**Does Financial Regulation Unintentionally Ignore Less Privileged Populations? The Investigation of a Regulatory Fintech Advancement, Objective and Subjective Financial Literacy**

Maya Haran Rosena,b† and Orly Sade[[1]](#footnote-1) a,c†

a Finance Department, Business School, The Hebrew University of Jerusalem, Israel

b The Bank of Israel, P.O. Box 780, Jerusalem 91007, Israel

c Finance Department, Stern School of Business, NYU

January 2019

## Abstract

Define contribution mechanism combined with a dynamic job market can affect the sum of retirement savings and the choices of plans and products. Hence, it is important for regulators to engage savers to manage the accounts they accumulate over the years. In 2013-2014 the Israeli regulator reached out to the population, recommending the use of a website to help individuals find inactive retirement savings accounts and close them (withdraw the savings or transfer them to active accounts). The government’s efforts did not result in the closure of most of the inactive accounts. Proprietary data indicate that those who closed the inactive accounts live in central locations with a higher socioeconomic index. Survey data indicate that those who lacked financial literacy and confidence in their financial knowledge were less likely to take financial actions. Using a controlled field experiment, we also provide evidence that an intervention with a human touch can promote greater involvement.

Keywords: Retirement savings; objective financial literacy; subjective financial literacy; fintech; field experiment.

JEL: D12, D14, D91, G28, G40, J32

## Introduction

In recent decades, financial regulators around the globe have transferred financial responsibilities from governments and employers to individuals (e.g., Ryan et al (2011) and Campbell et al. (2011)). This is especially true for long term savings, where the transition from a DB (Defined Benefits) system to a DC (Defined contribution) system transferred responsibilities from employers and the state to individuals. This transition was accompanied with a change from a system with guaranteed and known benefits to a system where the end benefit is dependent completely on the decision and actions of savers during the life-cycle. To help with the transition of responsibilities, regulators’ actions emphasize transparency and disclosure, with the aim of individuals using this available information rationally and in their best interest. In addition, technological advances have enabled regulators to use digital media and websites as platforms for promoting different initiatives. The use of these platforms is intended to promote direct interaction or to provide aggregative information in a timely manner while bypassing intermediaries. However, this transfer of responsibilities to the public, combined with the increased use of technology by the regulators, has also been criticized because it does not take into account the public’s financial literacy (Karlan et al. (2016), Campbell (2016)). Specifically, regulation can be unsuccessful when people do not respond as intended, or when people are not equally exposed to it. Unsuccessful regulation can in turn impact public opinion of, and trust in, the financial sector and financial regulators (Zingales (2015) and Campbell (2016)). This dynamic leads to the questions, which warrant empirical answers, of once a fintech advancement is introduced, whether all individuals receive the needed information and whether they act upon it. The answers to these questions can be based on two channels: the first is information dissemination and comprehension and the second is transaction costs and behavioral biases.[[2]](#footnote-2)

This paper uses a natural experiment in Israel (the “Money Mountain” regulatory campaign) which is the introduction of an internet portal by the regulator and tax reform. As individuals change multiple jobs during the life-cycle they can find themselves having multiple long-term savings accounts and products at multiple providers and accounts opened at former employers turn inactive (no new funds are being deposited). In the Israeli pension system over 50% of accounts in some savings vehicles are inactive.[[3]](#footnote-3) Many of these accounts are very small and the account owners are often unaware of their existence. The regulatory campaign studied here was aimed to reduce substantially the transaction costs and help savers locate and manage inactive retirement savings. The regulatory campaign was supported by developments in technology that have enabled the regulator to (a) gather information about inactive accounts, and (b) build a digital platform that allows the population to access their personal information while upholding privacy standards.

The paper focuses on the information dissemination and comprehension channel, which can affect various subpopulations in different ways. In particular, we explore the question of who responded to the new regulation on retirement savings, and examine whether the regulatory campaign alienated certain populations, such that they may not have been cognizant of, understood, or acted upon the information provided.

As previously mentioned, in 2013, the Israeli retirement savings regulator reached out to the Israeli public to inform them of a new service: a website intended to help individuals find inactive retirement accounts. The campaign was named “Money Mountain,” which implied the possibility of finding vast sums of lost money. A year after the “Money Mountain” campaign went into effect, a second campaign in the form of a tax exemption on savings withdrawn from small inactive accounts in provident funds was launched. Its aim was to encourage individuals to close the inactive accounts, here meaning to either withdraw these savings as cash or transfer them to a different active account, thus avoiding new minimum management fees that would gradually exhaust the savings over time. To illustrate the need for action, for example, at the given fixed minimum management fees, an inactive account of 100 USD will completely exhaust itself in approximately 6 years even after taking into account a 6% annual return rate. The first Money Mountain campaign targeted the general population and was publicized in prime-time advertisements on television and radio, and on the Internet. The second campaign, regarding the tax exemption, was not as broad. By the end of the second campaign, only 15 percent of the eligible accounts had been closed,[[4]](#footnote-4) which was a much lower response than initially expected.

There are several advantages to researching these Money Mountain financial campaigns: (1) they are relevant to the general population. Because of the mandatory savings regime in Israel, and certain unions’ salary agreements before the law, anyone who worked at some point (even for a short or part time) might have an inactive account. This means that the regulation is relevant for both low and high socioeconomic population and might even be more relevant for those of the very low socioeconomic population which changes jobs frequently, (2) it is clear what the optimal action for each individual is. Everyone should enter the website and search for inactive funds and if they find a small inactive account in a provident fund they should close the account (withdraw or transfer savings to another active account) otherwise the funds are technically being given away to the provident fund provider because of minimum fees, (3) the campaigns are widely and nationally publicized, (4) the campaigns are related to long-term retirement savings, a topic were savers engagement has grave repercussions for their wellbeing. Additionally long-term retirement savings is a topic important to the public in Israel (Mugerman et al. 2014), (5) even though the financial actions required are simple, the financial “jargon” might deter individuals and affect the reception of the information, (6) the natural experiment contributes to two key literature areas discussed below: benefits take-up and financial literacy. In addition, it is related to the growing interest in the technological and digital aspects of financial regulation.

In this paper we aim to increase our understanding on the relation of financial literacy to the success of consumer oriented digital financial regulatory campaigns. Given that financial literacy is one of our focuses, we would like to acknowledge that there is an ongoing discussion in the academic literature regarding how to define it. The Organization for Economic Cooperation and Development (OECD) describes financial literacy as “the combination of customers’/investors’ understanding of financial products and concepts, and their ability and confidence to appreciate financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being” (Atkinson and Messy (2012)). In this paper we use the term *objective financial literacy* to describe one's *objective* literacy regarding general issues and we based our measure on a common measure in the academic literature (an index of the number of correct answers to three financial questions first presented by Lusardi and Mitchell (2007)). In addition to objective financial literacy, we investigate another aspect of the OECD definition of financial literacy, namely, *subjective*financial literacy, which is confidence in one’s own knowledge of financial issues. We focus on the confidence in one’s own knowledge in the specific subject matter; for this paper—confidence in one’s knowledge of retirement savings. Like objective knowledge,subjective confidence can affect a person’s financial behavior. Having confidence in one’s own knowledge of the issues mitigates the perceived difficulty of the task (even more than actual knowledge does) and hence overcomes the tendency to procrastinate and delay action.[[5]](#footnote-5)

In order to investigate the effectiveness of the Money Mountain and tax exemption campaigns, we use two data sets. The first data set is from a provident fund provider, and contains information on the number of tax-exempt accounts closed, totaling over 12,000 eligible accounts. The second data set is a nationally representative Internet survey sample of 504 people that was distributed in 2015 after the end of the campaigns. For robustness checks, it is complemented by an additional sample of 124 respondents from the same Internet survey who stated that they were aware of the “Money Mountain” campaign. We begin our research with an estimate of the percentage of the inactive accounts that were closed as a result of the campaigns. Then, using the provident fund data and the survey, we try to find how and when objective financial literacy, subjective financial literacy, geography, age, and other sociodemographic characteristics of individuals affected the awareness and actions of people following the financial campaigns. As administrative data from provident funds and survey data each have their own shortcomings, we believe that by using both data sources we achieve a richer evaluation of the actual effect of the financial regulation on the population. Our proprietary data and survey data indicate a low closing rate of 16 percent of accounts, which is consistent with the information provided by the regulator, which in turn suggests that our samples are representative of the total population in this matter[[6]](#footnote-6). In this paper, we provide evidence from both data sources that having a higher socioeconomic index is correlated with being aware of the financial regulation and taking financial action. The proprietary data from the provident fund provider show that individuals who closed small inactive accounts were older and came from localities with a higher socioeconomic index The survey data show evidence that people who lacked objective or subjective financial literacy, as well as younger people and women, also lacked awareness of the regulatory campaigns and ability to take financial action. As expected, objective and subjective financial literacy are correlated with the socioeconomic locality index. The survey data indicate that our measure of subjective financial literacy is a personality trait correlated with several financial actions. Hence, it is more plausible that the documented correlation is an indication that subjective financial literacy affected action. It is less plausible that we observe reverse causality, where being aware of one specific financial regulation or taking one financial actionaffects the individuals’ subjective financial literacy. It is also unlikely to find reverse causality with objective financial literacy; Objective financial literacy involves knowledge you are unlikely to learn about from the Money Mountain. When looking at financial actions taken by individuals, we find that one’s subjective confidence in one’s relevant knowledge, here specifically retirement savings, is more important than one’s objective knowledge of general financial concepts. Additionally, education has a positive and statistically significant correlation with the decision of individuals to enter the website. We also find that immigrants were less aware of financial campaigns that were publicized in mass media.

We conclude that the regulator had limited ability in communicating financial information to the public and that less privileged populations were less likely to be aware of the campaign and less likely to take action based on the information. This inherently leads to the question of whether other actions, beside media, can be more effective in promoting actions from less privileged populations. In order to test this hypothesis, we conducted a field experiment. The field experiment investigated the effectiveness of different communication methods on the awareness and actions of one particular underprivileged population in our sample: ultra-Orthodox Jewish women with potentially low objective and subjective financial literacy. The women were recruited from a college as part of taking a class. For our experiment, we used the launch of the “Money Mountain 2” campaign. Like the initial Money Mountain campaign, Money Mountain 2 was launched to help the population to find inactive accounts, except that it extended this service from the long-term retirement savings system to the banking system. The motivation for our experiment is related to the literature that documents that the presentation of relevant and detailed information to consumers can affect consumers’ objective financial literacy (Drexler et al. 2014 and Lusardi et al. 2017) and actions (e.g., Clark et al. 2017; Goda et al. 2014). In the field experiment, the interventions we looked at included both digital and human touch interventions that could easily be widely simulated in future regulatory interventions. The interventions were: (1) no intervention at all (for the control group), (2) an e-mail explanation of the financial campaign, (3) an e-mail explanation together with a video explanation given by a professional actor, (4) a face-to-face explanation of the financial regulation given by an employee of the Bank of Israel (the organization in charge of banking regulation), and, finally, (5) an e-mail explanation given to one of the control groups after they had filled out a baseline survey. This last intervention enabled us to isolate the effect of detailed information provided in an e-mail on a group that had had an earlier encounter with a Bank of Israel employee (who handed out a baseline survey). We found that the interventions that included a human touch (including in a digital context in the form of an e-mail with an accompanying video presentation) increased the awareness of the campaign of the intervention groups by more than 100% relative to the control group. These interventions were also more successful in raising the percentage of subjects entering the website (from 14% in the control group to between 16% and 28% in the treatment groups).

Above and beyond our contribution to the aging and long term savings academic literature, our work is related and contributes to three main key areas. The first key area is literature documenting underprivileged populations that failed to receive benefits in designated programs such as the Earned Income Tax Credit and the State Health Insurance Program,[[7]](#footnote-7) and indicates that the information channel is an important factor in explaining take-up.[[8]](#footnote-8) We contribute to this literature in several ways: (1) by researching financial digital campaigns, (2 the absence of stigma for people who act upon the regulation and the relatively low transaction costs allow us to focus on the information effect on take-up,[[9]](#footnote-9) (3) our use of an Internet survey in addition to provident fund data enables us to investigate individuals who declared that they had contacted the long-term savings fund provider with the intention to close an account (withdraw or transfer savings), in addition to the actual accounts closed. This helps us to further disentangle the information channel from transaction costs and related technical difficulties, (4) the survey data also allows us to connect financial literacy to take-up.

The second key area we contribute to is the investigation of financial literacy as we demonstrate that financial literacy has an effect on the success and equality of long-term savings regulation. Earlier literature documents that objective financial literacy is correlated with financial behavior, including planning and saving for retirement,[[10]](#footnote-10) personal debt management,[[11]](#footnote-11) participation in the stock market,[[12]](#footnote-12) choosing mutual funds with lower fees,[[13]](#footnote-13) and accumulation and management of wealth.[[14]](#footnote-14) Objective financial literacy is also associated with sociodemographic characteristics[[15]](#footnote-15) such as gender, education, wealth, race, ethnicity as well as having a generational effect[[16]](#footnote-16) as it has been documented that parents’ objective financial literacy affects a child’s literacy and financial behavior. We also highlight the importance of subjective financial literacy—specifically, confidence in one's knowledge in the specific subject matter (here long-term savings), to the effectiveness of the long-term savings regulation and financial behavior. Earlier research investigated general confidence in one’s financial literacy. Allgood and Walstad (2012) have shown that both objective financial literacy and financial confidence are important aspects for financial behavior:[[17]](#footnote-17) individuals with high self-reported financial knowledge are more likely to plan their finances, to have substantially more retirement savings, and to pay fewer management fees. Financial confidence is also associated with sociodemographic characteristics. It has been documented that older, better educated, male respondents are more likely to possess subjective financial literacy.[[18]](#footnote-18)

In addition, the natural experiment described above allows us to focus on the technological and digital aspects of financial regulation and financial literacy (objective and subjective). In particular, as there are no mediators or advisors when individuals use the website, financial literacy and other socioeconomic characteristics might play a bigger role. Goldfarb and Tucker (2017) review the effect and advantages of digital technology, Karlan et.al (2016) discuss the benefits and downsides of digital financial services for financial inclusion and Barber and Odean (2001) show the benefits of digital technology in finance for investors but also mention a "dark side" stemming from investors' behavioral biases.

Thirdly, our work is related to the key area that uses field experiments to research the effectiveness of different policies and theories. Levitt and List (2009) offer a review of field experiments, Duflo (2006) a review on field experiments evaluating policies in development economics. Choi et al (2017) and Beshears et al. (2015) are examples of field investigations that aim to encourage retirement savings where the latter investigated behavioral interventions using emails. We also contribute to literature on field experiments encouraging the public to gain personal long term savings information using websites (Bauer et al. (2018)).[[19]](#footnote-19)A meta-analysis by Keiser and Menkhoff (2017) shows that financial education interventions (including nudges) have a positive effect on financial literacy and behaviour but that the interventions are less effective for low socioeconomic population. We use a field experiment to evaluate different ways of providing financial information to the public and highlight the importance of a human touch for populations with low objective and subjective financial literacy.

1. † E-mail addresses: [maya.haran@mail.huji.ac.il](mailto:maya.haran@mail.huji.ac.il) (M. Haran Rosen) and [orlysade@huji.ac.il](mailto:orlysade@huji.ac.il) (O. Sade).

   Financial support for this paper was given from the Cherrick Center Elisia Fund. We have benefited from comments by Noam Zussman, Anne Lavigne, Anat Bracha, Yishay Yafeh, Adi Brender, Avi Wohl, Dan Galai, Yoram Landskroner, Yaniv Dover, Iain Embrey, Shlomo Benartzi and Naomi Hausman, participants in the 2016 Industrial Organization, Regulation and Competition Policy in Israel conference, the 2017 Law and Finance Research meeting, the 10th Financial Risks International Forum, the 2017 BLGDRC conference, the 2017 IAERP conference, the 2017 SPUDM conference, the 2018 FUR conference, as well as seminar participants at the Hebrew University of Jerusalem, the Bank of Israel, the Center for Academic Studies Or Yehuda, and the Israel Antitrust Authority. Sade acknowledges financial support from the Krueger Center at the Hebrew University and the Stern School of Business at NYU. [↑](#footnote-ref-1)
2. For a summary of issues regarding time preferences, risk preferences, social preferences, overconfidence, projection bias, framing, limited attention, menu effects, persuasion, social pressure, and emotions, see DellaVigna (2009). [↑](#footnote-ref-2)
3. The 2014 CMISD annual report shows that in 2014, 48% of accounts in the new pension system were inactive and about 80% of accounts in the old pension system were inactive. [↑](#footnote-ref-3)
4. Data received by Capital Markets, Insurance, and Savings Division representatives. [↑](#footnote-ref-4)
5. For further discussion see Tversky and Shafir (1992) and Heath and Tversky (1991). [↑](#footnote-ref-5)
6. Provident fund account holders come from localities with a slightly higher socioeconomic index than the country average but the general closing rate is in line with the country’s average reported by the regulator. The survey is an internet survey and hence, like all Internet surveys, it represents only the technologically skilled population and underrepresents certain parts of the population. [↑](#footnote-ref-6)
7. Currie et al. (2006) and Bhargava et al. (2015) [↑](#footnote-ref-7)
8. For example, Russell et al. (2014), Herd et al. (2013), Riphahn (2001), Leventhal et al. (1965), Coe (1983), and Daponte et al. (1998). Coe (1983) emphasizes lack of information as the most significant explanation for the unsatisfactory take-up rate of the food stamps program, even though the program was heavily publicized. Bhargava et al. (2015) claim that take-up is sensitive to the frequency, salience, and simplicity with which information is provided. Ebenstein and Stage (2010) suggest that reducing application barriers alone may not be an effective tool for increasing program participation and that information barriers may still exist. [↑](#footnote-ref-8)
9. Currie et al. (2006) cite three channels that were found to affect less privileged populations: lack of information, stigma, and transaction costs. Moffitt (1983) provides an economic model of stigma and Baumberg (2016) shows a quantitative measure of the effect of stigma on benefit take-up in the UK. [↑](#footnote-ref-9)
10. Hilgert et al. (2003), Bayer et al. (2009),Clark et al. (2015) and Uppal (2016); for a review, see Lusardi and Mitchell (2014). [↑](#footnote-ref-10)
11. Lusardi and Tufano (2009). [↑](#footnote-ref-11)
12. Van Rooij et al. (2011). [↑](#footnote-ref-12)
13. Hastings and Tejeda-Ashton (2008), Hastings et al. (2010), and Hastings and Mitchell (2011). [↑](#footnote-ref-13)
14. Stango and Zinman (2009), Hilgert et al. (2003), and Lusardi (2008). [↑](#footnote-ref-14)
15. OECD (2005), Lusardi and Mitchell (2008), Atkinson and Messy (2012), Brown and Graf (2013), Lusardi and Mitchell (2014), and Bucher-Koenen et al. (2017). Financial literacy is also related to personal attributes such as cognitive ability and motivation; see, e.g., Fernandes et al. (2014), Van Rooij et al. (2011), and Lusardi et al. (2010). [↑](#footnote-ref-15)
16. Lusardi et al. (2010) and Mandell (2008). [↑](#footnote-ref-16)
17. Financial confidence was found to be important in Van Rooij et al. (2012), Parker et al. (2012), Lusardi and Mitchell (2007, 2017), Lusardi and Beeler (2006), Lusardi et al. (2017), and, using different measures, Hadar et al. (2013). [↑](#footnote-ref-17)
18. Drolet (2016); for a review, see Lusardi and Mitchell (2014). [↑](#footnote-ref-18)
19. When comparing our results to the results of the Bauer et al. (2018) field experiment, which investigated the effect of letters with different wording on entering a website that provides personal details on individual's retirement savings, the effect we found seems substantial, In Bauer et al. (2018), the most effective letter, which included a financial incentive (small lottery) to enter the website, raised entrances from 3% in the control group to 5%...,5gavaure of ication website websites that contain personal financial information(Bauer et al. התשואה השנתית לא נגישה לחוסכי [↑](#footnote-ref-19)