁸⁵ and 76% rated their financial knowledge as high, up 3% from 2009.¹⁸⁶

The Consumer Federation of America and the Financial Planning Association surveyed 1,000 Americans in 2006 and found that 20% of those surveyed were counting on winning the lottery for their retirement.¹⁸⁷ In 1999, the Consumer Federation of America and the financial services firm Primerica found in a survey that 40% of those Americans who were surveyed with incomes between \$25,000 and \$35,000, and almost 50% of those surveyed with an income of \$15,000 to \$25,000 stated that winning the lottery would provide their retirement nest egg. Overall, 27% of those Americans surveyed stated that their best chance to accumulate \$500,000 in their lifetime is by winning the lottery or a sweepstakes.¹⁸⁸ Americans are not unique in this regard; from November 18 to November 22, 2013, the Bank of Montreal conducted an

180. Financial Industry Regulatory Authority (FINRA) Investor Education Foundation, *Financial Capability in the United States 2016*,

http://www.usfinancialcapability.org/downloads/NFCS_2015_Report_Natl_Findings.pdf.

181. *Id.* at 15; Sean Williams, *8 Crucial (Mostly Disappointing) Findings on Our Financial Health*, USA TODAY, Aug. 15, 2016, 11:27 A.M. EDT, <http://www.usatoday.com/story/money/personalfinance/2016/08/15/8-critical-and-mostly-disappointing-findings-about-americans-financial-wellbeing/88361648/>.

182. FINRA Investor Education Foundation, *supra* note 180, at 16; Williams, *supra* note 181.

183. FINRA Investor Education Foundation, *supra* note 180, at 12; Williams, *supra* note 181.

184. FINRA Investor Education Foundation, *supra* note 180, at 3, 28; Williams, *supra* note 181.

185. FINRA Investor Education Foundation, *supra* note 180, at 28.

186. FINRA Investor Education Foundation, *supra* note 180, at 31.

187. *See, e.g.*, Gerry Kramer, *Is Winning the Lottery Your Retirement Plan?*, NAPLES DAILY NEWS, Apr. 21, 2006, <http://www.naplesnews.com/community/is-winning-the-lottery-your-retirement-plan-ep-406501770-332099182.html>.

188. *See, e.g.*, FB@FabulouslyBroke.com, *FABULOUSLY BROKE IN THE CITY*, Dec. 20, 2010, <http://www.fabulouslybroke.com/2010/12/a-lottery-ticket-is-not-a-retirement-plan/>.

online poll of 1,003 Canadian adults and found 34% of those surveyed hoped to win a lottery,¹⁸⁹ with 14% “saying they were counting ‘heavily’ on a lotto windfall.”¹⁹⁰

The above survey data are sobering because winning a significant amount of money, as opposed to another lottery ticket or cash prizes of \$2 or \$3, in the many U.S. state-run lotteries is an extremely low probability event.¹⁹¹ Most economists view the various U.S. state-run lotteries as exploitative, inefficient, and regressive taxes.¹⁹² In 2014, Americans spent, in the forty-three states where lotteries are legal, \$70 billion on lotto games, which is more “than Americans in all 50 states spent on sports tickets, books, video games, movie tickets, and recorded music sales.”¹⁹³ U.S. state-run lotteries are exempt from the Federal Trade Commission’s truth-in-advertising regulations.¹⁹⁴ Evidence reveals that U.S. state-run lotteries are disproportionately played by low-income households¹⁹⁵ and households with problem gamblers,¹⁹⁶ are intentionally targeted at minority and low-income communities,¹⁹⁷ and result in low-income families paying for lottery tickets by substantially “spending less on non-gambling items, including clothing, food, and rent.”¹⁹⁸

According to a poll the Associated Press-NORC Center for Public Affairs Research conducted from April 14 to April 16, 2016 from online and telephone interviews of 1,008 adults, 54% of working American households said they are not very or not at all confident they will have enough savings to retire when they want, while 14% said they

189. See, e.g., Business, CBC News, *Lottery Win is Retirement Plan for 34% of Poll Respondents*, <http://www.cbc.ca/news/business/lottery-win-is-retirement-plan-for-34-of-poll-respondents-1.2517046>; Graham F. Scott, *34% of Canadians Plan to Retire by Winning the Lottery*, CANADIAN BUSINESS, Jan. 30, 2014, <http://www.canadianbusiness.com/blogs-and-comment/retirement-lottery/>.
190. CP/Huffington Post Canada, *Canadians’ Retirement Plans: CPP, RRSP, And A Lottery Win*, Jan. 30, 2014, 4:00 am EST, Updated Apr. 1, 2014, 5:59 A.M. EDT, http://www.huffingtonpost.ca/2014/01/30/rrsp-retirement-plans-canadians_n_4693080.html.
191. See, e.g., Discovery Education website, *Calculate Your Chance of Winning the Lottery*, WebMath, <http://www.webmath.com/lottery.html>.
192. See, e.g., Max Galka, *The Single Largest Tax on Poor Families: The Lottery?*, June 19, 2015, METROCOSM; <http://metrocosm.com/could-the-lottery-be-the-largest-tax/>; Ross Rubenstein & Benjamin Scafidi, *Who Pays and Who Benefits? Examining the Distributional Consequences of the Georgia Lottery for Education*, 55 NAT’L TAX J. 223, 223 (2002).
193. Derek Thompson, *Lotteries: America’s \$70 Billion Shame*, ATLANTIC, May 11, 2015, <http://www.theatlantic.com/business/archive/2015/05/lotteries-americas-70-billion-shame/392870/>.
194. See, e.g., Charles T. Clotfelter et al., *State Lotteries at the Turn of the Century: Report to the National Gambling Impact Study Commission*, 14-18, 20-21, Apr. 23, 1999, <http://govinfo.library.unt.edu/ngisc/reports/lotfinal.pdf>; Max Galka, *The lottery is a Tax - An Inefficient, Regressive, and Exploitative Tax*, HUFFPOST IMPACT, Sep. 3, 2015, 12:36 p.m. EST, http://www.huffingtonpost.com/max-galka/the-lottery-is-a-tax-an-i_b_8081192.html.
195. Galka, *supra* note 192.
196. Galka, *supra* note 194.
197. *Id.*
198. *Id.*

are confident they will have enough savings to retire when they want.¹⁹⁹ The same poll found that 75% of American households making less than \$50,000 a year, 66.6% of American households making between \$50,000 and \$100,000 annually, and 38% of American households making over \$100,000 per year said they would have problems coming up with \$1,000 to cover an unexpected bill, such as for the repair of a broken home appliance or an emergency medical bill from a car accident.²⁰⁰ In another poll conducted by the Brookings Institution, over all income levels, including households earning \$100,000 to \$150,000 annually, over 25% of American households said they could not come up with \$2,000 within 30 days to pay for an unexpected expense.²⁰¹ Another 19% said they could only do so by selling off possessions or taking out payday loans.²⁰² The Federal Reserve Board found in another study that 47% of those surveyed could not cover even a \$400 emergency without borrowing money or selling off their possessions.²⁰³ Nearly 50% of American households are “financially fragile”²⁰⁴ in the sense that a single unexpected financial emergency can send that household into unplanned borrowing and/or dissaving. Unplanned borrowing might come from a payday lender possibly resulting in a downward financial spiral.²⁰⁵ Unforeseen dissaving from a retirement fund may incur tax penalties for early withdrawal.

In another poll the Associated Press-NORC Center for Public Affairs Research conducted from March 8 to March 27, 2016 of 1,075 Americans aged 50 and older,²⁰⁶ the key findings included these: just 34% of those who are currently working said they feel very or extremely well prepared financially for retirement; 34% of those working

199. Ken Sweet & Emily Swanson, *Poll: Two-thirds of Americans would Struggle to Cover \$1,000 Crisis*, USA TODAY, May 21, 2016, 2:02 p.m. EDT,

<http://www.usatoday.com/story/money/personalfinance/2016/05/21/poll-americans-economic-situation-paying-bills/84665088/>.

200. *Id.*

201. Maurie Backman, *Even 6-Figure Families Are Often Strapped for Cash*, USA TODAY, June 3, 2016, 5:15 p.m. EDT,

<http://www.usatoday.com/story/money/personalfinance/2016/06/03/wealthy-rich-families-strapped-savings/85344200/>.

202. *Id.*

203. Maurie Backman, *Guess How Many Americans Struggle to Come Up with \$400*, USA TODAY, June 7, 2016, 1:49 p.m. EDT,

<http://www.usatoday.com/story/money/personalfinance/2016/06/07/emergency-fund-400-savings/85555886/>.

204. Backman, *supra* note 201.

205. CFPB, *Consumer Financial Protection Bureau Proposes Rule to End Payday Debt Traps*, June 2, 2016,

http://files.consumerfinance.gov/f/documents/CFPB_Proposes_Rule_End_Payday_Debt_Traps.pdf.

206. THE ASSOCIATED PRESS-NORC CENTER FOR PUBLIC AFFAIRS RESEARCH, *Working Longer: Aging, Work, and Retirement Planning in America*,

http://www.apnorc.org/PDFs/Working%20Longer%202016/Working%20Longer%202016%20Topline_Full_FINAL.pdf.

are not saving money for retirement; a substantial minority of 44% said that Social Security is or will be their household's biggest source of retirement income; and over 50% said they feel more anxious than secure about how much they have saved for retirement.²⁰⁷ In an earlier survey from 2013, the Associated Press-NORC Center for Public Affairs Research conducted interviews with a nationally representative sample of 1,075 Americans aged 50 and older, finding that 55% of those surveyed plan to work past the age of 65 or have already done so; about 66.7% of those who are working past age 65 said they made this decision primarily due to financial reasons; 25% of those not retired said they never plan to retire.²⁰⁸

In June 2015, the U.S. Government Accountability Office (GAO) released an in-depth report about retirement security.²⁰⁹ The GAO found the median American household aged 55 to 64 had total retirement savings in the range of between \$10,000 and \$20,000, with 41% having no retirement savings at all.²¹⁰ Of the 59% with positive retirement savings, 87% own homes (27% with no mortgage), 45% have a DB pension, median non-retirement financial resources are \$25,000, and median net worth is \$337,000.²¹¹ Of the 41% with zero retirement savings, 56% own homes (22% with no mortgage), 32% have a DB pension, median non-retirement financial resources are \$1,000, and median net worth is \$21,000.²¹² Perhaps most concerning are the 27% with neither a DB pension nor any retirement savings, with a median home equity of about \$53,000, median net worth is \$9,000, and of whom 91% have less than \$25,000 in financial assets.²¹³ Of American households aged 65 to 74, 52% have no retirement savings, Social Security is the primary source of retirement income (on average 44%), median annual income is about \$47,000, and 27% have neither a DB pension nor any retirement savings.²¹⁴ Of American households aged 75 and older, only 29% have retirement savings, Social Security is the primary source of retirement income (on average 61%), median income is about \$27,000, and 35% have neither a DB pension nor any retirement savings.²¹⁵ According to the U.S. Census Bureau, about 43% of

207. THE ASSOCIATED PRESS-NORC CENTER FOR PUBLIC AFFAIRS RESEARCH, *Retirement Planning in America: Anxiety, Inequality, and the Role of Social Security*, http://www.apnorc.org/PDFs/Working%20Longer%202016/2016-05%20AP-NORC%20Retirement_DTPB_v2r4.pdf.

208. THE ASSOCIATED PRESS-NORC CENTER FOR PUBLIC AFFAIRS RESEARCH, *Working Longer: The Disappearing Divide Between Work Life and Retirement*, http://www.apnorc.org/PDFs/Working%20Longer%202016/2016-05%20AP-NORC%20Working%20Longer_Report1.pdf.

209. Government Accountability Office, *supra* note 90, at 9 fig.2.

210. *Id.* at 10, tbl. 1.

211. *Id.* at 10, tbl. 1.

212. *Id.* at 10, tbl. 1.

213. *Id.* at 10.

214. *Id.* at 13, 14, tbl. 4, 15.

215. *Id.* at 19.

Americans aged 65 and older would be living below the poverty level without Social Security.²¹⁶ What exactly these and many related statistics about retirement savings adequacy²¹⁷ mean in human terms is unclear because Americans differ vastly in their financial mindsets and frames of reference.²¹⁸

Between July 6 and July 24 of 2015, the Transamerica Center for Retirement Studies commissioned the Harris Poll to conduct a 24-minute online survey of a nationally representative sample of 2,012 retirees.²¹⁹ All retirees were U.S. residents age 50 or older, fully (N=1,741) or semi-retired (N=271), and for the majority of their careers worked at for-profit companies employing at least 10 people.²²⁰ A colorful 118-page report collects the survey results, including over 50 indicators of retirees' health and wealth.²²¹ The estimated median annual household income of retirees is \$32,000,²²² with a sizeable difference between those who are married (\$48,000) and unmarried (\$19,000).²²³ The most frequently cited sources of retirement income are Social Security (89%), other savings and investments (48%), corporate pensions (42%), and 401(k)/403(b)/IRAs (37%).²²⁴ For those collecting Social Security benefits, the median age they began to collect benefits was 62, meaning sizeable reductions in benefits, and only 1% waited until age 70 to collect benefits in order to maximize the total benefit amount.²²⁵ The estimated median current household savings of retirees is \$119,000 with a sizeable difference between those who are married (\$224,000) and unmarried (\$40,000).²²⁶ Just 12% of those who retired sooner than planned did so because they had saved enough to afford retirement.²²⁷ An overwhelming majority of retirees are generally happy (94%), enjoying life (90%), and have a strong sense of purpose

216. *Id.* at 19-20, n. 47.

217. *Id.* at 22-29.

218. Austin Smith, *Average American Household Approaching Retirement Has This Much Saved Up*, USA TODAY, July 14, 2016, 4:23 p.m. EDT, <http://www.usatoday.com/story/sponsor-story/motley-fool/2016/05/03/average-savings-for-those-nearing-retirement/83833804/>.

219. Transamerica Center for Retirement Studies, *The Current State of Retirement: A Compendium of Findings About American Retirees*, Apr. 2016, http://www.transamericacenter.org/docs/default-source/retirees-survey/tcrs2016_sr_retiree_compendium.pdf.

220. *Id.* at 5.

221. *Id.* at 7.

222. Robert Powell, *Could You Live on Just \$32,000 Per Year? Most Retirees Do*, USA TODAY, July 14, 2016, 12:35 p.m. EDT,

<http://www.usatoday.com/story/money/columnist/powell/2016/07/14/retirees-low-income-social-security/83934392/>.

223. TRANSAMERICA CENTER FOR RETIREMENT STUDIES, *supra* note 219, at 7.

224. *Id.* at 8.

225. *Id.*

226. *Id.*

227. *Id.*

(84%).²²⁸ Nonetheless, everyday activities are more difficult for some (31%) and some are having difficulties making ends meet (28%).²²⁹ Sadly, some feel isolated and lonely (11%).²³⁰ Retirees' greatest fears are declining health requiring long-term care (44%), reduction or elimination of Social Security (44%), and outliving retirement income (41%).²³¹ While about half of retirees (54%) have a retirement plan, very few (10%) have the plan in writing.²³² Even fewer (7%) have contingency plans for earlier than expected retirement and/or saving shortfalls.²³³

C. Elder Financial Abuse

There is financial, medical, and psychological evidence that older Americans are particularly cognitively vulnerable to making financial decision errors.²³⁴ Americans have to make complicated financial decisions before (e.g., portfolio asset allocation, saving or investing versus consuming), at (e.g., when to retire), and after (e.g., receiving a lump sum payment versus periodic distributions) retirement. In addition to facing many complex decisions, the 57 million Americans, who are 60 and older, are victims annually of an estimated \$36 billion in financial fraud.²³⁵ A survey identifies how banking and wealth advisory firms are detecting, preventing, and responding to elder financial victimization and the current regulatory landscape.²³⁶ A study by the American Association of Retired Americans Banksafe Initiative found that financial exploitation to be the most frequently reported type of abuse against adults with one in five adults having been financially exploited, and victims losing \$120,303 on average.²³⁷ The CEO of the National Association of Area Agencies on Aging (n4a), Sandy Markwood, observed that for each reported case of financial fraud, another 23

228. *Id.* at 9.

229. *Id.*

230. *Id.*

231. *Id.*

232. *Id.* at 10.

233. *Id.*

234. See, e.g., Sumit Agarwal et al., *The Age of Reason: Financial Decisions over the Life-Cycle with Implications for Regulation*, BROOKINGS PAPERS ON ECON. ACTIVITY (Fall 2009), at 51, 55-78 (providing this evidence); David Huffman et al., *Time Discounting and Economic Decision-making Among the Elderly*, (Nat'l Bureau of Econ. Research, Working Paper No. 22438, 2016), <http://www.pensionresearchcouncil.org/publications/document.php?file=1343>; Ellen Peters & Wandi Bruine de Bruin, *Aging and Decision Skills*, in JUDGMENT AND DECISION MAKING AS A SKILL 113-39 (Mandeep K. Dhami et al. eds., 2013).

235. Fernanda Crescente, *Senior Citizens Lose Billions, Fear to Report Financial Exploitation*, USA TODAY, June 15, 2016, 2:55 p.m. EDT, <http://www.usatoday.com/story/news/politics/2016/06/15/senior-citizens-lose-independence-billions-due-to-financial-exploitation/85926602/>

236. MARGUERITE DELIEMA & MARTHA DEEVY, *Aging and Financial Victimization: How Should the Financial Service Industry Respond?*, Pension Research Council, WP2016-4, <http://www.pensionresearchcouncil.org/publications/document.php?file=1342>.

237. *Id.*

go unreported because of embarrassment, fear, or the lack of evidence.²³⁸ The n4a Answers on Aging™ Financial Exploitation initiative has a information website at <http://www.n4a.org/financialexploitation> and provides a brief (at seven pages) consumer brochure containing helpful resources, tips and tools for elderly Americans and their families to avoid becoming the victims of financial abuse or fraud at <http://www.n4a.org/Files/financial-fraud-access508.pdf>. International mail fraud schemes defrauded more than \$18 million dollars annually since 2012 from elderly and vulnerable American victims.²³⁹ Scam artists increasingly try selling annuities and life insurance to defraud elderly Americans.²⁴⁰ The National Council on Aging compiled a list of the top 10 financial scams targeting seniors.²⁴¹

A novel economic model of elder fraud analyzes the behavior of households who, before they know whether they will suffer from cognitive decline, can protect themselves against making bad financial decisions by buying insurance to constrain their subsequent choices.²⁴² In this model's equilibrium, more households insure against cognitive decline if such insurance has low costs, households have high risk aversion, the probability of cognitive decline is high, the probability of households being offered a suitable financial product is low, the search costs to sellers of finding consumers are low (e.g. through online phishing²⁴³), and many sellers enter the market. On the other side of the market, more sellers enter the market when the search costs for finding consumers are low, profit margins are high, the probability of cognitive decline is high, households have low risk aversion, and the costs to households of insurance against cognitive decline are high. If more households insure, then fewer sellers choose to enter the market. This means that when the probability of being offered an unsuitable financial product is high, households who insure against cognitive decline provide a positive externality to other households. Because households ignore this externality in their individual decision-making, in the market

238. *Id.*

239. Kevin McCoy, *Feds: Mail Fraud Schemes Scammed Seniors*, USA TODAY, June 2, 2016, 10:07 A.M. EDT, <http://www.usatoday.com/story/money/2016/06/02/feds-mail-fraud-schemes-scammed-seniors/85286436/>.

240. Powell, *supra* note 84.

241. NATIONAL COUNCIL ON AGING, *Top Ten Financial Scams Targeting Seniors*, <https://www.ncoa.org/economic-security/money-management/scams-security/top-10-scams-targeting-seniors/>.

242. Terrance Odean & Simon Gervais, *Scam to Decline or Decline to Be Scammed: A Model of Elder Fraud*, presented May 24, 2016 at the 2016 Boulder Summer Conference on Consumer Financial Decision Making, Boulder, Colorado.

243. See generally GEORGE AKERLOF & ROBERT SHILLER, PHISHING FOR PHOOLS: THE ECONOMICS OF MANIPULATION AND DECEPTION (2015) (discussing how markets are inherently filled with tricks and traps); London School of Economics and Politics, *Phishing for Phools: The Economics of Manipulation and Deception*, YOUTUBE (Nov. 1111113, 2013), <https://www.youtube.com/watch?v=LPjPVzzqweM> ; Peterson Institute, *George A. Akerlof: Phishing for Phools: The Economics of Manipulation and Deception*, YOUTUBE (Sept. 21, 2015), https://www.youtube.com/watch?v=vS_YzIVJCaE.

equilibrium outcome, households buy less insurance against cognitive decline than is the socially optimal amount. The equilibrium amounts of cognitive insurance coverage purchased being less than socially optimal implies that government regulation can raise individual and social welfare. For example, regulators could mandate the purchase of the socially optimal amount of cognitive insurance coverage. Alternatively, the government could incentivize households to buy socially optimal cognitive insurance coverage by subsidizing purchasers or taxing non-purchasers.

A number of U.S. federal government agencies target elder financial abuse. For example, the Federal Bureau of Investigation maintains a webpage titled *Fraud Target: Senior Citizens*.²⁴⁴ The United States Department of Justice *Elder Justice* website provides a wealth of information about financial exploitation for victims, their families, practitioners, law enforcement agencies, prosecutors, and researchers.²⁴⁵ The Financial Fraud Enforcement Task Force, a broad coalition of American law enforcement, investigatory and regulatory agencies, which was established in November 2009, maintains a webpage dedicated to combatting elder fraud and financial exploitation.²⁴⁶

The CFPB released in March 2016 recommendations to banks and credit unions about how to better protect their older customers from Elder Financial Exploitation (EFE) attacks,²⁴⁷ in which perpetrators take over bank accounts or misappropriate funds by targeting such common vulnerabilities of elderly victims as cognitive impairment and lack of technological sophistication.²⁴⁸ The CFPB suggests that bank and credit unions “implement predictive analytics to detect suspicious activity that could indicate EFE (e.g., adding additional authorized users to accounts) and offer enhanced protection services to elderly clients (e.g., withdrawal limits).”²⁴⁹ The Financial Industry Regulatory Authority (FINRA) “proposed regulation focuses on tactical steps that broker-dealers should take if there is suspicion of EFE, requiring these firms to make efforts to reach out to a trusted third party, and allowing such firms to place temporary holds on potentially compromised accounts.”²⁵⁰

Notice that “the CFPB’s recommendations focus on best practices for banks and credit unions to prevent and detect EFE, while FINRA’s proposal focuses on ways that

244. THE FEDERAL BUREAU OF INVESTIGATION, *Fraud Target: Senior Citizens*, <https://www.ncoa.org/economic-security/money-management/scams-security/top-10-scams-targeting-seniors/>.

245. The United States Department of Justice, *Elder Justice Initiative*, <https://www.justice.gov/elderjustice/>.

246. Financial Fraud Enforcement Task Force, *Elder Fraud and Financial Exploitation*, <http://www.stopfraud.gov/protect-yourself.html>.

247. Dan Ryan et al., *Protecting Elderly Customers: CFPB and FINRA Step In*, FIN. CRIMES OBSERVER, 1, 1 (2016) <https://www.pwc.com/us/en/financial-services/financial-crimes/publications/assets/elderly-financial-exploitation-2016.pdf>.

248. *Id.*

249. *Id.*

250. *Id.*

broker-dealers can respond to potential EFE attacks.”²⁵¹ Notice also that although “the CFPB’s recommendations are voluntary best practices (and not requirements), banks and credit unions that do not implement a robust EFE program could be targeted by the CFPB for engaging in unfair, deceptive, or abusive acts or practices (UDAAP)”²⁵² under the Dodd-Frank Wall Street Reform and Consumer Protection Act.²⁵³

II. American Retirement Policies

There are many federal²⁵⁴ and state²⁵⁵ government policies towards Americans’ retirement planning, ranging from laissez-faire to various forms of mandates.²⁵⁶ The Social Security system President Roosevelt signed into law in 1935 means the United States federal government does not have a laissez-faire approach to Americans’ retirement planning. John Y. Campbell, who is the Morton L. and Carole S. Olshan Professor of Economics at Harvard University,²⁵⁷ as part of his Richard T. Ely Distinguished Lecture during the 2016 meeting of the American Economic Association,²⁵⁸ makes a compelling case for government intervention in American consumer financial markets, including asset allocation in retirement saving.²⁵⁹

Campbell reviews the vast extant literature documenting household financial mistakes,²⁶⁰ including “the failure to contribute to 401(k) plans with employer matches and immediate penalty-free withdrawals for older employees.”²⁶¹ Because there is evidence that Americans are often making objectively poor choices about retirement planning, American policy makers must decide how to respond to Americans’ doing no or poor retirement planning. How policy makers respond depends on to what extent “self-reflection, experience, learning, feedback, routines, assistance,

251. *Id.* at 2.

252. *Id.*

253. Consumer Financial Protection Bureau, CFPB Bulletin (July 2013), *Prohibition of Unfair, Deceptive, or Abusive Acts or Practices in the Collection of Consumer Debts*, July 10, 2013, http://files.consumerfinance.gov/f/201307_cfpb_bulletin_unfair-deceptive-abusive-practices.pdf.

254. The Pew Charitable Trusts, *How States Are Working to Address the Retirement Savings Challenge*, 25-26, June 2016, <http://www.pewtrusts.org/en/research-and-analysis/reports/2016/06/how-states-are-working-to-address-the-retirement-savings-challenge>.

255. *Id.* at 2-24, 27 tbl. 1.

256. Agarwal et al., *supra* note 234, at 80-90 (discussing briefly the pros and cons of these nine policies).

257. Harvard University Economics Department, John Y. Campbell, <http://scholar.harvard.edu/campbell/home>.

258. John Y. Campbell, *Restoring Rational Choice: The Challenge of Consumer Financial Regulation*, 106 AM. ECON. REV.: PAPERS & PROC. 1, 1 (2016).

259. *Id.* at 20-22.

260. *Id.* at 9-10.

261. *Id.* at 10. See also James Choi et al., *\$100 Bills on the Sidewalk: Suboptimal Investment in 401(k) Plans*, 93 REV. ECON. STUD. 748, 748 (2011).

supervision, oversight, and a full array of punishment and rewards" can overcome the presence and extent of cognitive errors.²⁶²

A. Legislation: The Fiduciary Rule and More

On September 15, 2015, President Obama signed an Executive Order titled Using Behavioral Science Insights to Better Serve the American People.²⁶³ This Executive Order directs executive departments and federal agencies to base the design of policies and programs on research in behavioral economics and psychology about how people make decisions. The Executive Order specifically directs federal agencies to carefully design how choices are presented and structured, otherwise known as choice architecture, to empower people to make the best choices for themselves and their families. The Executive Order also specifically directs federal agencies to improve how the federal government presents information by devoting more consideration to the format, medium, and timing of information, otherwise known as information architecture, affects the understanding of that information by consumers, borrowers, and federal program beneficiaries. Choice architecture and information architecture are two popular types of policies among American and British policy makers.²⁶⁴

A blog post titled *Educate, Automate or Legislate? A View From The UK DC Market* notes that a good DC "outcome rests on several pillars: participation, contribution, investment, fees, and retirement income choice."²⁶⁵ That blog post evaluates how the United Kingdom addresses each of these pillars by automation, legislation, and education. As to participation, the blog observes that because of historically low enrolment levels for U.K. DC plans, in 2012, legislation mandated all employers and employees to contribute to a DC plan.²⁶⁶ As of 2014, this legislation conscripted four million new DC savers, with less than 10% opting out.²⁶⁷ As to contribution, in addition to auto-enrolment, there is a mandated minimum contribution of 8% of qualifying

262. Richard A. Epstein, *Behavioral Economics: Human Errors and Market Corrections*, 73 U. CHI. L. REV. 111, 111 (2006).

263. Exec. Order 13707, 3 C.F.R. 13707 (Sept. 15, 2015). See also The White House, *Fact Sheet: President Obama Signs Executive Order; White House Announces New Steps to Improve Federal Programs by Leveraging Research Insights*, <https://obamawhitehouse.archives.gov/the-press-office/2015/09/15/fact-sheet-president-obama-signs-executive-order-white-house-announces>.

264. Francesca Gino, *Why the U.S. Government Is Embracing Behavioral Science*, HARV. BUS. REV. BLOG, Sept. 18, 2015, <https://hbr.org/2015/09/why-the-u-s-government-is-embracing-behavioral-science>.

265. Nigel Aston, *Educate, Automate or Legislate? A View From The UK DC Market*, Oct. 30, 2014, DCIIA: Defined Contribution, Institutional Investment Association, http://www.dciia.org/index.php?option=com_dailyplanetblog&view=entry&year=2014&month=10&day=29&id=14:educate-automate-or-legislate-a-view-from-the-uk-dc-market.

266. *Id.*

267. *Id.*

earnings, with a tax break for employee contributions.²⁶⁸ The blog post notes while this is an improvement over not saving, the government must encourage higher savings rates or increase the compulsory minimum contribution level as Australia did.²⁶⁹ As for investment, default funds are the norm, mandatory for automatic enrollment plans, and typically employ what is known as a “glide path” to invest in more conservative assets as retirement approaches.²⁷⁰ The predominant view in the U.K. is that when people make individual choices about complex investments alternatives, the results are suboptimal.²⁷¹ As to investment fees, there is a legislatively imposed cap on fees, including record keeping.²⁷² As to retirement income choice, in 2014, so-called “Freedom and Choice” legislation ushered in more complexity and more demand for information by no longer effectively mandating conversion of retirement proceeds into annuitized income.²⁷³ The U.K. government also proposed a “Guidance Guarantee” that provides free personalized guidance to everyone.²⁷⁴ As for an overall evaluation, the U.K. seems to “legislate in the short term, automate where effective and be ambitious about financial education over time.”²⁷⁵

Evaluating America’s current DC outcome according to the same pillars finds low participation, low contribution, suboptimal investment, high fees, and too complex, suboptimal retirement income choice. This unfortunate state of affairs is unsurprising and unnecessary. As the author of the above blog post cogently observes: “We must remember that in their own minds they are often exactly that - savers not investors. Research consistently shows that DC participants on both sides of the Atlantic don’t typically expect or wish to make complex financial choices.”²⁷⁶

Existing and proposed American retirement policies can also be categorized as legislation,²⁷⁷ automation,²⁷⁸ and education.²⁷⁹ For example, law professor Birdthistle proposes three fixes to America’s current flawed retirement system, each requiring the passage of new legislation or enforcement of currently under-enforced legislation.²⁸⁰

268. *Id.*

269. *Id.*

270. *Id.*

271. *Id.*

272. *Id.*

273. *Id.*

274. *Id.*

275. *Id.*

276. *Id.*

277. See e.g., Ryan Bubb et al., *A Behavioral Contract Theory Perspective on Retirement Savings*, 47 CONN. L. REV. 1317 (2015).

278. SHLOMO BENARTZI WITH ROGER LEWIN, *SAVE MORE TOMORROW: PRACTICAL BEHAVIORAL FINANCE SOLUTIONS TO IMPROVE 401(K) PLANS* (2012).

279. Fernandes et al., *supra* note 3.

280. Birdthistle, *supra* note 113.

First,²⁸¹ he advocates letting all Americans participate in the Thrift Savings Plan,²⁸² currently available to federal employees and members of the uniformed services. Second, he urges the SEC, under the authority of section 36 of the Investment Company Act,²⁸³ to bring enforcement actions against mutual funds charging the highest fees.²⁸⁴ Third, he suggests requiring that Americans wanting to invest in funds that are not Qualified Default Investment Alternatives (QDIAs), such as large, passively managed, diversified funds are, must get a financial license.²⁸⁵

In America, there is already plenty of legislation about retirement planning, enforced by various regulators. American regulators with jurisdiction about retirement include the Internal Revenue Service of the U.S. Treasury, the SEC, and the Department of Labor. On April 8, 2016, the United States Department of Labor announced its highly anticipated final fiduciary rule, also known as the Conflict of Interest Final Rule.²⁸⁶ This rule is designed to protect investors by mandating that providers of retirement investment advice to retirement plans and individual retirement accounts must abide by a fiduciary standard, meaning placing their clients' best interest before their own profit. It might surprise many Americans that before this rule, financial advisors were not held to a fiduciary standard in providing retirement advice. Anyone can call herself a "financial advisor" because there is no commonly accepted or legally defined term known as "financial advisor."²⁸⁷ This contrasts with, for example, being a Chartered Financial Analyst, who must earn a professional credential that requires passing three six-hour examinations upon mastering a curriculum about corporate finance, economics, ethics, financial reporting and analysis, portfolio management, quantitative methods, and securities analysis.²⁸⁸ On June 8, 2016, President Obama vetoed a Congressional resolution to block the

281. Birdthistle, *supra* note 113; BIRDTHISTLE, *supra* note 112, at 213-15.

282. Thrift Savings Plan Website, <https://www.tsp.gov/index.html>.

283. 15 U.S.C. § 80a-35.

284. Birdthistle, *supra* note 113; BIRDTHISTLE, *supra* note 112, at 215-16.

285. Birdthistle, *supra* note 113; BIRDTHISTLE, *supra* note 112, at 207-12.

286. United States Department of Labor, *Conflict of Interest Final Rule*, <https://www.dol.gov/ebsa/regs/conflictsofinterest.html>.

287. See, e.g., *Last Week Tonight with John Oliver: Retirement Plans* (HBO television broadcast June 12, 2016), <https://www.youtube.com/watch?v=gvZSpET11ZY&feature=youtu.be> (parodying the concept of financial advisors and the necessity of a fiduciary rule).

288. CFA Institute, *CFA Program*, <https://www.cfainstitute.org/programs/cfaprogram/Pages/index.aspx>.

implementation of this rule.²⁸⁹ Until this rule goes into effect April 2017,²⁹⁰ the SEC's current and much weaker suitability standard governs.²⁹¹

Policy analyst Robert Hiltonsmith "estimated that retirement savers paid a total of \$73 billion in fees in 2013, or an average of 0.6% of their total assets. Under the fiduciary rule, these fees would plummet . . . that would translate to a savings of nearly \$25 billion from lower fees" (boldface in original).²⁹² Hiltonsmith also estimates the fiduciary rule "would also translate into higher returns: given that . . . passively-managed funds outperformed actively-managed funds by more than 3.5% last year, if we predicted that the fiduciary rule even leads to 0.5% higher annual returns, that would translate into an additional \$60 billion earned by people with 401(k)s and IRA(s)."²⁹³

B. Automation: Nudging and Mindless Retirement Planning

Behavioral economics is very much in vogue among legal scholars and policy makers.²⁹⁴ This popularity is partly because behavioral economics provides more descriptively accurate depictions of human behavior over time and under risk than does neoclassical economics. Many in the policy arena, popular media, and public are fascinated by experimental discoveries from behavioral economics. This fascination is partly because of the compelling narrative and rhetorical nature of irrationality,²⁹⁵ in addition to the persuasiveness and visual power of brain scan images.²⁹⁶ Applying behavioral economics to design retirement policy has been very popular for quite some time.²⁹⁷ Behavioral economics incorporates cognitive and social psychological findings into economics models of retirement planning.²⁹⁸

289. See e.g., Eric Pianin, *Obama Vetoes GOP Effort to Block New Fiduciary Rule*, FISCAL TIMES, June 9, 2016, <http://www.thefiscaltimes.com/2016/06/09/Why-Obama-Vetoed-New-Consumer-Protection-Rule>.

290. See e.g., Arielle O'Shea & Dayana Yochim, *What the New Advisor Rule Means for You, Your Retirement Investments*, Apr. 6, 2016, <https://www.nerdwallet.com/blog/investing/what-new-rule-means-for-investments/>.

291. SEC Website, *Suitability*, <https://www.sec.gov/answers/suitability.htm>.

292. Robert Hiltonsmith, *Why the Fiduciary Rule Matters*, Demos, Feb. 25, 2015, <http://www.demos.org/publication/why-fiduciary-rule-matters>.

293. *Id.*

294. See e.g., BEHAV. SCI. & POL'Y J., <https://behavioralpolicy.org/journal/>. See also Behavioral Science & Policy Association, <https://behavioralpolicy.org/>.

295. See e.g., Lola L. Lopes, *The Rhetoric of Irrationality*, 1 THEORY & PSYCHOL. 65, 65, 78-80 (1991).

296. See e.g., Deena Skolnick Weisberg et al., *The Seductive Allure of Neuroscience Explanations*, 20 J. COGNITIVE NEUROSCI. 470, 470 (2008).

297. See e.g., Olivia S. Mitchell & Stephen P. Utkus, *How Behavioral Finance Can Inform Retirement Plan Design*, 18 J. APPLIED CORP. FIN. 82, 82 (2006).

298. See e.g., Rob Austin, *The Impact of Behavioral Economics on Retirement Plans*, BENEFITS QUART., Third Quarter, 2013, at 25; BEHAVIORAL DIMENSIONS OF RETIREMENT ECONOMICS (Henry Aaron ed., 1999).

People can become overconfident from biases in learning about their trading abilities.²⁹⁹ Empirical field research documents retail investors avoid stocks whose prior purchase led to negative emotions and rebuy stocks whose prior purchase led to positive emotions.³⁰⁰ People tend to remember information consistent with their preferences and forget information inconsistent with their preferences.³⁰¹ People often act impulsively and based upon inaccurate beliefs.³⁰² People also face cognitive limitations in processing too much complex information.³⁰³ Some people confuse payoff-relevant information with payoff-irrelevant information or noise.³⁰⁴

That many investors misinterpret and overestimate their prior investment performance is documented and illustrated by empirical surveys of American mutual fund investors³⁰⁵ and German online broker investors³⁰⁶ in addition to experimental research about Master's in Business Administration (MBA) students playing an online investment simulation game.³⁰⁷ Imperfect emotional and factual memories imply that people will find it difficult to learn from their financial experiences.³⁰⁸ Imperfect and incomplete memories of past financial pain imply significant limitations to learning from experience which may in turn explain why some people fall prey repeatedly to predatory financing and repeatedly participate in investment scams and securities bubbles.

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299. Simon Gervais & Terrance Odean, *Learning to Be Overconfident*, 14 REV. FIN. STUD. 1, 1 (2001) (presenting a formal theoretical model demonstrating this phenomenon).
 300. Michal Ann Strahilevitz et al., *Once Burned, Twice Shy: How Naïve Learning, Counterfactuals, and Regret Affect the Repurchase of Stocks Previously Sold*, 48 J. MARKETING RES. S102, S102 (2012) (providing this evidence).
 301. Garcia, *supra* note 50.
 302. *Id.*
 303. *Id.*
 304. Fisher Black, *Noise*, 41 J. FIN. 529, 529, 530-34 (1986) (analyzing the concept of noise in finance).
 305. William N. Goetzmann & Nadav Peles, *Cognitive Dissonance and Mutual Fund Investors*, 20 J. FIN. 145, 145 (1997) (finding that mutual fund investors overestimate their actual past returns and performance relative to the whole market).
 306. Markus Glaser & Martin Weber, *Why Inexperienced Investors Do Not Learn: They Do Not Know Their Past Portfolio Performance*, 4 FIN. RES. LETTERS 203, 203 (2007) (concluding that investors do not know or remember their investing mistakes).
 307. Don A. Moore et al., *Positive Illusions and Forecasting Errors in Mutual Fund Investment Decisions*, 79 ORG. BEHAV. & HUMAN DECISION PROCESSES 95, 95 (1999) (finding that most players consistently overestimate past and future performance of their investment portfolios).
 308. See generally NOFSINGER, *supra* note 24, at 40-45 (summarizing how emotional memory interacts with investment decisions). See also JOHN R. NOFSINGER, INVESTMENT MADNESS: HOW PSYCHOLOGY AFFECTS YOUR INVESTING . . . AND WHAT TO DO ABOUT IT 100-106 (2001) (same).

A large body of psychological research finds that people are overconfident in the accuracy of their memories.³⁰⁹ Recent research provides evidence that older individuals exhibit a positivity bias and also a recency effect in their memories.³¹⁰ This research implies that older folks may take on excessive financial risks during a bull market.³¹¹ Financial autopilots provide one way for older people to protect themselves from their positivity bias.³¹² It is human nature for people to maintain positive self-images of their financial decision-making in spite of disconfirming evidence from their past portfolio performance. People can alter their financial decision-making in several ways to preserve their positive self-images:

First, people may fail to make important decisions because it is too uncomfortable to contemplate the situation. For example, when considering the thought of saving for future retirement, some younger people may conjure an image of a feeble person with low earning power. To avoid the conflict between their good self-image and the contradictory future self-image, they avoid saving entirely. Second, the filtering of new information limits the ability to evaluate and monitor our investment decisions. If investors ignore negative information, how are they going to realize that an adjustment in their portfolio is necessary?³¹³

As behavioral finance scholar John Nofsinger cogently states:

People want to believe that their investment decisions are good. In the face of evidence to the contrary, the brain's defense mechanisms filter contradictory information and alter the recollection of the decision. It is hard to objectively evaluate the progress toward investment goals or the need for an investment advisor when the recollection of past performance is biased upward.³¹⁴

309. Shlomo Benartzi & Alan Castel, *The Financial Price of Forgetting Bad Times*, WALL ST. J., June 12, 2016, 10:06 p.m. ET, <http://www.wsj.com/articles/the-financial-price-of-forgetting-bad-times-1465783563>.

310. Alan D. Castel et al., *I Owe You: Age-Related Similarities and Differences in Associative Memory for Gains and Losses*, 23 AGING, NEUROPSYCHOL. & COGNITION: A J. NORMAL & DYSFUNCTIONAL DEVELOP. 549, 549 (2016).

311. Benartzi & Castel, *supra* note 309.

312. *Id.*

313. NOFSINGER, *supra* note 24, at 41.

314. *Id.* at 45.

A number of behavioral science professors and law professors advocate policies and regulations known as forms of soft paternalism.³¹⁵ Examples of soft paternalism are defaulting people into 401(k) retirement plans and cooling-off periods before marriage or divorce and for home-solicitation sales. Types of soft paternalism include libertarian paternalism, which endeavors to preserve people's freedom of choice, while intending to influence people's choices to make them better off;³¹⁶ asymmetric paternalism, which strives to produce large benefits to people who are prone to decision-making errors, while imposing little or even no costs on those who are not prone to decision-making errors;³¹⁷ cautious paternalism, which requires that policymakers determine conditions under which policy benefits outweigh costs;³¹⁸ and light paternalism, which attempts to enhance individual choice without restricting it.³¹⁹

There is empirical, experimental, and field evidence that people choose poorly in many settings because of systematic, unconscious cognitive biases.³²⁰ As an economist stated: there is "a great deal of evidence of large and costly errors that people make in important choices."³²¹ This data is behind the popular idea of nudges, which acknowledge or even use cognitive biases to design choice contexts and information provision to influence choices to reach outcomes that mitigate people's cognitive biases.³²² The policy tool of nudging people has become very popular among certain regulators,³²³ ever since the concept of nudges was introduced and proposed by

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315. Jim Holt, *The New, Soft Paternalism*, N.Y. TIMES, Dec. 3, 2006, Magazine, at http://www.nytimes.com/2006/12/03/magazine/03wwwln_lede.html?pagewanted=all&_r=0.
316. See generally Cass R. Sunstein & Richard H. Thaler, *Libertarian Paternalism Is Not an Oxymoron*, 70 U. CHI. L. REV. 1159, 1159 (2003); Richard H. Thaler & Cass R. Sunstein, *Libertarian Paternalism*, 93 AM. ECON. REV. 175, 175 (2003).
317. See generally Colin Camerer et al., *Regulation for Conservatives: Behavioral Economics and the Case for "Asymmetric Paternalism"*, 151 U. PA. L. REV. 1211, 1211 (2003).
318. See generally Ted O'Donoghue & Mathew Rabin, *Procrastination in Preparing for Retirement*, in BEHAVIORAL DIMENSIONS OF RETIREMENT ECONOMICS 125, 129 (Henry J. Aaron ed., 1999).
319. See generally George Loewenstein & Emily Celia Harris, *The Economist as Therapist: Methodological Ramifications of "Light" Paternalism*, in THE FOUNDATIONS OF POSITIVE AND NORMATIVE ECONOMICS: A HANDBOOK 210, 210 (Andrew Caplin & Andrew Schotter eds., 2008).
320. Stefano DellaVigna, *Psychology and Economics: Evidence from the Field*, 47 J. ECON. LITERATURE 315, 318-56, 359-60 (2009) (surveying this data).
321. Andrei Shleifer, *Psychologists at the Gate: A Review of Daniel Kahneman's Thinking Fast and Slow*, 50 J. ECON. LITERATURE 1080, 1081 (2012).
322. THALER & SUNSTEIN, *supra* note 324, at 74; Pierre Schlag, *Nudge, Choice Architecture and Libertarian Paternalism*, 108 MICH. L. REV. 913 (2010) (reviewing and critiquing the book NUDGE).
323. See, e.g., Kim Ly et al., *A Practitioner's Guide to Nudging*, Rotman School of Management, University of Toronto, Research Report Series, Behavioral Economics in Action, (Mar. 2013), <http://www.rotman.utoronto.ca/-/media/Images/Programs-and-Areas/behavioural-economics/GuidetoNudging-Rotman-Mar2013.pdf> (categorizing nudges, presenting several brief case studies, and offering some process guidelines about developing and implementing nudges).

behavioral economist Richard Thaler and legal scholar Cass Sunstein.³²⁴ Nudges have generated much debate and controversy over their ethical nature.³²⁵ Some argue that some nudges are at best ineffective and at worst even counterproductive.³²⁶ Some nudges are quite effective in changing people's behavior. For example, behavioral economics research finds that inertia is a powerful force in retirement planning,³²⁷ implying that automatic enrollment in retirement plans can be a policy default that is very effective in changing people's behavior.³²⁸ Based upon research about loss aversion, inertia, and defaults,³²⁹ two behavioral economists, Shlomo Benartzi and Richard Thaler, designed a well-known program, Save More Tomorrow, that helps people start and continue to save more for their retirement. Defaults can be one-size-fits-all or tailored to individuals.³³⁰ Defaults do not always work though.³³¹ Defaults work best when three conditions hold: (1) people's main mistake is that of inaction as opposed to poor action, (2) people share sufficiently homogenous preferences and they

324. RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* 74 (2009).

325. *See generally* SARAH CONLY, *AGAINST AUTONOMY: JUSTIFYING COERCIVE PATERNALISM* (2013) (arguing that libertarian paternalism fails to work or is manipulative if and when it does work); FRANCIS H. BUCKLEY, *FAIR GOVERNANCE: PATERNALISM AND PERFECTIONISM* (2009) (examining justifications for interfering with personal preferences); RICCARDO REBONATO, *TAKING LIBERTIES: A CRITICAL EXAMINATION OF LIBERTARIAN PATERNALISM* (2012) (demonstrating that libertarian paternalism is deeply manipulative, fraught with unintended consequences, insidious, and raises the question of who monitors the government); MARK D. WHITE, *THE MANIPULATION OF CHOICE: ETHICS AND LIBERTARIAN PATERNALISM* (2013) (explaining how libertarian paternalism is coercive and prone to informational, ethical, and practical problems).

326. Bruce Bower, *Nudge Backlash*, 191 *SCI. NEWS* 18, 19-21, Mar. 18, 2017 (discussing drawbacks of nudging retirement defaults); Jeffrey R. Brown, Anne M. Farrell, & Scott J. Weisbener, *Decision-Making Approaches and the Propensity to Default: Evidence and Implications*, 121 *J. FIN. ECON.* 477, 489 figs.1 & 2 (2016) (finding employees who were nudged into default retirement plans expressed the most regret over their past pension choices); Ryan Bubb & Richard H. Pildes, *How Behavioral Economics Trims Its Sails and Why*, 127 *HARV. L. REV.* 1593, 1593 (2014) (explaining why so-called "choice-preserving" regulation often is ineffective or leads to counterproductive policy recommendations); Bruce Ian Carlin, Simon Gervais, & Gustavo Manso, *Libertarian Paternalism, Information Production, and Financial Decision Making*, 26 *REV. FIN. STUD.* 2204, 2220-21 (2013) (proving in a theoretical model that individuals who are nudged into retirement defaults may gather less financial information and share less financial information with their friends and families).

327. Brigitte C. Madrian & Dennis F. Shea, *The Power of Suggestion: Inertia in 401(k) Participation and Saving Behavior*, 116 *QUART. J. ECON.* 1149, 1149 (2001).

328. *See generally* AUTOMATIC: *CHANGING THE WAY AMERICA SAVES* (William G. Gale, et al. eds., 2009) (proposing the automatic enrollment of employees in 401(k) plans).

329. Richard H. Thaler & Shlomo Benartzi, *Save More Tomorrow: Using Behavioral Economics to Increase Employee Savings*, 112 *J. POL. ECON.* S164, S164 (2004) (offering details).

330. Cass R. Sunstein, *Impersonal Default Rules vs. Active Choice vs. Personalized Default Rules: A Triptych*, unpublished manuscript, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2171343, May 19, 2013.

331. Lauren E. Willis, *When Nudges Fail: Slippery Defaults*, 80 *U. CHI. L. REV.* 1155, 1155 (2013).

prefer the default option to what the average person would have chosen, and (3) opt-out or switching costs are small.³³²

A problem with nudging is that it accepts, takes advantage of, and perpetuates mindless retirement planning. The Pension Protection Act of 2006³³³ facilitated American employers adopting automatic enrollment plans.³³⁴ The U.S. Department of Labor promulgated regulation that made TDFs eligible to be QDIAs.³³⁵ The growth of TDFs in the U.S. accelerated after both of these legal changes. By December 2015, the assets managed in American TDFs had mushroomed to \$763 billion.³³⁶ In a February 2015 speech,³³⁷ SEC Commissioner Luis Aguilar described “the relentless growth” in TDFs as “troubling” and noted “investors, and industry professionals alike, do not fully appreciate the risks” of TDFs. He was concerned that in a online survey study the SEC sponsored in 2012, out of 1,000 individual investors from a national consumer panel, only 30% understood the meaning of the year in a TDF’s name,³³⁸ only 36% understood that TDFs do not guarantee any retirement income,³³⁹ 54% failed to realize that TDFs having the same year in their name do not necessarily have the same mix of bonds and stocks at the target date,³⁴⁰ and 41% of those who invested in a TDF stated they did so because “it seems like a safe investment for retirement.”³⁴¹ Nudging people by defaults into TDFs has additional problems because of the high fees TDFs charge and the above troubling empirical data finding that people misunderstand what TDFs are, mistakenly believing TDFs are risk-free.

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332. John G. Lynch, Jr., *Information Remedies, Choice Architecture, Plain Vanilla Financial Products, and “Just In Time” Financial Education in the Form of Financial Decision Support Systems*, Workshop on Financial Decision-Making, Cognition, and Regulation, University of Colorado Law School, Boulder, July 10, 2012.
333. Pension Protection Act of 2006, 29 U.S.C. 1001 (2006).
334. *Id.*, at § 902: Increasing Participation Through Automatic Contribution Arrangements.
335. U.S. Department of Labor Website, *Fact Sheet: Regulation Relating To Qualified Default Investment Alternatives In Participant-Directed Individual Account Plans* (Apr. 2008), <https://www.dol.gov/ebsa/newsroom/fsqdia.html>.
336. John F. Wasik, *Target-Date Funds Are Simple, but They Still Require Careful Aim*, N.Y. TIMES, Apr. 9, 2016, http://www.nytimes.com/2016/04/10/business/mutfund/target-date-funds-are-simple-but-they-still-require-careful-aim.html?_r=0; Janet Yang et al., *2015 Target-Date Fund Landscape*, Morningstar, http://images.mscomm.morningstar.com/Web/MorningstarInc/%7Bf3e3d5ee-b915-439c-bbf7-4ee9d0c61bdf%7D_2015_Target-Date_Fund_Landscape.pdf.
337. Luis A. Aguilar, *Advocating for Investors Saving for Retirement*, Speech, Feb. 5, 2015, <https://www.sec.gov/news/speech/advocating-for-investors-saving-for-retirement.html#.VNOimFbvPw>.
338. Siegel & Gale LLC, *Investor Testing of Target Date Retirement Fund (TDF) Comprehension and Communications*, 25 (Feb. 15, 2012), available at <https://www.sec.gov/comments/s7-12-10/s71210-58.pdf>.
339. *Id.* at 15, 26-28.
340. *Id.* at 29.
341. *Id.* at 20.

C. Education: Financial Literacy?

Campbell distinguishes among five types of financial ignorance:³⁴² ignorance about financial concepts,³⁴³ ignorance about financial contract terms,³⁴⁴ ignorance about financial history,³⁴⁵ ignorance about people's own financial behavior,³⁴⁶ and ignorance about incentives other people face in financial markets and how such incentives affect other people's strategic behavior and financial market equilibrium.³⁴⁷ Campbell points out how a "natural response to financial ignorance is to try to cure it through financial education or disclosures."³⁴⁸ Campbell observes that disclosures and financial education "are variants of the same strategy, empowering individuals to understand financial problems better and thereby to make better decisions. The difference is that financial education is more general, particularly when offered early in life, while disclosures are specific to particular financial problems."³⁴⁹ Campbell also analyzes the limitations of and problems with disclosures and financial education.³⁵⁰ Disclosure has its limits,³⁵¹ even for sophisticated investors.³⁵² Effectiveness of disclosures can be improved by simplifying disclosures, standardizing disclosures, making disclosures more vivid, and mandating that disclosures contain particular information.³⁵³

As educators, law professors realize that for our students to learn, they must pay and focus their attention.³⁵⁴ Attention is a scarce resource and psychological research finds people do not consciously decide to allocate their attention.³⁵⁵ Instead certain things are salient to and capture the attention of certain people; other things go unnoticed and fade into the background. People also tend to exhibit an "ostrich effect" meaning that they prefer to pay attention to information they like to think about and

342. Campbell, *supra* note 258, at 3, 10-14.

343. *Id.* at 10-12.

344. *Id.* at 12.

345. *Id.* at 12-13.

346. *Id.* at 13-14.

347. *Id.* at 14.

348. *Id.* at 14.

349. *Id.* at 14.

350. *Id.* at 15.

351. Lauren E. Willis, *Decisionmaking and the Limits of Disclosure: The Problem of Predatory Lending*; Price, 65 MD. L. REV. 707, 707 (2006).

352. Steven M. Davidoff & Claire M. Hill, *Limits of Disclosure*, 36 SEATTLE UNIV. L. REV. 599, 599 (2013).

353. George Loewenstein et al., *Disclosure: Psychology Changes Everything*, 6 ANN. REV. ECON. 391, 391 (2014).

354. R. Lisle Baker & Daniel P. Brown, *On Engagement: Learning to Pay Attention*, 36 U. ARK. LITTLE ROCK L. REV. 337, 337 (2014); Lauren A. Newell, *Redefining Attention (and Revamping the Legal Profession?) for the Digital Generation*, 15 NEV. L.J. 754, 754 (2015).

355. *Id.*

avoid information they do not like to think about.³⁵⁶ American and Scandinavian investors tend to check their portfolio values more frequently after financial market rises than when financial markets are flat or falling, leading to investors to put their heads in the sand.³⁵⁷ In the above financial contexts, people often prefer to maintain positive illusions regarding their financial situation or physical health rather than learn information that contradicts their being able to hold onto comforting illusions. Additionally, people display a learning asymmetry in which they update “their beliefs more in response to information that was better than expected than to information that was worse.”³⁵⁸ People are more motivated to learn about positive things and things that they like.

There is disagreement over whether Americans lack financial literacy, partly because there is disagreement over how to define financial literacy. In 2014, Standard & Poor’s Ratings Services Global Financial Literacy Survey collected as part of Gallup’s World Poll data from over 150,000 people aged 15 and older in 148 countries and found worldwide 2 in 3 adults are financially literate in the sense of not being able to answer correctly 3 out of 4 straightforward questions about compound interest, inflation, numeracy, and risk diversification.³⁵⁹ Another viewpoint is that Americans have a financial behavior or wellness problem instead of a financial literacy problem,³⁶⁰ where financial wellness is defined to be “a field that encourages people to make healthy financial decisions.”³⁶¹

A popular policy response to financial decision errors is and has been financial literacy education.³⁶² Traditional financial literacy education is problematic,³⁶³ having at best limited success³⁶⁴ and mixed efficacy.³⁶⁵ One problem is that perceived, instead

356. Russell Golman & George Loewenstein, *Curiosity, Information Gaps and the Utility of Knowledge* (Apr. 16, 2015).

357. Niklas Karlsson et al., *The Ostrich Effect: Selective Attention to Information*, 38 J. RISK & UNCERTAINTY, 95, 104-10 (2009) (presenting this evidence).

358. Tali Sharot et al., *How Unrealistic Optimism is Maintained in the Face of Reality*, 14 NATURE NEUROSCI. 1475 (2011).

359. Justin McCarthy & Anita Pugliese, *Two in Three Adults Worldwide Are Financially Illiterate*, GALLUP, Nov. 18, 2015, <http://www.gallup.com/poll/186680/two-three-adults-worldwide-financially-illiterate.aspx>.

360. Peter Dunn, *Americans Aren’t Financially Dumb, We Just Misbehave*, USA TODAY, Sept. 27, 2015 5:02 A.M. EDT, <http://www.usatoday.com/story/money/personalfinance/2015/09/27/americans-financial-literacy-behavior/72260844/>.

361. *Id.*

362. See, e.g., NATIONAL ENDOWMENT FOR FINANCIAL EDUCATION, <http://www.nefe.org/>; NATIONAL FINANCIAL EDUCATORS COUNCIL, <http://www.financialeducatorsCouncil.org/>.

363. Lauren E. Willis, *The Financial Education Fallacy*, 101 AM. ECON. REV. 429, 429 (2011).

364. Lauren E. Willis, *Against Consumer Financial Literacy Education*, 94 IOWA L. REV. 197, 197 (2008).

365. Lauren E. Willis, *Evidence and Ideology in Assessing the Effectiveness of Financial Literacy Education*, 64 SAN DIEGO L. REV. 415, 415 (2009).

of actual, financial literacy may drive good financial behavior.³⁶⁶ Another problem is due to whether financial literacy is manipulated by experimental and quasi-experimental manipulations, or is measured instead by the percentage of correct answers on particular tests of financial knowledge.³⁶⁷ Professors Daniel Fernandes, John G. Lynch, Jr., and Richard G. Netemeyer conducted a meta-analysis of the relationship of financial literacy and of financial education to financial behaviors. They found that interventions to improve financial literacy explained only 0.1% of the variance in financial behaviors that were studied, with weaker effects in low-income samples.³⁶⁸ The financial behaviors they studied included putting aside savings for an emergency fund, figuring how much savings is required for retirement, investing in individual stocks or mutual funds, buying savings bonds or other bonds, and not incurring check bouncing fees and late credit card payment fees. As with other types of education, the benefits of financial education also decayed over time.³⁶⁹ Even a large number of hours of financial education have negligible effects on behavior 20 months or more afterwards.³⁷⁰ The authors of this research also conducted three empirical studies and found “that the partial effects of financial literacy diminish dramatically when one controls for psychological traits that have been omitted in prior research or when one uses an instrument for financial literacy to control for omitted variables.”³⁷¹ The four traits analyzed were numeracy, propensity to plan, confidence in information search, and willingness to take investment risks.³⁷² The instrumental variable used to control for omitted variables was Need for Cognition, “a stable personality trait referring to a person’s tendencies to engage in effortful thought, to entertain and evaluate ideas, and to ignore irrelevant information.”³⁷³

Fernandes, Lynch, and Netemeyer cautioned that:

Our conclusions are about forms of financial education that have been subjected to empirical evaluation. Those wishing to draw policy conclusions from our work must understand that many innovative forms of financial education have never been studied empirically. That said, our findings for the interventions studied so far make clear that different approaches to financial education are required if one

366. Anders Anderson et al., *Optimism, Financial Literacy and Participation*, Nat’l Bur. Econ. Res. Working Paper No. 21356, July 2015 (detailing this finding in large sample of LinkedIn members).

367. Fernandes et al., *supra* note 3, at 1862 (contrasting these two alternative views of financial literacy).

368. *Id.* at 1861, 1864-66 (analyzing 201 prior studies in 168 papers).

369. *Id.* at 1861, 1866-67.

370. *Id.* at 1861, 1867 fig.4.

371. *Id.* at 1861.

372. *Id.* at 1868.

373. *Id.* at 1871.

expects to produce effects on behavior larger than the very small effects we found.³⁷⁴

Different and novel approaches to financial literacy education include “interactive games and tutorials, peer-to-peer mentoring, and financial literacy contests.”³⁷⁵ A non-profit foundation advocating for consumers, the FoolProof Foundation, developed a novel and broad form of financial literacy education at its website, FoolProofMe.com,³⁷⁶ which teaches defensive thinking. This foundation also initiated the Walter Cronkite Project,³⁷⁷ providing a free, turnkey-for-teachers, advertising-free, and web-based 22-hour financial literacy curriculum, which teaches caution and defensive spending skills. It would be interesting to empirically study these innovative versions of financial literacy education.

Fernandes, Lynch, and Netemeyer also propose JIT or “Just In Time” financial education tied to help specific behaviors,³⁷⁸ “such as buying a car or a home or making an asset allocation decision in a defined contribution retirement plan.”³⁷⁹ They also suggest teaching “soft skills like propensity to plan, confidence to be proactive, and willingness to take investment risks more than content knowledge about compound interest, bonds, etc.”³⁸⁰ This Article advocates and analyzes teaching people about adopting thinking technologies and practice mindfulness, both of which are related to such soft skills.

374. *Id.* at 1873.

375. FINANCIAL LITERACY EDUCATION xiv (Jay Liebowitz ed., 2016). *See also* Rakhee Jain, *How Twentysomethings Are Changing Financial Literacy Education*, in FINANCIAL LITERACY EDUCATION 48, 48-69 (2016) (discussing peer-to-peer mentoring in financial literacy education); Mary Johnson, *Raising the Bar on Efforts to Increase Financial Capability Among College Students*, in FINANCIAL LITERACY EDUCATION 91, 102-03 (2016) (discussing peer-to-peer counseling in financial literacy education).

376. <http://www.foolproofme.com/about>.

377. <http://www.foolproofme.com/about/walter-cronkite-project>.

378. *Id.* at 1861, 1867, 1873-75.

379. John Pelletier, *I Wish They Had A Course Like That When I Was in High School*, in FINANCIAL LITERACY EDUCATION, *supra* note 375, at 23, 31.

380. *Id.* at 1873.

III. Changing Americans' Thinking About Retirement

In an interview on a WNPR show,³⁸¹ which featured Nobel economist Robert Shiller³⁸² and the third edition of his best selling book, *Irrational Exuberance*,³⁸³ I remarked that we, as kids, were often told to put on our thinking caps (especially when we were solving arithmetic or algebra problems) and asked why do we ever take off our thinking caps. Today, people can put on a literal thinking cap that is a transcranial direct current stimulation device.³⁸⁴ Yet, in a survey of time use, 83% of American adults reported spending no time whatsoever “relaxing or thinking.”³⁸⁵ Evidence from eleven experimental studies finds that college students “typically did not enjoy spending 6 to 15 minutes in a room by themselves with nothing to do but think, that they enjoyed doing mundane external activities much more, and that many preferred to administer electric shocks to themselves instead of being left alone with their thoughts.”³⁸⁶ Apparently, some “humans tend to be cognitively lazy and often try to avoid thinking altogether”³⁸⁷ and for some, “thinking smartly—or even at all—is a challenge.”³⁸⁸ What is the optimal amount of thinking and what are the optimal number of factors to consider in thinking are two central questions that machine learning researchers and statisticians analyze in studying the problem they call “overfitting.”³⁸⁹

Different kinds of assumptions about how people typically behave and what motivates people's behavior imply different roles government should have in Americans' retirement planning. This Article adopts the conventional view of many economists, in which finance “is sometimes defined as the subfield of economics

381. Josh Nilaya, *Risk and Reward in the Housing Market: A Conversation with Economist Robert Shiller*, Mar. 16, 2015 <http://wnpr.org/post/risk-and-reward-housing-market-conversation-economist-robert-shiller#stream/0>.

382. Nobel Prize Website, *Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2013*, http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2013/shiller-facts.html.

383. ROBERT SHILLER, *IRRATIONAL EXUBERANCE* (rev'd 3d ed., 2015); [HTTP://WWW.IRRATIONALEXUBERANCE.COM/MAIN.HTML?SRC=%2F](http://WWW.IRRATIONALEXUBERANCE.COM/MAIN.HTML?SRC=%2F).

384. See, e.g. Anita Jwa, *Early Adopters of the Magical Thinking Cap: A Study on Do-It-Yourself (DIY) Transcranial Direct Current Stimulation (tDCS) User Community*, 2 J.L. & BIOSCI. 1, 1 (2015) (analyzing the history and current popularity of tDCS devices as forms of cognitive enhancement).

385. American Time Use Survey, Bureau of Labor Statistics, U.S. Department of Labor: www.bls.gov/tus/home.htm#data (2012).

386. Timothy D. Wilson et al., *Just Think: The Challenges of the Disengaged Mind*, 345 SCI. 75, 75-77 (2014).

387. SHLOMO BENARTZI WITH ROGER LEWIN, THINKING SMARTER: SEVEN STEPS TO YOUR FULFILLING RETIREMENT. . .AND LIFE 6 (2015).

388. *Id.* at 6.

389. BRIAN CHRISTIAN & TOM GRIFFITHS, ALGORITHMS TO LIVE BY; THE COMPUTER SCIENCE OF HUMAN DECISIONS 149-68 (2016).

concerned with intertemporal and portfolio decisions.”³⁹⁰ In other words, finance is the subfield of economics that analyzes human behavior over time and under risk.³⁹¹ This Article uses the phrase behavioral sciences to mean behavioral economics,³⁹² behavioral finance,³⁹³ neuroscience,³⁹⁴ and psychology.³⁹⁵ Existing or proposed government policies to help Americans plan for and save towards retirement are based on economic theory and the behavioral sciences.

This Article introduces a cognitive approach to achieving retirement prosperity by drawing on cognitive economics,³⁹⁶ defined as “*the economics of what is in people’s minds.*”³⁹⁷ Cognitive economics differs from, and is narrower in scope than, behavioral economics. This Article exemplifies a new field, namely that of *cognitive law and economics*, to analyze how and why law can and should take into account people’s cognition in designing retirement policy. Behavioral law and economics, true to its name, focuses on how and why law can and should change people’s behavior to improve the outcomes of their decision-making, without necessarily changing or improving people’s cognition or decision-making processes.

A central theme of cognitive economics is finite cognition, where cognition is defined as “all of the other operations of the human mind besides the bare recording and accessing of information.”³⁹⁸ The finiteness of cognition “means something more than just imperfect information—it means finite intelligence, imperfect information processing, and decision-making that is costly.”³⁹⁹ Human cognition being finite has “enormous practical consequences and policy implications. In particular, finite cognition implies that even in the absence of externalities, welfare can often be improved by economic education, setting up appropriate default choices for people, or providing disinterested, credible advice.”⁴⁰⁰ The notion “that human intelligence is finite and that finite intelligence matters for economic life (*scarce cognition*) is not really

390. Lawrence H. Summers, *On Economics and Finance*, 40 J. FIN. 633, 633 (1985).

391. See e.g., STEPHEN A. ROSS, *NEOCCLASSICAL FINANCE* [PINCITE] (2006).

392. See e.g., ERIK ANGNER, *A COURSE IN BEHAVIORAL ECONOMICS* [PINCITE] (2nd ed. 2016); EDWARD CARTWRIGHT, *BEHAVIORAL ECONOMICS*, [PINCITE] (2014); DAVID R. JUST, *INTRODUCTION TO BEHAVIORAL ECONOMICS* [PINCITE] (2013).

393. See e.g., Hersh Shefrin, *Behavioralizing Finance*, 4 *FOUND. AND TRENDS FIN.* 1, 1 (2010); HERSH SHEFRIN, *BEYOND GREED AND FEAR: UNDERSTANDING BEHAVIORAL FINANCE AND THE PSYCHOLOGY OF INVESTING* [PINCITE] (2007); MEIR STATMAN, *WHAT INVESTORS REALLY WANT: KNOW WHAT DRIVES INVESTOR BEHAVIOR AND MAKE SMARTER FINANCIAL DECISIONS* [PINCITE] (2010).

394. See e.g., *THE NEUROSCIENCE OF RISKY DECISION MAKING* [PINCITE] (Valerie F. Reyna and Vivian Zayas eds., 2014).

395. Shefrin, *supra* note 15.

396. Miles Kimball, *Cognitive Economics*, 66 *JAPANESE ECON. REV.* 167, 167 (2015).

397. *Id.* at 168.

398. Kimball, *supra* note 396, at 172.

399. *Id.* at 172.

400. *Id.* at 173.

controversial.”⁴⁰¹ Lawyers, certified financial analysts, and accountants are all able to earn livings because people do not have infinite, unlimited intelligence.⁴⁰² In fact, the same is true of engineers, physicians, surgeons, teachers, professors, and other professionals possessing expertise and specialized knowledge. Among “the most important economic manifestations of finite intelligence is the expensive and time-consuming acquisition of human capital.”⁴⁰³ Finite cognition also means that people “can’t be expected to recognize and analyze all the aspects in each person, event, and situation”⁴⁰⁴ Thus, finite cognition implies that “people can’t analyze every decision fully; it’s just not possible: people need heuristics to get through life.”⁴⁰⁵

People in reality differ from Keanu Reeves’ fictional character, Neo, in the futuristic science fiction movie *The Matrix*,⁴⁰⁶ who stated “I know kung fu” mere seconds after that martial art is uploaded into his brain. Another central theme of cognitive economics is that “[h]eterogeneity across individuals in preferences and cognitive ability is not at all controversial.”⁴⁰⁷ A particular implication of this theme is that people differ in how finite their cognition is and how much they enjoy learning. An individual’s willingness to learn depends on whether that individual believes their intelligence is fixed or malleable.⁴⁰⁸ Educational research about learning underscores the importance of people adopting growth rather than fixed mindsets about decision-making skills,⁴⁰⁹ including mathematical thinking.⁴¹⁰

Co-founder of the Civility Project at Johns Hopkins, Professor Forni advocates for cultivating the art of thinking because changing how people think can improve their daily lives.⁴¹¹ Forni quotes Norman Cousins, a political journalist, author, professor, and world peace advocate: “We in America have everything we need except the most

401. *Id.*

402. *Id.*

403. *Id.*

404. ROBERT B. CIALDINI, *INFLUENCE: THE PSYCHOLOGY OF PERSUASION* 7 (4th ed. 2001).

405. Bruce Schneier, *The Psychology of Security (Part 2)*, Jan. 18, 2008, https://www.schneier.com/essays/archives/2008/01/the_psychology_of_se2.html#sdendnote58anc.

406. *THE MATRIX* (Warner Bros. 1999).

407. Kimball, *supra* note 397, at 171.

408. Miles Kimball & Noah Smith, *There’s One Key Difference between Kids who Excel at Math and Those Who Don’t*, *QUARTZ*, Oct. 27, 2013, <http://qz.com/139453/theres-one-key-difference-between-kids-who-excel-at-math-and-those-who-dont/>. See also Kyla Haimovitz & Carol S. Dweck, *What Predicts Children’s Fixed and Growth Intelligence Mind-Sets? Not Their Parents’ Views of Intelligence but Their Parents’ Views of Failure*, 27 *PSYCHOL. SCI.* 859, 859 (2016)

409. See, e.g., STEVE W. WILLIAMS, *MAKING BETTER BUSINESS DECISIONS: UNDERSTANDING AND IMPROVING CRITICAL THINKING AND PROBLEM SOLVING SKILLS* [PINCITE] (2001).

410. JO BOALER, *MATHEMATICAL MINDSETS: UNLEASHING STUDENTS’ POTENTIAL THROUGH CREATIVE MATH, INSPIRING MESSAGES AND INNOVATIVE TEACHING* [PINCITE] (2016).

411. PIER M. FORNI, *THE THINKING LIFE: HOW TO THRIVE IN THE AGE OF DISTRACTION* [PINCITE] (2011).

important thing of all — time to think and the habit of thought.”⁴¹² Forni laments the lack of instruction about decision-making:

I wish I could tell you that I had the good fortune of undergoing a solid home training in decision making, but I did not. I wish that just one of my teachers had managed to impress upon me and my schoolmates that being happy depends upon making sound choices, that he or she had taught us how to choose well, and that we had gotten it, really gotten it. What a legacy that would have been!⁴¹³

The Decision Education Foundation, which is a non-profit organization in Palo Alto, California, works with students, teachers, and schools to provide training in decision skills.⁴¹⁴ A number of psychologists and decision theorists have proposed various programs to teach adolescents how to improve their decision-making skills and expand their understanding of how other people make decisions.⁴¹⁵ Larry Summers, an economist, former Harvard University president, and former United States secretary of the Treasury, stated, “when many people were involved in surveying land, it made sense to require that almost every student entering a top college know something of trigonometry. Today, a basic grounding in probability statistics and decision analysis makes far more sense.”⁴¹⁶

Gerd Gigerenzer,⁴¹⁷ director of the Max Planck Institute for Human Development, director of the Harding Center for Risk Literacy, and psychologist, and his co-authors advocate that societies “increase physician statistical literacy through training in medical school and continuing medical education.”⁴¹⁸ In a book chapter titled *Teaching Clear Thinking*,⁴¹⁹ Gigerenzer advocates teaching statistical thinking to teenagers, utilizing “intuitively understandable representations of numbers.”⁴²⁰ Gigerenzer advocates reforming schools and universities to improve kid’s numeracy skills and

412. *Id.* at 4.

413. *Id.* at 110-11.

414. *See, e.g.* It’s Your Choice video, <http://www.decisioneducation.org/#!iyc-vnat/c16nc>.

415. BRIDGE OF SPIES (Amblin Entertainment 2015).

416. Lawrence H. Summers, *What You (Really) Need to Know*, N.Y. TIMES, Jan. 20, 2012, http://www.nytimes.com/2012/01/22/education/edlife/the-21st-century-education.html?_r=0.

417. Gerd Gigerenzer, Max Planck Institute for Human Development, <https://www.mpib-berlin.mpg.de/en/staff/gerd-gigerenzer>.

418. *See, e.g.*, Britta L. Anderson et al., *Statistical Literacy in Obstetricians and Gynecologists*, 36 J. HEALTHCARE QUALITY 5, 5, 15 (2014).

419. GERD GIGERENZER, RECKONING WITH RISK: LEARNING TO LIVE WITH UNCERTAINTY 229–46 (2003).

420. *Id.* at 241. *See also* Peter Sedlmeier & Gerd Gigerenzer, *Teaching Bayesian Reasoning in Less Than Two Hours*, 130 J. EXPERIMENTAL PSYCHOL. 380, 384–85 (presenting details of teaching Bayesian reasoning by training people to construct frequency representations instead of inserting probabilities into Bayes’s rule).

basic statistical literacy: “we need to change school curricula. Our children learn the mathematics of certainty, such as geometry and trigonometry, but not the mathematics of uncertainty, that is, statistical thinking. Statistical literacy should be taught as early as reading and writing are.”⁴²¹ More recently, in another book chapter titled *Revolutionize School*,⁴²² Gigerenzer advocates teaching a risk literacy curriculum,⁴²³ that includes these three topics: health literacy, financial literacy, and digital literacy, and these three skills for mastering each topic: statistical thinking, rules of thumb, and the psychology of risk.

Professor Richard Nisbett, psychologist and co-director of the Culture and Cognition program at the University of Michigan at Ann Arbor, wrote a book titled *Mindware: Tools for Smart Thinking*.⁴²⁴ His book demonstrates how people can avoid reasoning errors by applying to everyday life such principles and concepts as cost-benefit analysis,⁴²⁵ sunk costs and opportunity cost,⁴²⁶ dialectical reasoning,⁴²⁷ and statistical reasoning.⁴²⁸ There is experimental evidence that even a 25-minute training session on statistical reasoning (specifically, the law of large numbers) significantly increased the frequency and quality of people applying statistical reasoning to a wide range of everyday life problems that were outside the context of the training.⁴²⁹

Recent experimental research studies provide evidence that numeric ability is a “robust predictor of superior decision-making across multiple tasks and outcomes.”⁴³⁰ A study found only a third of Americans understand how compound interest works.⁴³¹ Not appreciating how compound interest works in contrast with simple interest can lead households to save too little and too late for retirement in addition to pay too much in 401(k) fees.⁴³²

421. Gerd Gigerenzer, *Collective Statistical Illiteracy: A Cross-Cultural Comparison with Probabilistic National Samples Comment on Statistical Numeracy for Health*, 170 ARCHIVES INTERNAL MED. 468, 469 (2010).

422. GERD GIGERENZER, RISK SAVVY: HOW TO MAKE GOOD DECISIONS 245-61 (2014).

423. *Id.* at 246.

424. RICHARD E. NISBETT, MINDWARE: TOOLS FOR SMART THINKING [PINCITE] (2015).

425. *Id.* at 71–83.

426. *Id.* at 85–93.

427. *Id.* at 223–42.

428. *Id.* at 107–90.

429. Geoffrey T. Fong et al., *The Effects of Statistical Training on Thinking About Everyday Problems*, 18 COGNITIVE PSYCHOL. 253, 253, 269–70, 280, 282 (1986).

430. Aleksandr Sinayev & Ellen Peters, *Cognitive Reflection vs. Calculation in Decision Making*, 6 FRONTIERS PSYCHOL. 532, 532 (2015); Antonio Mastrogiorgio, *Commentary: Cognitive Reflection vs. Calculation in Decision Making*, 6 FRONTIERS PSYCHOL. 936, 936 (2015).

431. Maurie Backman, *Compounding: 66% of Us Don't Understand Crucial Financial Concept*, USA TODAY, June 15, 2016, 6:01 AM, <http://www.usatoday.com/story/money/personalfinance/2016/06/05/compounding-financial-concept-saving/85295910/>.

432. *Step 1: Change Your Life With One Calculation, How Compound Interest from Investing Grows Your Money Faster than Anything Else*, The Motely Fool (March 23, 2016), <http://>

Most law students in my courses titled Economic Analysis of Law, Financial Decision-Making, and Legal Ethics and Professionalism: Business Law Issues are surprised when they learn about how early they should start saving for retirement because of the nonlinearity of compound interest and exponential growth. An experimental study of law students found that substantive legal analysis, legal judgment, and legal advice can vary significantly with numeracy.⁴³³ Law professor Lisa Milot documents how many lawyers misapply mathematical principles,⁴³⁴ explains why lawyer innumeracy matters,⁴³⁵ differentiates objective innumeracy⁴³⁶ (due to a lack of mathematical competence) from subjective innumeracy⁴³⁷ (due to a lack of mathematical confidence), and advocates practical ways that law professors, law students, law schools, and lawyers can overcome legal innumeracy.⁴³⁸

Actress Danica McKellar wrote a series of *New York Times* bestselling books teaching mathematics in a fun and relevant way to teenage girls.⁴³⁹ This Article supports requiring all middle school and high school students take a course in financial decision-making. McKellar's and others' efforts⁴⁴⁰ to teach people in general and such particular audiences as teenagers, medical students, and law students in particular about mathematical reasoning and numeracy are laudable. Teaching people to be more numerate is not a panacea for thinking errors because of motivated numeracy.⁴⁴¹ Because of math anxiety and the myth that some people are just not math people, there has been and will be resistance towards efforts at increasing people's numeracy and statistical literacy. There should be less resistance towards efforts at increasing people's appropriateness, quality, and quantity of thinking because few people are likely to claim they are just not thinking people.

www.fool.com/how-to-invest/thirteen-steps/step-1-change-your-life-with-one-calculation.aspx.

433. Arden Rowell & Jessica Bregant, *Numeracy and Legal Decisionmaking*, 46 ARIZ. ST. L.J. 191, 191 (2014).
434. Lisa Milot, *Illuminating Innumeracy*, 63 CASE WESTERN L. REV. 769, 774-88 (2013).
435. *Id.* at 788-99.
436. *Id.* at 799-803.
437. *Id.* at 804-08.
438. *Id.* at 808-10.
439. DANICA MCKELLAR, *MATH DOESN'T SUCK* (2007); DANICA MCKELLAR, *KISS MY MATH* (2009); DANICA MCKELLAR, *HOT X: ALGEBRA EXPOSED* (2011); DANICA MCKELLAR, *GIRLS GET CURVES: GEOMETRY TAKES SHAPE* (2012);..
440. *See, e.g.*, WHYDOMATH, <http://www.whynomath.org>.
441. Dan M. Kahan et al., *Motivated Numeracy and Enlightened Self-Government*, Yale Law School, Public Law Working Paper No. 307, Sept. 3, 2013; Dan M. Kahan et al., *The Polarizing Impact of Science Literacy and Numeracy on Perceived Climate Change Risks*, 2 NATURE CLIMATE CHANGE 732, 732 (2012).

Two economics Nobel laureates, George Akerlof⁴⁴² and Robert Shiller,⁴⁴³ analyze the economics of deception and manipulation.⁴⁴⁴ They explain that if people have a weakness from which businesses can earn unusual profits, then at least one business will do so.⁴⁴⁵ They provide the memorable and visceral example of people's irresistible attraction to the scent of cinnamon explaining the smell of Cinnabon pastries wafting through many shopping mall food courts.⁴⁴⁶ Businesses in unregulated free markets can and will profit by catering to people's weaknesses and satisfying their perhaps endogenously manipulated preferences. For example, in dealing with their personal finances, people fall prey to among other practices these three: "[m]isleading accounting, media hype, investor sales pitches."⁴⁴⁷ Some practices, such as misleading accounting, are deceptive, fraudulent, and regulated by securities law. Other practices, such as manipulation, have many shades and often are not regulated.⁴⁴⁸

In addition to regulating businesses, governments can and should empower people to become more resistant to even legal manipulation. In the movie *Star Wars Episode IV: A New Hope*,⁴⁴⁹ Obi-Wan Kenobi famously says "[t]hese aren't the droids you're looking for" and "[t]he Force can have a strong influence on the weak-minded." In *Star Wars Episode VI: Return of the Jedi*,⁴⁵⁰ Jabba the Hutt scolds an underling for being susceptible to a Jedi mind trick.⁴⁵¹ People can adopt thinking tools, practice mindfulness, and change social norms to counter and repel the attempts of any business, group, organization, or person intending to deceive, defraud, or manipulate people by using mind tricks. This section of the Article advocates and analyzes changing Americans' thinking about retirement.

442. *Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2013 George A. Akerlof - Facts*, NOBELPRIZE.ORG, http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2001/akerlof-facts.html.

443. *Nobel Prize Website Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2013 Robert J. Shiller - Facts*, NOBELPRIZE.ORG, http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2013/shiller-facts.html.

444. AKERLOF & SHILLER, *supra* note 243 (cataloguing the ubiquity of profit-seeking market actors being able to systematically exploit people's ignorance and psychological weaknesses via deceptive and manipulative practices).

445. *Id.* at 1–2.

446. *Id.* at 2–3.

447. John Reeves, *Why It's So Easy to Manipulate Investors*, USA TODAY, Oct. 10, 2015, <http://usat.ly/1RzIfB0> (commenting on and reviewing AKERLOF & SHILLER, *supra* note 243.).

448. Cass R. Sunstein, *Fifty Shades of Manipulation*, 1 J. BEHAV. MARKETING 213, 213 (2015).

449. STAR WARS EPISODE IV: A NEW HOPE (Lucasfilm Ltd. 1977).

450. STAR WARS EPISODE VI: RETURN OF THE JEDI (Lucasfilm Ltd. 1983).

451. Amelia Hill, *How the Jedi Mind Trick is Used in Star Wars*, THOUGHTCO. (June 3, 2017), <http://scifi.about.com/od/starwarsglossaryandfaq/a/Star-Wars-Glossary-Jedi-Mind-Trick.htm> (defining Jedi mind trick).

A. Thinking Architecture

A reason for poor or no retirement planning is a lack of careful or clear thinking, which in turn leaves one vulnerable to impulsiveness, short-sightedness, neglect of probabilities, and many other cognitive biases.⁴⁵² In the movie, *Bridge of Spies*,⁴⁵³ a character says: "Sometimes people think wrong. People are people." People can utilize thinking tools to help them think better and more systematically about retirement. Pens, pencils, sheets of paper, electronic tablets, and smartphones are familiar examples of thinking tools. A humorous television commercial states: "[t]he wrong tools can only take you so far."⁴⁵⁴

Thinking tools that people may be unfamiliar with are thinking architecture and thinking technologies. Professors Shlomo Benartzi and John Payne define the phrase thinking architecture to be "a structured process that allows us to break down a complex problem, such as what to do in retirement, into a series of manageable thinking steps, so as to improve outcomes."⁴⁵⁵ They explain that what makes thinking architecture different from traditional checklists,⁴⁵⁶ is that each of the steps in thinking architecture "is designed to deal with a particular behavioral challenge or mental blind spot . . . to fortify the weakest parts of the mind."⁴⁵⁷

An example of thinking architecture is Benartzi's Goal Planning System (GPS),⁴⁵⁸ which consists of a sequence of cognitive strategies: (1) identify your goals,⁴⁵⁹ (2) discover blind spots,⁴⁶⁰ (3) prioritize your goals,⁴⁶¹ (4) think beyond one future,⁴⁶² (5) recognize the limits of forecasting,⁴⁶³ (6) consider others' perspectives,⁴⁶⁴ and (7) reprioritize goals.⁴⁶⁵ Each of these seven decision heuristics is designed to address and mitigate a particular thinking trap, namely: (1) fast thinking and narrow framing, (2) insufficient breadth and depth of cognitive processing, or narrow and shallow

452. Jonathan Baron & Rex V. Brown, *Why Americans Can't Think Straight*, TEACHING DECISION MAKING TO ADOLESCENTS 1, 1–3 (Jonathan Baron & Rex V. Brown eds., 1991).

453. Baron & Brown, *supra* note 415.

454. Blake Ebel, *PowerShares QQQ "Uphill battle"*, YOUTUBE (Nov. 26, 2014), <https://www.youtube.com/watch?v=iyrl26nztKI>.

455. BENARTZI & LEWIN, *supra* note 387, at 5.

456. DANIEL KAHNEMAN, THINKING, FAST AND SLOW 226–27 (2011) (explaining the virtues of simple algorithms and checklists); *see also* ATUL GAWANDE, THE CHECKLIST MANIFESTO: HOW TO GET THINGS RIGHT (2011) (extolling on the virtues of checklists generally).

457. BENARTZI & LEWIN, *supra* note 387, at 5.

458. *Id.* at 7–8.

459. *Id.* at 11–16.

460. *Id.* at 21–26.

461. *Id.* at 31–37.

462. *Id.* at 49–55.

463. *Id.* at 61–66.

464. *Id.* at 69–75.

465. *Id.* at 79–84.

thinking, (3) cognitive and emotional difficulties of making trade-offs, (4) overconfidence in abilities to predict the future, (5) difficulties in predicting future emotions, tastes, and preferences, (6) focusing on our uniqueness and overconfidence in abilities to predict our future, and (7) anchoring and status quo bias.

Identifying your goals helps you avoid focusing on alternatives that you are faced with and instead helps you to focus on your underlying true core values. Discovering blind spots helps you find important goals missing from step (1). Prioritizing your goals helps you make trade-offs by dividing your goals into most important, moderately important, and least important. Thinking beyond one future helps you to avoid narrow thinking in prediction and can be accomplished by the thinking tool of prospective hindsight, which asks you to assume that some future event has already occurred and think of reasons why it happened.⁴⁶⁶ Recognizing the limits of forecasting helps you become aware of how much your feelings, tastes, and preferences can change. Considering others' perspectives helps people to expand their thinking process about their many possible future selves and future preferences. Reprioritizing goals helps people not be anchored to their prioritization of goals in step (3) by starting fresh with a clean slate. Benartzi and Lewin detail how to apply the series of seven decision heuristics in Benartzi's GPS thinking architecture to improve retirement planning.⁴⁶⁷

Benartzi and Lewin also illustrate how to apply the series of seven decision heuristics in Benartzi's GPS thinking architecture to make decisions about buying a home⁴⁶⁸ and choose about where and with whom to live.⁴⁶⁹ An additional benefit of teaching people about how to utilize thinking tools is that doing so is likely to promote metacognition, which is the ability to think about our knowledge acquisition and thinking. Metacognition is a skill that educators often hope to transfer to learners and forms an important part of being a self-learner. An example of metacognition is provided by these lyrics from the song *Love Me Like You Do* from the movie *Fifty Shades of Grey*: "I'll let you set the pace. 'Cause I'm not thinking straight. My head's spinning around I can't see clear no more."⁴⁷⁰

Another example of thinking architecture, due to Stanford business School professor Chip Heath and Duke University professor Dan Heath, is known as the

466. Deborah J. Mitchell et al., *Back to the Future: Temporal Perspective in the Explanation of Events*, 2 J. BEHAV. DECISION MAKING 25, 25 (1989).

467. BENARTZI & LEWIN, *supra* note 387, at 16–18, 27–30, 37–39, 41–48, 55–58, 66–67, 75–77, 84–85, 87–111. See also *Retired Goal Planning System*, ALLIANZ GLOBAL INVESTORS, <http://befi.allianzgi.com/en/retirement-goal-planning-system/Pages/default.aspx>. (June 3, 2017).

468. BENARTZI & LEWIN, *supra* note 387, at 21, 25.

469. *Id.* at 113–18.

470. EllieGouldingVEVO, *Ellie Goulding – Love Me Like You Do (Official Video)*, YOUTUBE (Jan. 22, 2015), <https://www.youtube.com/watch?v=AJtDXIazrMo>, (displaying official music video of the song, *Love Me Like You Do* from the movie *FIFTY SHADES OF GREY* (Focus Features 2015)).

WRAP decision process,⁴⁷¹ which consists of these four heuristics: (1) Widen your options,⁴⁷² (2) Reality-test your assumptions,⁴⁷³ (3) Attain distance before deciding,⁴⁷⁴ and (4) Prepare to be wrong.⁴⁷⁵ Each heuristic is designed to address and mitigate a particular well-known cognitive bias,⁴⁷⁶ namely: (1) narrow framing of a decision problem; (2) confirmation bias of gathering biased and supportive information; (3) temptation of short-term emotions; and (4) overconfidence about abilities to predict our future. The Heaths offer multiple ways of implementing each step in their WRAP procedure. A way to widen your options is via the Vanishing Options Test, where you ask what else can you do if your current options all vanish.⁴⁷⁷ A way to reality-test your assumptions is to specifically consider the opposite of your initial beliefs.⁴⁷⁸ A way to attain distance before deciding is by utilizing the 10/10/10 rule,⁴⁷⁹ which asks you to consider how you will feel about some decision in 10 minutes, 10 months, and 10 years. Many people found the 10/10/10 heuristic very helpful in diverse situations: “Heartfelt emails and letters soon poured in” from those who applied 10/10/10 “in decisions large and small and in-between, at home and at work, and in love, friendship, and parenting.”⁴⁸⁰ Another way to attain distance before deciding is to ask what you would recommend to your best friend.⁴⁸¹ A way to prepare to be wrong is to mentally rehearse what could go wrong and simulate how you would respond.⁴⁸² The Heaths illustrate all of the above and other ways to apply their WRAP process to many professional and personal situations, demonstrating the efficacy, generality, and scope of the WRAP thinking architecture.⁴⁸³

Each of the thinking heuristics of the WRAP process is applicable to retirement. For example, widening your options prompts one to actively think about some of the

471. CHIP HEATH & DAN HEATH, DECISIVE: HOW TO MAKE BETTER CHOICES IN LIFE AND WORK 23–24 (2013). See also Peter H. Huang, *How Improving Decision-Making and Mindfulness Can Improve Legal Ethics and Professionalism*, 21 J.L. BUS. & ETHICS 35, 41–51 (2015) (detailing this process).

472. HEATH & HEATH, *supra* note 471, at 31–89.

473. *Id.* at 91–153.

474. *Id.* at 155–92.

475. *Id.* at 193–253.

476. *Id.* at 18.

477. *Id.* at 46.

478. *Id.* at 109, 287–88; Katherine L. Milkman et al., *How Can Decision Making Be Improved?* 4 PERSPECTIVES PSYCHOL. SCI. 379, 381 (2009) (discussing how considering the opposite mitigates these cognitive biases: anchoring, hindsight bias, and overconfidence).

479. HEATH & HEATH, *supra* note 471, at 160; SUZY WELCH, 10-10-10: A FAST AND POWERFUL WAY TO GET UNSTUCK IN LOVE, AT WORK, AND WITH YOUR FAMILY (2009).

480. WELCH, *supra* note 479, at 19.

481. HEATH & HEATH, *supra* note 471, at 172, 174.

482. *Id.* at 213, 217.

483. *Id.* at 32–33, 35–36, 257–66.

many ways to spend time in retirement.⁴⁸⁴ Reality testing assumptions reminds one to ask whether beliefs about retirement investments are overly optimistic. Attaining distance before deciding may help one avoid impulse purchases and so consume less today and save more for tomorrow. Preparing to be wrong may cause one to plan for an economic downturn just before retirement.

B. Thinking Technology

Thinking architecture is a low technology version of thinking technology. Other examples of thinking technologies include computer hardware, software, and video games that assist human thinking processes. Examples of thinking technology that can improve retirement planning includes utilizing financial entertainment computer video games to help people learn basic financial skills⁴⁸⁵ and utilizing what are known as serious games to help people learn about cognitive biases and improve their decision-making. The play aspect of both of these categories of games may also make it more likely that people are both able to acquire trained skills and motivated to utilize trained skills. Technological decision support can take the form of thinking architecture apps.⁴⁸⁶ Mobile apps could provide checklists, record and remind people about their own predicted versus actual behavior, and help people have greater awareness of various aspects of choices they face. There is a free iPad app version of Shlomo Benartzi's GPS thinking architecture applied to retirement planning.⁴⁸⁷ Benartzi and psychologist John Payne also created a Loss Aversion Calculator that measures how much more strongly one experiences losses relative to gains.⁴⁸⁸ Yaron Levi and Shlomo Benartzi found that after people started using a mobile financial app that provides a real time dashboard with a user's net worth, income, and spending, people's spending decreased 15.7% on average during the four months after the app was installed relative to the three months before the app was installed.⁴⁸⁹

A humorous television commercial states that while you are likely to see taxes as being negative, like getting punched in the face by a person wearing a red boxing glove, qualified professionals from an online tax service see taxes as being positive,

484. See also Soll et al., *supra* note 103, at 944 fig.33.1.

485. Shefrin, *supra* note 15, at 22.

486. SHLOMO BENARTZI WITH JONAH LEHRER, THE SMARTER SCREEN: SURPRISING WAYS TO INFLUENCE AND IMPROVE ONLINE BEHAVIOR 202-4 (2015); see also BENARTZI & LEHRER, *supra* note 278, at 199-207 (providing details).

487. BENARTZI & LEHRER, *supra* note 486, at 204-7; see also Retirement Goal Planning System iPad® App, ALLIANZ GLOBAL INVESTORS, <http://befi.allianzgi.com/en/retirement-goal-planning-system/Pages/Goal-Planning-System-Application.aspx>. ([date accessed]).

488. BENARTZI WITH LEHRER, 202-4 (2015); BENARTZI & LEWIN, *supra* note 387, at 123-24; <http://www.digitai.org/#lab>.

489. BENARTZI & LEHRER, *supra* note 488, at 86-88, 199; Yaron Levi & Shlomo Benartzi, *Economic Behavior in the Digital Age*, Preliminary Report, <https://blog.personalcapital.com/wp-content/uploads/2014/10/Economic-Behavior-in-the-Digital-Age-2014-10-04.pdf>.

like images of puppies and unicorns.⁴⁹⁰ Another television commercial states: "Not having your taxes done taxing you? Live More. Tax Less."⁴⁹¹ The logic of this marketing strategy leads to the conclusion that societies should strive to make financial and retirement planning less emotionally negative. Societies can accomplish this by providing or subsidizing financial, investment, and retirement planning advice that large employers and retirement plan providers currently receive from such firms as Financial Engines,⁴⁹² which was co-founded by 1990 economics Nobel laureate William Sharpe.⁴⁹³ Societies can also subsidize the use of financial/retirement planning software, such as ESPlanner (Economic Security Planner).⁴⁹⁴

People's current lifestyle experiences are easily accessible and tangible in contrast with their future retirement lifestyle experiences, meaning a tangibility gap exists.⁴⁹⁵ Shlomo Benartzi proposed a future lifestyle imagination exercise to close this tangibility gap.⁴⁹⁶ In the first two minutes, people imagine a financially secure future. In the second two minutes, people write down whatever comes to mind in terms of their tangible lifestyle and their emotional reactions. This imagination exercise takes people who are too present-focused back to the future. Neuroimaging research supports the future self-continuity hypothesis,⁴⁹⁷ that people perceive and treat their future selves differently from their present selves, and therefore may not save for their future.⁴⁹⁸ People's current selves do not identify with their future selves, meaning an identity gap.⁴⁹⁹ People's current selves also place more weight on their current feelings than the feelings of their future selves, meaning an empathy gap.⁵⁰⁰ A new thinking technology involving age morphing digital technology applied to people's faces helped people's current selves identify and empathize with their future selves.⁵⁰¹ Four

490. <https://www.facebook.com/taxbrainfans/videos/10150202831887354/>.

491. Bay Tiger, *TaxBrain TV Commercial*, YOUTUBE (May 26, 2010), <http://www.youtube.com/watch?v=bWMr5NfdKqA>.

492. Financial Engines, <http://corp.financialengines.com/>. CHRISTOPHER L. JONES, *THE INTELLIGENT PORTFOLIO: PRACTICAL WISDOM ON PERSONAL INVESTING FROM FINANCIAL ENGINES* (2008).

493. Nobel Prize Website, *William F. Sharpe – Facts*, http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1990/sharpe-facts.html.

494. ESPlanner, <http://www.esplanner.com/>; LAURENCE J. KOTLIKOFF & SCOTT BURNS, *SPEND 'TIL THE END: THE REVOLUTIONARY GUIDE TO RAISING YOUR LIVING STANDARD – TODAY AND WHEN YOU RETIRE* (2008).

495. BENARTZI & LEWIN, *supra* note 278, at 140.

496. *Id.* at 140-58.

497. Hal Ersner-Hershfield, *Future-Self Continuity: How Conceptions of the Future Self Transform Intertemporal Choice*, 1235 ANNALS N.Y. ACAD. SCI. 30, 30 (2011).

498. Hal Ersner-Hershfield et al., *Saving for the Future Self: Neural Measures of Future Self-Continuity Predict Temporal Discounting*, 4 SOC. COGNITIVE & AFFECTIVE NEUROSCIENCE 85, 85 (2009).

499. BENARTZI & LEWIN, *supra* note 278, at 77.

500. *Id.*

501. *Id.* at 77, 78-93, 86 fig.3-1.

experimental studies found that people who interacted with realistic age-morphed virtual computer renderings of their future selves were willing to hold out for larger, later monetary rewards instead of accepting smaller, immediate ones.⁵⁰² Virtual reality simulations can improve the accuracy of people's perceptions of their future selves by helping people learn how their current decisions and behavior shape their future selves.⁵⁰³

In the movie *WarGames*,⁵⁰⁴ a United States military supercomputer known as WOPR (War Operation Plan Response), that is also nicknamed Joshua, famously asks a young hacker named David Lightman: "Shall we play a game?"⁵⁰⁵ Playing video games can have educational benefits.⁵⁰⁶ By playing video games, children can improve their problem solving abilities⁵⁰⁷ and learn to think in novel ways.⁵⁰⁸ Games, video and otherwise, can enable people to lead more joyful and productive lives.⁵⁰⁹

Intriguingly, playing video games may help improve people's financial confidence, decision-making, knowledge, self-efficacy, and initiating financial actions.⁵¹⁰ In the video game, *Bite Club*, a player takes on the role of a vampire who manages a bar for other vampires and saves money for their own retirement. A randomized control trial found that *Bite Club* players learned as much financial knowledge as those who had been assigned to read an informational pamphlet.⁵¹¹ Other financial video games include:⁵¹² *Celebrity Calamity*, where players are money managers who try to keep a Hollywood starlet happy by keeping her out of debt; *Farm*

502. Hal Ersner-Hershfield et al., *Increasing Saving Behavior Through Age-Progressed Renderings of the Future Self*, 48 J. MARKETING RES. S23, S23 (2011). See also Jason Zweig, *Meet 'Future You.' Like What You See?* WALL ST. J., Mar. 26, 2011,

<http://online.wsj.com/news/articles/SB10001424052748703410604576216663758990104> (reporting on this).

503. JIM BLASCOVICH & JEREMY N. BAIENSON, INFINITE REALITY (2011); *Infinite Reality, Writing About Virtual Worlds*, <http://www.infinitereality.org/research.html>.

504. *WAR GAMES* (United Artists 1983).

505. Dnid, *Shall We Play A Game?*, YOUTUBE (Sept. 21, 2007), https://www.youtube.com/watch?v=ecPeSmF_ikc.

506. JAMES PAUL GEE, *WHAT VIDEO GAMES HAVE TO TEACH US ABOUT LEARNING AND LITERACY* (2d ed., 2007); JANE MCGONIGAL, *REALITY IS BROKEN: WHY GAMES MAKE US BETTER AND HOW THEY CAN CHANGE THE WORLD* (2011).

507. Agne Suziedelyte, *Media and Human Capital Development: Can Video Game Playing Make You Smarter?* 53 ECON. INQUIRY 1140 (2015); GREG TOPPO, *THE GAME BELIEVES IN YOU: HOW DIGITAL PLAY CAN MAKE OUR KIDS SMARTER* (2015).

508. DAVID WILLIAMSON SHAFFER, *HOW COMPUTER GAMES HELP CHILDREN LEARN* (2008).

509. JANE MCGONIGAL, *SUPERBETTER: A REVOLUTIONARY APPROACH TO GETTING STRONGER, HAPPIER, BRAVER AND MORE RESILIENT—POWERED BY THE SCIENCE OF GAMES* (2015).

510. Nickolas Maynard et al., *Can Games Build Financial Capability? A Financial Entertainment Report*, (providing a systematic review of data from six financial entertainment games).

511. *Id.*; Thomas S. Ulen, *A Behavioral View of Investor Protection*, 44 LOYOLA U. CHI. L. J. 1357, 1371 (2013) (discussing this).

512. Maynard et al., *supra* note 510; *Video Games and Financial Literacy: Blood Bars and Debt Bunnies*, THE ECONOMIST, Feb. 2, 2013 (reporting on these games).

Blitz, where players harvest crops from a farm while staving off ravenous rabbits which represent debt, and *Refund Rush*, where players are financial advisors who help clients decide what to do with their tax refunds. These examples demonstrate that it is possible to design engaging and fun video games that draw upon popular culture to teach players decision-making principles and financial concepts.

Serious games “have an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement.”⁵¹³ Several research groups have designed serious games that train players to recognize and mitigate three cognitive biases in decision-making.⁵¹⁴ One of these biases is the confirmation bias, which can occur in retirement planning, as discussed earlier. Another of these biases is bias blind spot, which is a tendency people have to see biases in others and not in themselves. The bias blind spot can show up in many contexts including retirement planning when people can see others being biased in their retirement planning and can not see themselves being biased in their retirement planning.

One group designed a video adventure game called *Missing: The Pursuit of Terry Hughes*,⁵¹⁵ that combines the rich, immersive qualities of entertainment software with a host of training activities on cognitive bias recognition and mitigation incorporated into game play.⁵¹⁶ Players “can examine different objects, meet and question non-player characters, use a smartphone to take pictures and communicate, and navigate in the scenario.”⁵¹⁷ A study found that playing *Missing* effectively trained adults to identify and mitigate confirmation bias, bias blind spot, and fundamental attribution error (“assuming that another person’s behavior must stem from personal characteristics while overlooking the potential impact of situational influences”⁵¹⁸). This game “allows players to generalize their learning across different problems and portions of the game to other biases.”⁵¹⁹ An independent validation and verification team unaffiliated with the game’s designers conducted external tests on college students and intelligence analysts.⁵²⁰ This game was significantly more effective at

513. CLARK C. ABT, *SERIOUS GAMES* 9 (1975). See also DAVID R. MICHAEL & SANDE CHEN, *SERIOUS GAMES: GAMES THAT EDUCATE, TRAIN, AND INFORM* (2006); PSYCHOLOGY, PEDAGOGY, AND ASSESSMENT IN *SERIOUS GAMES* (Thomas M. Connolly et al. eds., 2014).

514. Benjamin A. Clegg et al., *Gaming Technology for Critical Thinking: Engagement, Usability, and Measurement*, 58 *PROC. HUM. FACTORS & ERGONOMICS SOC’Y*, 58TH ANN. MEETING 2370, 2370-72 (2014); John M. Flach et al., *Approaches to Cognitive Bias in Serious Games for Critical Thinking*, 56 *PROC. HUM. FACTORS & ERGONOMICS SOC’Y*, 56TH ANN. MEETING 272, 272-75 (2012).

515. Carl Symborski et al., *Missing: A Serious Game for the Mitigation of Cognitive Biases*, 1, 10-11, *PROC. INTERSERVICE/INDUSTRY TRAINING, SIMULATION, & EDUC. CONF.* 2014. See also Carl Symborski, *Leidos Sirius Missing*, 34-45.

516. Symborski et al. *supra* note 515, at 3.

517. *Id.*

518. *Id.* at 2.

519. *Id.* at 5.

520. *Id.* at 9.

teaching students and analysts to recognize mitigate cognitive biases when compared to control groups that watched an educational video about cognitive biases.⁵²¹ Of the players who completed follow-up testing after eight weeks, this effect continued for students and not for analysts.⁵²²

Another version of the game, *Missing: The Final Secret*⁵²³ taught players to recognize and mitigate three different cognitive biases: anchoring bias (“overweighting the first information primed or considered in subsequent judgment”⁵²⁴), representativeness bias (“using the similarity of an outcome to a prototypical outcome to judge its probability”⁵²⁵), and social projection bias (“assuming others’ emotions, thoughts, and values are similar to one’s own”⁵²⁶). This version followed a similar genre, narrative arc, and structure as *Missing: The Pursuit of Terry Hughes*. Playing this version of *Missing* produced immediate medium to large debiasing effects that persisted at least 2 months later and greater effects than watching instructional videos immediately and 2 months later.⁵²⁷ These results “suggest that even a single training intervention . . . can have significant debiasing effects that persist across a variety of contexts affected by the same bias.”⁵²⁸ The anchoring bias occurs in the retirement context whenever people do not sufficiently weigh subsequently primed or considered information when making retirement plans. The representativeness bias occurs in the retirement context whenever people misjudge the probabilities of retirement outcomes based on their similarities to some prototypical retirement outcome.

Another set of researchers designed *Hueristica*,⁵²⁹ a 3D immersive serious game in which players compete to command a space station on which there is tension between androids and humans. *Heuristica* players improved their abilities to learn and mitigate confirmation bias, fundamental attribution error, and bias blind spot.⁵³⁰ *Heuristica* players also improved their abilities to learn and mitigate anchoring bias,

521. *Id.* at 9, 11.

522. *Id.* at 11.

523. Morewedge et al., *supra* note 18.

524. *Id.* at 132.

525. *Id.*

526. *Id.*

527. *Id.* at 137.

528. *Id.*

529. Virtual Heroes,® *Virtual Heroes Heuristica Trailer - Avoiding Cognitive Bias 3D Trainer Video Game*, YOUTUBE (Oct. 24, 2014), <https://www.youtube.com/watch?v=RJg4TxA66hU>; John Flach, *Heuristica*, YOUTUBE (Aug. 7, 2013), <https://www.youtube.com/watch?v=mzvYeSDYxWA>; <http://www.virtualheroes.com/portfolio/Medical/IARPA-SIRIUS-HEURISTICA>.

530. Elizabeth S. Veinott et al., *The Effect of Camera Perspective and Session Duration on Training Decision Making in a Serious Video Game*, GAMES INNOVATION CONF. 2013 IEEE 256, 256-62 (2013).

representativeness bias, and social projection bias.⁵³¹ *Hueristica*, which is based on Gigerenzer and Todd's work on simple heuristics, focuses on training players to recognize situational cues, such as ambiguous information and limited information, rather than warning players about each bias. Because *Hueristica* occurs in an outer space setting, its training should apply to general audiences. A third group of researchers designed a single-player, 30-minute puzzle serious game, CYCLES Training Center,⁵³² to teach players to recognize and mitigate cognitive biases.⁵³³ An interesting question is whether playing these serious games helps people plan better for and save more for their retirement.

C. Thinking Mindfully

A reason why some people do no retirement planning is that when they are young, they behave mindlessly and without much awareness, as if their behavior were on automatic pilot. Psychologist Jonathan Baron makes the case "that one main problem with our thinking and decision making is that much of it suffers from a lack of *active open-mindedness*. We ignore possibilities, evidence, and goals that we ought to consider, and we make inferences in ways that protect our favored ideas."⁵³⁴ This problem suggests thinking mindfully would help retirement planning. Many decisions affect people's retirement, including how much people consume, save, and invest when young; when people retire; and how, where, and with whom people spend their retirement. People can make all of these decisions mindfully. Mindfulness can help one to align spending with values⁵³⁵ and keep to a budget.⁵³⁶

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531. Elizabeth S. Veinott et al., *Is More Information Better? Examining the Effects of Visual and Cognitive Fidelity on Learning in a Serious Game*, GAMES MEDIA ENT. 2014 IEEE 251, 251-52, 254-55 (2014).
532. ILS Institute, *CYCLES: News & Events*, <http://www.ils.albany.edu/research/projects/cycles/>; University at Albany, *Video Game Aims to Train Adults to Overcome Critical Decision-Making Biases*, <http://www.albany.edu/news/19508.php>.
533. CYCLES Team, *CYCLES Training and Mitigation Center*, 20-33 <http://www.gametechnference.com/sites/default/files/Rita%20Bush%20Sirius%20GameTech%20presentation%2020140819%20%28all%20panelist%20slides,final%29.pdf>.
534. JONATHAN BARON, THINKING AND DECIDING xiii (3d ed., 2000).
535. Carl Richards, *An Essential Budget Query: Is This Spending Aligned With My Values?*, N.Y. TIMES, Sept. 26, 2016, https://www.nytimes.com/2016/09/27/your-money/household-budgeting/an-essential-budget-query-is-this-spending-aligned-with-my-values.html?_r=0.
536. Carl Richards, *To Get at the Root of Spending, Pay Attention*, N.Y. TIMES, Oct. 19, 2015, <https://www.nytimes.com/2015/10/19/your-money/to-get-at-the-root-of-spending-pay-attention.html>.

Professors Natalia Karelaia and Jochen Reb analyzed how, when, and why mindfulness can improve people's decision-making.⁵³⁷ They divided decision-making into four stages:⁵³⁸ (1) Decision Framing, (2) Information Gathering and Processing, (3) Making Conclusions, and (4) Learning from Feedback. Mindfulness can improve people's personal financial decision-making processes.⁵³⁹ Huang explains how thinking mindfully offers real options in any situation, including retirement planning, to consciously, deliberately, and thoughtfully respond instead of automatically, reflexively, and unconsciously react.⁵⁴⁰ Thinking mindfully is related to the Heath brothers' WRAP decision-making heuristics.⁵⁴¹ In the language of simple heuristics, mindfulness provides its practitioner with real options to determine if the decision heuristics being employed are appropriate for the environment one is facing and if not to employ other more appropriate decision heuristics.

A basic question is how can people improve their decision-making.⁵⁴² In an insightful user's guide to debiasing,⁵⁴³ decision researchers and professors Jack B. Soll, Katherine L. Milkman, and John W. Payne refer to decision readiness as "whether an individual is in a position to make a good decision in a particular situation."⁵⁴⁴ They describe a person as being decision ready when a person's slow or system 2 thinking⁵⁴⁵ is ready to monitor a person's fast or system 1 thinking,⁵⁴⁶ suspend wrong judgments, and correct wrong decisions. Soll, Milkman, and Payne emphasize three determinants of decision readiness: fatigue and distraction effects that limit capacity, visceral influences related to one's physical and emotional state, and individual differences in ability and thinking style.⁵⁴⁷ Being mindful addresses each of these aspects of decision readiness because practicing mindfulness helps people be aware of their being fatigued or distracted, be aware of visceral influences upon them, and be more likely to adopt a more reflective thinking style.

These researchers also divide efforts at debiasing people's decision-making into modifying people, modifying decision-making environments, or modifying both.⁵⁴⁸

537. Natalia Karelaia & Jochen Reb, *Improving Decision Making through Mindfulness*, in MINDFULNESS IN ORGANIZATIONS: FOUNDATIONS, RESEARCH, AND APPLICATIONS 163 (Jochen Reb & Paul W. B. Atkins eds., 2015).

538. *Id.*, at 165 fig.7.1.

539. MARIA GONZALEZ & GRAHAM BYRON, *THE MINDFUL INVESTOR: HOW A CALM MIND CAN BRING YOU INNER PEACE AND FINANCIAL SECURITY* (2010).

540. Huang, *supra* note 2, at 122-26; Huang, *supra* note 471, at 68-71.

541. *Id.* at 71-74.

542. Milkman et al., *supra* note 478, at 379.

543. Soll et al., *supra* note 103, at 924.

544. *Id.* at 927.

545. KAHNEMAN, *supra* note 456, at 13.

546. *Id.* at 13.

547. Soll et al., *supra* note 103, at 929-30.

548. *Id.* at 924, 927, 930, 934.

Modifying a person occurs through teaching that person or providing her with strategies and tools, while modifying an environment aims to have a better match to what people normally do without assistance, or encourages better thinking.⁵⁴⁹ The first approach equips people with knowledge and tools to mitigate cognitive limitations and emotional dispositions. This approach includes educating people and introducing people to formal (meaning mathematical) decision aids, heuristics, and thinking strategies.⁵⁵⁰ Educating people about utilizing thinking tools, practicing mindfulness, and new social norms modifies people.

The second approach changes decision-making environments to better match decision strategies people naturally apply or encourage better thinking about what decision strategies to use. This approach accepts the existence of a cognitive bias and attempts to alter decision-making environments so that cognitive bias becomes irrelevant or perhaps can even be used to achieve a better outcome.⁵⁵¹ Exemplars of this approach are choice architecture and information architecture, which may even use one bias to combat or offset another bias. Proponents of modifying decision makers are more optimistic about people's abilities and motivations to learn decision-making skills than proponents of modifying decision environments.⁵⁵²

A famous episode of the iconic *Star Trek: The Original Series*, *Space Seed*,⁵⁵³ introduced a fictional character named Khan, a genetically engineered superhuman, who became the central villain in the movie *Star Trek II*.⁵⁵⁴ Khan argues to Captain Kirk that genetically modified, improved, and enhanced humans are superior to genetically unmodified humans equipped with modified, improved, and enhanced technology. In comparing modifying decision-makers to modifying decision environments, we do not have to deal with the many thorny ethical, legal, and social issues that genetic engineering raises.⁵⁵⁵ Modifying decision-makers can be substitutes or complements to modifying decision environments.⁵⁵⁶

Neuroscientist Richard Davidson, founder of the Center for Investigating Healthy Minds,⁵⁵⁷ and Kurt Squire, director of the Games Learning Society Initiative,⁵⁵⁸ are designing and testing prototypes of two types of games "to help eighth graders develop beneficial social and emotional skills — empathy, cooperation, mental focus,

549. *Id.* at 926.

550. *Id.* at 930-34.

551. *Id.* at 934-40.

552. Michael Bond, *Risk School*, 461 *NATURE* 1189, 1189-92 (Oct. 29, 2009) (reporting on proponents of educating people versus nudging them).

553. *Star Trek: Space Seed* (NBC television broadcast Feb. 16, 1967).

554. *STAR TREK II: THE WRATH OF KHAN* (Paramount Pictures 1982).

555. See, e.g., Peter H. Huang, *Herd Behavior in Designer Genes*, 34 *WAKE FOREST L. REV.* 639, 639 (1999).

556. Soll et al., *supra* note 103, at 9, 15-16.

557. <http://www.investigatinghealthyminds.org/>.

558. GLSCenter, <http://www.gameslearningsociety.org/>.

and self-regulation.”⁵⁵⁹ The first type of game focuses on “improving attention and mental focus, likely through breath awareness.”⁵⁶⁰ This type of game can help individuals think more mindfully. The second type of game focuses “on social behaviors such as kindness, compassion, and altruism.”⁵⁶¹ In a version of the second game called *Crystals of Kaydor*, a player is “an advanced robot created to explore and learn, who crash lands on an alien planet” discovering “flora, fauna, and local residents” helping “them solve problems by interpreting body language and nonverbal cues” such as facial expressions and body language.⁵⁶² The game “[m]issions reward cooperation and generosity to facilitate the development of prosocial behavior.”⁵⁶³ This type of game may help individuals become more self-compassionate and emotionally intelligent, which in turn may lead to more mindful retirement decisions.

D. Thinking Societally

America’s current Do-It-Yourself (DIY) highly individualistic approach to retirement planning is most likely to result in a financial and well-being crisis for all but a very few knowledgeable or wealthy Americans.⁵⁶⁴ Professor Birdthistle cogently notes America’s retirement system has undergone “a massive change with almost zero commensurate change to educate people about how to do this. . . . A lot of people won’t do well in this system and all the studies have suggested it’s not going well.”⁵⁶⁵ Birdthistle notes “[e]ven if you were an incredibly well-informed investor and paid a great deal of attention, it’s very hard to succeed in this system.”⁵⁶⁶

Many Americans like the idea of DIY retirement planning because it resonates with many emotionally reassuring notions in American popular culture,⁵⁶⁷ including American exceptionalism, American individualism, autonomy, empowerment,

559. Jill Sakai, *Educational Games to Train Middle Schoolers’ Attention, Empathy*, May 21, 2012, <http://news.wisc.edu/20704>.

560. *Id.*

561. *Id.* See also Daphne Bavelier & Richard J. Davidson, *Brain Training: Games to Do You Good*, 494 NATURE 425, 425-26 (2013); Tobias Greitemeyer et al., *Playing Prosocial Video Games Increases Empathy and Decreases Schadenfreude*, 10 EMOTION 796, 796 (2010).

562. GLSCenter, *Crystals of Kaydor – Gameplay Video*, YOUTUBE (Sept. 22, 2014), <https://www.youtube.com/watch?v=kKwGZJgJknk>.

563. Rick Solis, *Crystals of Kaydor – Compassion & Technology Submission*, YOUTUBE (Oct. 21, 2013), <https://www.youtube.com/watch?v=W9-K7lxv4b4>.

564. Eisenberg, *supra* note 112.

565. *Id.*

566. *Id.*

567. YouTube, *Empire of the Fund - A Book Talk by William Birdthistle*, American Constitution Society book talk at Chicago-Kent College of Law - April 11, 2016, at 6:50-7:02, May 19, 2016, <https://www.youtube.com/watch?v=sRe3-cIxRV0>.

freedom of choice, self-sufficiency, and the iconic picture of the lone Marlboro Man,⁵⁶⁸ who looked self-reliant and rugged (all while he smoked his way to cancer).⁵⁶⁹ People love to feel they have competence about and are in control of their lives,⁵⁷⁰ including the financial aspects of their lives.⁵⁷¹ Many people's relationships with money are rooted in their personal emotional histories and psychological experiences.⁵⁷²

Unfortunately, there are many predictable difficulties with DIY retirement planning. First, people often rely on their financial intuitions instead of financial knowledge. While people shop for low priced bargains, when it comes to mutual funds people wrongly believe that being charged higher fees are a signal of better quality management and higher portfolio returns. As Birdthistle states, "mutual funds are a very unusual market; it's one of the only types where price and performance are inversely correlated. That's hard to get your head around."⁵⁷³

Second, people like lots of alternatives from which to choose,⁵⁷⁴ as is the case with buffets. Empirical research finds that having lots of mutual funds from which to choose in an employee's 401(k) plan is likely to lead to suboptimal investing.⁵⁷⁵ A third problem is that unlike all-you-care-to-eat food buffets, employees pay fees for each mutual fund in which they invest. Another problem is the high fees that about 90% of mutual funds charge.⁵⁷⁶ Birdthistle observes that "of the 8,000 funds, about 7,700 are actively managed. And anything with active management is a disaster for investors [due to higher fees and their inability to outperform the market consistently]."⁵⁷⁷ Birdthistle cautions that, "you should immediately remove about 90% of funds from a prudent investor's retirement portfolio."⁵⁷⁸ An apt analogy is that if 90% of the food choices on the menu of a restaurant are overpriced and/or dominated by the other 10% in terms of taste or nutrition, then should not society remove those menu alternatives to ensure that customers do not mistakenly choose them? Should a society in the name

568. Adrian Shirk, *The Real Marlboro Man*, THE ATLANTIC, Feb. 17, 2015, <http://www.theatlantic.com/business/archive/2015/02/the-real-marlboro-man/385447/>.

569. Matt Pearce, *At Least Four Marlboro Men Have Died of Smoking-Related Diseases*, L.A. TIMES, Jan. 27, 2014, 6:29 pm, <http://www.latimes.com/nation/nationnow/la-na-rrn-marlboromen-20140127-story.html>.

570. See, e.g. ALBERT BANDURA, SELF-EFFICACY: THE EXERCISE OF CONTROL vii (1997).

571. Lisa Farrell et al., *The Significance of Financial Self-Efficacy in Explaining Women's Personal Finance Behaviour*, 54 J. ECON. PSYCHOL. 85, 85 (2016).

572. See, e.g. MAGGIE BAKER, CRAZY ABOUT MONEY: HOW EMOTIONS CONFUSE OUR MONEY CHOICES AND WHAT TO DO ABOUT IT (2011); SARAH NEWCOMB, LOADED: MONEY, PSYCHOLOGY, AND HOW TO GET AHEAD WITHOUT LEAVING YOUR VALUES BEHIND (2016).

573. Eisenberg, *supra* note 112. See also BIRDTHISTLE, *supra* note 112, at 14.

574. See, e.g. BARRY SCHWARTZ, THE PARADOX OF CHOICE: WHY MORE IS LESS (2004).

575. Sheena S. Iyengar & Emir Kamenica, *Choice Proliferation, Simplicity Seeking, and Asset Allocation*, 94 PUB. ECON. 530, 530 (2010).

576. Eisenberg, *supra* note 112. See also BIRDTHISTLE, *supra* note 112, at 215-16.

577. *Id.*

578. *Id.*

of autonomy, competitive markets, free enterprise, and personal freedom let people unknowingly buy dominated and overpriced food or mutual funds?

The above paragraph begs the question of why anybody would knowingly invest in actively managed mutual funds.⁵⁷⁹ The answer is that people like the idea of “active management” because it sounds like a team of experts is taking care of your mutual fund investment 24/7. People do not like the idea of “passive management” because it sounds like someone is sleeping on the job or being sluggish in taking care of your mutual fund investment. The reality is that active fund managers are guessing at picking winning investments because nobody knows the future, except for time travelers. Although many Americans now heed the advice to invest in index funds,⁵⁸⁰ misconceptions about index funds persist.⁵⁸¹ Additionally, many Americans are investing in TDFs, some of which those Americans may not realize contain actively managed funds.⁵⁸²

Before the passage of Social Security, the American social norm about retirement was one in which Americans were individually responsible for planning and saving towards retirement. The current American social norm about retirement is one in which Americans mandatorily participate in the Social Security system and are otherwise individually responsible for planning and saving towards retirement. This social norm is rooted in a libertarian philosophy of free choice and individual autonomy with a social safety net. This social norm leaves retirement planning up to individual decision-making after mandatory participation in Social Security. Realistically, most Americans will not achieve prosperity under a social norm of “lone wolf” retirement planning plus Social Security. The odds are just stacked against ordinary Americans. In addition to retirement planning and investing being complicated and sometimes counterintuitive, the retirement planning and mutual fund industries actively engage in emotional advertising and opaque disclosures. Unfortunately, there is a lot of money to be made from potential investors being financially confused and mindless. There is less money to be made from potential investors being financially knowledgeable and mindful. What is even worse is that people typically do not know they do not know enough to realistically and sensibly plan for retirement. Most Americans have no desire to learn any of the intricacies of theoretical, empirical, and experimental financial economics.

579. BIRDTHISTLE, *supra* note 112, at 26.

580. See, e.g., Jason Zweig, *Are Index Funds Eating the World?*, WALL ST. J., Aug. 27, 2016, 11:46 am EDT, <http://blogs.wsj.com/moneybeat/2016/08/26/are-index-funds-eating-the-world/>.

581. Russ Wiles, *Myth vs. Fact: What People Still Get Wrong About Index Funds*, USA TODAY, Sept. 23, 2016, 7:34 A.M. EDT, <http://www.usatoday.com/story/money/personalfinance/2016/09/23/myth-vs-fact-index-funds/90326526/>.

582. See, e.g., Justin Walton, *Are Target Date Funds (TDFs) Actively Managed?*, INVESTOPEDIA, Oct. 28, 2015, 10:19 am EDT, www.investopedia.com/ask/answers/102815/are-targetdate-funds-tdfs-actively-managed.asp.

A third social norm is that of societally responsible retirement as opposed to individually responsible retirement. Effective retirement planning is a public good. Ineffective retirement planning is a public bad. There are well-known economies of scale in retirement planning. Although the norm of individually responsible retirement planning is a charming and quaint notion, it likely will result in most Americans retiring into poverty and suffering. The belief that people should be individually responsible for their retirement planning is misguided and contradicts empirical data and experimental evidence about human behavior. Evidence from neoclassical finance and behavioral finance supports buying and holding a well-diversified portfolio, such as an index fund, dominates trying yourself to, and/or paying a lot of money to active fund managers to try to, pick winning stocks and avoid losing stocks.⁵⁸³ A norm of societally responsible retirement planning implies the American federal government should introduce a universal, mandatory, employee- and employer-financed, and societally managed retirement savings program. Such a program can and should learn from the experiences of Australia's Superannuation Guarantee retirement system⁵⁸⁴ and experiences with individual retirement accounts of such other countries as Canada, Chile, Sweden, and the United Kingdom.⁵⁸⁵ Such a program could also require only that employers facilitate their employees' contributions by payroll withholding and even eliminate employers as intermediaries in creating and administering retirement plans.⁵⁸⁶ Such a program could and should replace our anemic Social Security system.

CONCLUSIONS

This Article analyzed three causes of the looming American retirement crisis and many existing and proposed policy responses. There are many ways in which people can mess up retirement, including saving too little, investing non-optimally, claiming Social Security too early, and outliving their savings. The reasons things can go wrong are varied also, including finite cognition, information overload, and outright fraud. Because of this multiplicity of retirement problems and causes, no one magic bullet policy prescription can or will fix all the possible problems by addressing all the possible causes. Additionally, because people differ in many ways, including

583. See, e.g., BURTON G. MALKIEL, *A RANDOM WALK DOWN WALL STREET: THE TIME-TESTED STRATEGY FOR SUCCESSFUL INVESTING* (9th ed., 2007).

584. See, e.g., Julie Agnew, *Australia's Retirement System: Strengths, Weaknesses, and Reforms*, Center for Retirement Research at Boston College, Brief Number 13-5, Apr. 2013, <http://crr.bc.edu/briefs/australia%E2%80%99s-retirement-system-strengths-weaknesses-and-reforms-2/>; Richard Eisenberg, *To Solve The U.S. Retirement Crisis, Look To Australia*, FORBES, Aug. 19, 2013, 10:22 am, <http://www.forbes.com/sites/nextavenue/2013/08/19/to-solve-the-u-s-retirement-crisis-look-to-australia/#1ac06e11445f>.

585. See, e.g., Natalya Shnitser, *Trusts No More: Rethinking the Regulation of Retirement Savings in the United States*, 2016 B.Y.U. L. REV. 627, 677, n. 175 (2016).

586. *Id.* at 678.

education, income, and technological access, some policies will help some more than others retire better.

Legislation that can help some Americans retire better includes the Department of Labor's fiduciary rule, banning (or the SEC pursuing enforcement actions against⁵⁸⁷) high-fee index funds, credentialing financial advisors, mandating employers to provide a day of time off annually for employees to engage in retirement planning, and requiring financial licenses for those who desire to choose non-QDIAs as retirement investments.⁵⁸⁸ Automating, defaulting, and nudging certain decisions can help some Americans retire better including standardizing retirement investment alternatives, fees, forms, and policies.⁵⁸⁹ Education that can help some Americans retire better includes the federal government engaging in public informational campaigns about how Americans can better think about retirement; funding research, development, and testing of educational thinking apps and serious games; the Department of Education providing such apps and games to schools; and the Department of Education changing American middle school and high school mathematics curricula to require teaching decision-making and probability/ statistics in place of geometry and trigonometry.

This Article advocates the American federal government help Americans improve their decision-making and thinking about retirement by educating Americans about and subsidizing: (1) thinking architecture, such as Shlomo Benartzi's Goal Planning System process and Chip Heath and Dan Heath's WRAP heuristics procedure, (2) thinking technologies, such as thinking apps, financial entertainment games, and serious games about decision-making, (3) thinking mindfully about how to become financially ready for, and what to do in, retirement, and (4) thinking more societally about retirement planning to change the social norm in America from individually responsible retirement planning to societally responsible retirement planning.

It may seem there is a tension among the last of the above policy proposals and the other three because thinking more societally about retirement planning leads to paternalistic retirement planning based upon the reality that most Americans are neither cognitively equipped to, nor motivated to learn about how to, pursue effective individual retirement planning. And yet all three other policy proposals aim still to improve Americans' cognitive skills. There is no contradiction because this Article does not advocate educating everybody to become (applied) mathematicians, (financial) economists, and (business or tax) lawyers. Because the Article does not advocate such unrealistic goals, this Article advocates the American federal government have professionals do the mathematical, economic, legal, and tax aspects of retirement planning. This Article does advocate educating everybody to become able to think more effectively and systematically by utilizing the thinking tools of

587. Birdthistle, *supra* note 113; BIRDTHISTLE, *supra* note 112, at 215-16.

588. Birdthistle, *supra* note 113; BIRDTHISTLE, *supra* note 112, at 207-12.

589. Shnitser, *supra* note 585, at 678-80.

thinking architecture and thinking technology in addition to think more mindfully. The reason this Article advocates doing so is that people still have to make many personal and qualitative decisions about how they want to live in retirement when experts deal with the legal and quantitative aspects of retirement planning.

The first three of the above policies aim to educate Americans about how to better think individually about retirement planning, retirement, and many other issues. The fourth of the above policies aims to educate Americans to think more societally about retirement planning, not necessarily retirement and many other issues. Most individuals do insufficient or ineffective retirement planning because of a confluence of reasons. First, retirement planning requires financial literacy. Second, retirement planning requires quantitative reasoning. Third, retirement planning has perceived immediate costs (of reducing consumption to fund increased savings) in exchange for distant, uncertain benefits. Fourth, retirement planning has public bad or negative externalities and public good or positive externalities aspects. Fifth, societal retirement planning can insure people against individuals' longevity risks by pooling across people. In these important ways, retirement planning differs from other complex decisions, such as what car to drive, whether to attend college and if so, what college to attend and what subject to major in, where to work and live, whom to marry, and whether to have children.

Finally, it may seem strange this Article advocates and analyzes changing Americans' thinking about retirement instead of changing Americans' behavior and planning about retirement. The reason for this Article's emphasis on changing thinking is akin to economics Nobel Laureate,⁵⁹⁰ Kenneth Arrow's insightful discussion about "the real value of putting an item on the agenda."⁵⁹¹ Arrow observed how the Employment Act of 1946⁵⁹² "amounted to nothing more than a statement that full employment was at last on the Federal agenda; and many felt that this was a hollow victory indeed. But those who opposed it so violently were not deceived; in the long run, this recognition was decisive."⁵⁹³ Similarly, if enough Americans change their thinking about retirement, especially with so many Baby Boomers retiring in the near future, then legislative and regulatory actions that reflect Americans' changed thinking about retirement is likely to follow. After all, as economist John Maynard Keynes famously wrote in his magnum opus:

[T]he ideas of economists and political philosophers, both when they are right and when they are wrong are more powerful than is commonly understood. Indeed, the

590. Shnitser, *supra* note 585.

591. Arrow, *supra* note 70, at 47.

592. Congressional Declarations 15 U.S.C. § 1021 (1978).

593. Arrow, *supra* note 70, at 47.

world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually slaves of some defunct economist.⁵⁹⁴

594. JOHN MAYNARD KEYNES, *THE GENERAL THEORY OF EMPLOYMENT, INTEREST, AND MONEY*, 383 (1936).

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