CAN A RISING TIDE LIFT ALL BOATS?

SOCIAL NORMS INFLUENCE ON

RETIREMENT SAVINGS

By

JEFFREY TYLER

Bachelor of Arts
University of California at Santa Barbara
Santa Barbara, CA
1979

Master of Management
JL Kellogg Graduate School of Management,
Northwestern University
Evanston, IL
1981

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
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Dissertation Approved:

Dr. Bryan Edwards

Dissertation Adviser

Dr. Marlys Mason

Dr. David Carter

Dr. Cynthia Wang

.

Name: JEFFREY TYLER

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Abstract: The pursuit of wellness is eternal. One of the largest threats to an individual developing that sense of happiness in the concept of financial wellness. Financial wellness is a concept that encompasses how an individual deals with both short- and long-term financial issues. Evidence would suggest that individuals have significant problems dealing with financial issues, especially planning. The traditional answer to this problem has been financial literacy. However, the relationship between financial literacy and financial behaviors is small. This study will look at financial behaviors from a different perspective, that of social influence. By making individuals aware of social norms, both observed behaviors and socially approved behaviors, we expect that the desire to conform to group behavior will produce a higher level of positive financial behavior.

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INTRODUCTION

Managing personal finances is a daunting task, which many individuals both in the United States and globally fail at miserably (Mandell 2006; Lusardi and Mitchell 2011). The statistics surrounding financial inadequacy are frightening, and the current pandemic can only make matters worse. According to the Federal Reserve 2019 Survey of Consumer Finance only 61% of Americans could finance a $400 emergency expense out of cash or its equivalent. The remaining 39% would have trouble covering such an expense. This was before the pandemic. A recent survey by AP-NORC Center for Public Affairs Research says that nearly half of Americans have had their monthly income reduced since the start of the pandemic, whether because of job loss, reduced hours, or a cut in compensation.

Current financial issues affect the near-term outlook and cloud the future of many people. The Employee Benefits Research Institute 2019 survey shows 67% of Americans feel confident about their prospects for having a comfortable retirement. This is an improvement from 2017 when that figure was at 60%. However, looking at that estimate

more closely reveals the fragility of that confidence. According to the EBRI 2019 survey only 42% of workers have even tried to calculate the amount of money they will need to retire comfortably. Looking at retirement savings, 77% of all workers have accumulated less than $250,000 for retirement. A recent study by Vanguard, reports the average American has $92,148 in their 401k. Not terrible until you consider that the median balance for those same individuals is $22,217, which suggests that for many Americans the balances are zero. These balances come up short when compared to out-of-pocket medical costs are estimated to be $295,000 post age 65, according to a study by Fidelity Investments.

The lack of preparedness has a high cost to employers as well as individuals. It is estimated that presenteeism, being at work but focused on illness or financial issues, cost employers $180B annually (Prawitz 2013). Prawitz estimates absenteeism cost employers an additional $118B. This brings the total cost to employers of employee financial stress to close to $300B. According to the 2020 PwC Annual Survey of Employee Financial Wellness 54% of employees say financial matters are the most stressful thing they deal with.

Historically, we have tackled the problem by attempting to educate others about how to better manage their finances – a term called financial literacy. There has been an assumption that through educating people, they will incorporate the skills necessary to make informed financial decisions (Mandell 2006). Unfortunately, financial education tends to be mundane, complicated, and soon forgotten (Thaler and Benartzi 2004). The traditional remedy of financial literacy explains only a small portion of financial behaviors (Fernandes, Lynch and Netemeyer 2014). So, if poor financial wellness is so stressful, what is the answer? My research will show that by building a series of normative messages into employee communication, we can motivate people to exhibit better financial behaviors. People want to

belong to a group and their behaviors are likely to be shaped by the actions of that group (Sherif 1936; Asch 1954; Bandura 1976; Baumeister 1995; Cialdini and Trost 1998; Cialdini 2007; Bergquist and Nilsson 2018). Societal norms are agreed upon standards of conduct, which to belong to the group one must abide. In the context of financial management, norms take on a set of goals or standards for conducting one's personal financial behaviors.

There are several reasons for the general lack of retirement savings. These include the difficulty most people face in attempting to calculate their needs (e.g., Lusardi and Mitchell 2011) and a cultural bias toward immediate gratification (e.g., Hershfield, Goldstein and Sharpe 2011). The first challenge is one of complexity. Determining the proper amount to save and how to do so requires a complex set of calculations, and numerous assumptions. An individual attempting to calculate the necessary balances required for a comfortable retirement must consider estimates of real rates of risk and return for the future, salary progression, and longevity of both work and life in retirement, as well as estimates of required drawdowns (Lusardi and Mitchell 2011). Then, there is the challenge of whether this saving balance is achievable in the estimation of the individual (Mayer, Zick and Marsden 2011). If an individual has taken the time to calculate their retirement savings needs then the question becomes; Is the gap achievable?

A simple exercise will highlight this problem. Imagine a 25-year-old worker earning $25,000. Assuming they get a salary increase averaging 3% per year over the next 40 years they will have an ending salary of $81,700. A simple heuristic is that an individual needs to save 12 times their ending salary to finance a comparable lifestyle in retirement. That would work out to $975,000. For someone starting out $975,000 seems daunting and may prove to be a major disincentive to starting a savings program (Mayer et.al. 2011).

The second issue with retirement savings is the issue of temporal orientation. There exist numerous pressures for immediate consumption, both social and practical, which impinge on future planning. Hershfield et.al. (2011) showed that savings can be thought of as a loss to the current self. Forgone current consumption is a loss, and the deferral of savings to an uncertain future self is an ephemeral gain (Frederick, Loewenstein and O'Donoghue 2002).

The purpose of the present research is to determine if social influence is enough to overcome the two obstacles of calculating needs and the pull of immediate gratification to motivate individuals to manage their short and long-term finances more efficiently. Adherence to social norms is an important factor in people's sense of belonging. In current American society, the phrase "keeping up with the Jones'" is meant to convey the requirement to match one's neighbors in terms of consumerism. By owning a specific type of car, one seeks social approval and insures they fit in to the group. My research aims to shift the focus on social norms from consumerism to one of retirement savings. By having good financial management practices an individual can boost their overall financial wellness and fit into the group norms but do so without the stress associated with consumerism.

The traditional answer to the savings conundrum is improved financial literacy. There is an important split in the financial literature between the concepts of financial literacy and financial behaviors. A meta-analysis by Huston (2010) shows 47% of researchers equate financial literacy and financial knowledge, while 15% specifically suggest that financial knowledge is different from financial literacy due to behavioral influences. This lack of a clear definition of what comprises financial literacy is a partial explanation for why it may be lacking relative to behaviors. Financial literacy has been shown to be lacking in society

globally (Lusardi and Mitchell 2011; Mandell 2006). For the remainder of this analysis, I use the consensus of equating knowledge and literacy.

Financial literacy has been shown to have limited impact on financial behaviors, which in turn mean that a high degree of financial literacy does not guarantee that an individual will achieve a high level of financial wellness (Fernandes, Lynch and Netemeyer 2014). The Fernandes study looked at the relationship between financial literacy and specific financial behaviors and showed effect sizes of less than r=0.10. This would indicate that there was small explanatory power emanating from financial literacy toward the resultant financial behaviors in question. While financial literacy has an important influence on financial behaviors, financial literacy does not in and of itself drive behavior. Importantly, financial literacy must be shared to have full effect. An explanation of the gap between financial literacy and financial behaviors stems forms the debate as to whether financial knowledge should be equated with financial literacy. Knowledge does not necessarily translate to financial behavior as it lacks two important components, willingness, and capacity. An individual needs the wherewithal and the desire to make behavioral shifts for financial literacy to translate into financial behaviors. Financial decision making has several obstacles between financial knowledge and behavior, not the least of which is the temporal influence of consumerism (Goldstein, Johnson, and Sharpe 2008). Immediate gratification can run in opposition with long-term financial decision making.

Financial management is largely a solitary task. One that is performed alone, and at home. Whether it is managing the household budget or deciding how to finance a child's college education, it is primarily done individually. That isolation in financial planning presents some unique challenges. First, does the individual have the cognitive ability to do the

analysis and make the decisions necessary to manage their personal finances. (Hershey, Jacobs-Lawson, Austin 2013; Benartzi and Thaler 2007) The idea of numeracy is an important aspect in this cognitive ability. Lusardi and Mitchell (2011) have shown that individuals lack the basic skills to perform financial calculations, especially in certain demographic groups such as women, lower educated individuals, and the elderly. These are the groups for whom financial planning leave them the most vulnerable. This only gets more difficult as the time horizon is extended to begin planning for long term needs such as retirement. People have an inability to forecast the consequences of investment decisions (Goldstein, Johnson, and Sharpe 2008).

Another impediment to sound financial behaviors is one of attention. According to the Northwest Mutual 2019 Planning and Progress Study the average American spends 2 minutes a day of financial planning. And importantly, the percentage of folks who take part in financial planning activities is only 2.9% of all individuals. There seem to be a wide array of activities that rank far higher on our list of importance than financial planning, such as watching TV which we engage in 2.5 hours per day as opposed to the 2 minutes.

Lastly, the opportunity to plan financially and save for the future is not universal. According to the Stanford Center on Longevity only about half of Americans work for employers that offer 401k retirement plans (An estimate confirmed by a Pew Charitable Trust Study). The EBRI study on retirement readiness suggests that employees without access to an employer sponsored plan are far less likely to save for retirement, 17% of people who do not have a plan save for retirement vs 79% who have access to a plan.

I posit the solution to the three challenges noted above is to capitalize on the motivational aspect of social norms for conducting personal financial behaviors. We make known what the behavioral norms are and motivate people to adhere to those standards. Social norms should help guide savings behavior in a desirable direction via message-based persuasion (e.g., Cialdini, 2003). These social norms are simple rules of thumb, or heuristics which do not rely on an individual to perform complex mathematical calculations or spend a great deal of time determining the appropriate path (Benartzi and Thaler 2007; Tversky and Kahneman 1974). Rather they rely on common sense rules which the average person can incorporate quickly and easily, as their peers have done likewise. For example, by communicating the average retirement salary deferral rate, we can make available to individuals the group's estimation of the proper amount to save for retirement. It is my expectation that people will follow those best practices to imitate the behavior of the group more closely (Cialdini 2003). Boosting their retirement preparedness, through higher savings, will make a huge difference in the long-term financial wellness of an individual (Bailey et.al. 2004: Netemeyer et.al. 2017). This increase in wellness, will reduce stress and lead to happier employees and happier employers.

The goal of the present study is to improve the financial behaviors, within the confines of the cognitive ability and attention span of the average individual. The means to accomplish this goal must be easily incorporated into the routine of individuals. By shifting the focus to simple easy to follow rules, the thought process becomes less of a drain on cognitive resources and more of conformity and implementation. If you have excessive credit card debt, a social norm stating that people schedule their credit card payments based on a three-year repayment plan, will allow the individual to adjust behavior quickly and easily to that

standard, thus reducing overall stressors. Perhaps the largest challenge to social norms is we are a consumer culture. This kind of behavioral change will require some degree of sacrifice, but I would argue that in the long run it creates a higher degree of financial wellness.

CHAPTER II

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The present research is to understand the linkages between social influence, financial behavior, and personal financial wellness. *Financial Wellness* represents a feeling of control over one's current and future financial environment such that the individual is free from stress, and confident in their financial decisions. This concept is subjective, but critical to understanding overall financial wellness. Financial wellness has been shown to be a significant contributor to overall wellness (Joo 2008, Netemeyer et.al. 2018). Wellness is believed to be a representation of happiness and the absence of stress (Joo 2008).

As an antecedent to financial wellness are the financial behaviors practiced by the individual. According to Benartzi and Thaler (2007) there are three basic principles of individual financial behavior. The first assumption is that individuals are rational and seek to manage their lifetime utility function. However, Thaler (1980) suggested spending does not follow a smooth rational path.

The second assumption is that households have the cognitive ability to solve the optimization problem of how much to spend and how much to save. There are varying levels of

complexity to managing an individual's financial matters. Retirement saving is perhaps the most complex of the decisions facing people (Goldstein, Johnson, and Sharpe 2008). The decisions are complex mathematical exercises, which require a mathematical acumen which exceeds that possessed by the average American. It is not surprising that according the EBRI 2020 study only 42% of Americans have attempted to estimate how much they will need in retirement, let alone save and invest for it.

Financial literacy is often put forth as a way of improving financial outcomes. *Financial literacy* is the knowledge and implementation of financial concepts such as budgeting, savings goals, and prioritization (Lusardi 2008; Mandell 2006). Both Lusardi and Mandell have illustrated that financial literacy is poor in the US, and globally. Importantly, financial literacy incorporates more than just financial knowledge (Huston 2010). Huston showed that several practitioners define financial knowledge as interchangeable with financial literacy, but that definition does not lead to financial behaviors (Fernandes, Lynch Netemeyer 2014). To have a more holistic approach to financial literacy we must also include capacity and willingness. People need to have the knowledge but must also exhibit the behaviors to implement the knowledge for it to have the desired effect (Huston 2010).

The final economic principle is that households have the willpower to execute their plan. Setting goals and planning to implement those plans is an important step. It has been shown in previous research that people who make goals attain a higher level of wealth than those who do not ceteris paribus (Lusardi and Mitchell 2007). However, the implementation of those plans requires a follow through that many people struggle with.

By providing social queues toward appropriate behavior, the blockages of implementation can be overcome.

Social Norms

Social influence has been shown to be a powerful predictor for individual behaviors. (Bandura 1977; Cialdini and Trost 1998). Bandura illustrated the concept of social influence on learning outcomes in his seminal work, social learning theory. According to social learning theory one of the primary ways that people learn behaviors is through observation. People first observe a behavior and are informed about the behavior and its efficacy. They can then use that learning to imitate and model others in their behaviors. Observational learning begins at infancy when we teach children language skills. A baby has no genetic predisposition to speak a particular language, rather the parents intervene to teach the child language. The child hears the parents speak a particular language and dialect and imitates it. The child receives praise for speaking a certain way and is reinforced in their development of the skill.

The four components of modeling are attention, retention, reproduction, and motivation. Attention is capturing the interest of the receiver of a particular message. Retention is the ability to remember the observed behavior, while reproduction refers to the imitability of the behavior. Lastly, motivation is the desire of a person to reproduce the behavior is question. So, taking our child's learning of speech as an example. Speaking to the child directly is a quick way to gain the child's attention. The child will remember the speech patterns and will seek approval by mimicking the speech. This pattern of reproducing

speaking is rewarded when a parent reacts positively, and thus the child's behavior of speaking a certain way is reinforced.

We are, as a species, a social entity. To quote British poet John Donne, *"No man is an island entire of itself; every man is a piece of the continent, a part of the main."* To be part of the group, individuals have a motivation to conform to a set of group behaviors, or norms. Norms are a set of mutually agreed upon rules or guidelines for social behavior. These norms are not laws per se, but rather rules for socially accepted behavior.

Social norms represent the typical behavior of a group. These are established over time through cultural behaviors which are either shunned or reinforced by the group. There are two types of norms. *Descriptive norms* are the observed behaviors of individuals with the group. The second type of norm is *an injunctive norm* in which behavior is approved or disapproved of by the community (Cialdini and Trost 1998).

Cialdini (2003) tested the theory of people adjusting behavior to adhere to social norms. In one experiment, Cialdini tested the efficacy of both descriptive and injunctive norms on people's tendency to litter. Cialdini (2003) tested three PSAs which referred to behavior protecting the environment. He showed that the framing of messages mattered greatly to the outcome. Approval of the behavior was less impactful in a situation whereby the context was presented in an environment whereby the behavior was prevalent. Littering in a clean environment was more constrained by disapproval than littering in a dirty environment.

In the case of personal financial decision making a descriptive norm might be that 66% of workers have saved for retirement (EBRI 2019). An injunctive norm would take the view

that despite saving, not enough is saved. According to Choi, Laibson and Madrain (2011), contribution rates are lower than necessary to achieve a standard of living in retirement comparable to the one enjoyed during working years..

Cialdini posits that norms motive people to change behavior through the setting of goals. This process may or may not be conscious. Their motivations are to adhere to the group norm, and so they take actions to better align with those behaviors. In the field of personal finance adherence to group norms may be insufficient to have a meaningful impact on financial wellness. Choi et.al. 2001 suggest that 68% of individuals feel that their savings rate is too low. Only 1% find their savings rates are too high.

Early studies show that the level of uncertainty regarding a decision have an influence on the impact of norms on behavior (Sherif 1936; Asch 1956). If the level of uncertainty is low, then the desire to conform to societal norms would also be low. However, as uncertainty grows, so too does the desire to conform to group behaviors. Reno, Cialdini and Kallgren (1993) suggested that when we get enough feedback on a particular position, the prevalent bias is to save the time to process the information independently and conform to those norms. In the financial field, this shows itself by the Morningstar 5-star fund phenomenon. Morningstar is a mutual fund rating organization that rates mutual funds on a one to five scale with five being the highest. Analysis from Strategic Insight has shown that when a fund receives a five star or a four-star fund rating assets have grown every year, whereas lesser rated funds have lost net assets. This is due to the complexity of the decision making, and deferral to the injunctive norm that suggests that an expert has proclaimed the funds to be attractive investments, and the group has agreed to that assessment.

This brings with it an important point in that people are far more swayed by a norm when the behaviors are exhibited by those who the individual perceive to be successful (Cialdini and Trost 1998). A norm is far more likely to be influential if it is also one in which the individual believes it to be a path to success (Reno, Cialdini and Kallgren 1993). It is also likely to be influential if the source of the normative behavior is familiar, and confident in their appraisal of the issue at hand (Levitan and Verhulst 2016; Stok et.al. 2014).

Asch (1956) found that a lone dissenting opinion was enough to discourage conformity. If there was unanimous opinion, people were likely to defer to the group even in the instance that their opinion differed from the group when tested alone. But, if there was a single dissenter, they were more likely to stick to their opinion, especially if the lone dissenter was confident in their opinions. An example of this gap in the consistency of social norms would be the current debate on the efficacy of wearing a mask as protection against spreading Covid-19. Scientists have been relatively clear, especially as the pandemic became more known, that wearing a mask would provide protection. However, this opinion was not completely shared, and there are several influential dissenters. Consequently, people have been decidedly mixed in their desire to conform to mask wearing behavior.

The role of self-image plays a large role in the desire to conform to social normative behaviors. We all have a desire to view ourselves positively (Leary 1995). This desire to create a positive self-image is a motivating factor behind choosing the correct path, that is socially approved. If we do something that is socially approved, we feel good about ourselves, while socially undesirable behavior creates a negative self-evaluation. Cialdini

and Trost (1998) reference the good Samaritan effect. The good Samaritan effect is our desire to aid those in need. We offer that assistance, in part, to view ourselves as good, helpful people. This desire may be unconscious, but it is no less relevant because we haven't thought of it directly.

Financial Behavior and Financial Wellness

Proper financial behaviors are critical, as they have a significant influence on an individual's overall sense of financial wellness (Netemeyer et.al. 2017). However, what constitutes proper financial behavior is often not well understood by individuals. My hypothesis suggests that social norms can instill a menu of proper financial behaviors both in terms of common practice, a descriptive norm, and recommended behavior, an injunctive norm. Financial behavior is a broad concept encompassing a large domain of our daily lives. Whether it be paying for groceries, a new car, or tuition for college 15 years from now for a child, each of our actions compound to create the potential for positive stress reducing financial decisions, or negative stress inducing decisions. According to Campbell 2006, financial behaviors for consumers is the use of financial instruments to accomplish the objectives of those individuals. These financial behaviors fall into four broad categories (Lusardi and Tufano 2009).

The four broad categories include payment methodology, managing risk, savings, and borrowing. The first category is payments is the method employed to finance current expenditures. Payments can be either financed out of cash, credit cards or some other means of converting assets or liabilities into readily available funds.

The next category is managing risk. Managing risk is designed to protect an individual's assets. Managing risks includes purchasing insurance, diversifying a portfolio, or other means to reduce the potential for a reduction of the purchasing power of one's assets.

Thirdly, savings which is the method of taking current income and investing it to provide some future benefit. Everyone has a pool of current assets from which to determine consumption. These current assets can either be used immediately to finance current consumption or be deferred to finance some future consumptive goal. The final financial behavior is borrowing or moving consumption from the future to finance current consumption. Borrowing can be thought of as the opposite of savings in that one is moving consumption from one period to another.

Financial behaviors generally have two distinct time horizons. Short-term financial behaviors have to do with how an individual structures and manages their current financial condition. These short-term behaviors include having and maintaining a budget, managing debts such as credit cards and controlling impulsivity.

Long-term financial behaviors are an extension of the near-term behaviors. Netemeyer et.al. (2017) suggested that to have a sound expectation of future financial health, it is essential to first have control of one's current financial health. Once that is established, the individual can move on toward future financial planning. The biggest future impacts have to do with retirement planning, and budgeting for future college expenses. The overwhelming student loan problem in the US is testament to the effect a lack of future planning can have on expectations for future financial condition.

Each of the financial decisions a consumer makes will contribute to their overall financial wellness, either positively or negatively. Financial wellness is at least partially psychological construct dealing with the sense of control and confidence about how an individual is dealing with their personal finances. It has some objective metrics such as whether someone has a budget in balance, or adequate retirement savings, but it also has the psychological effect of how that imbalance or lack of retirement savings impacts personal stress levels. Perceived well-being can be thought of as the level of happiness of the individual (Page & Vella-Brodrick 2009). This happiness is an important consideration for employers, as happier employees have positive organizational behavior, lower turnover, and lower absenteeism (Page et al 2009).

The psychological construct of well-being has four primary components: are driven by social well-being, job satisfaction, physical health, and financial wellness (Page and Vella-Brodrick 2009; Netemeyer et.al. 2017; Busseri, Sadava and DeCourville 2006). Well-being results from positive affect and equates to a sense of happiness Keyes (1998)

CHAPTER III

HYPOTHESIS DEVELOPMENT

Social norms have been shown to have effect on behaviors of individuals is a wide variety of circumstances, including littering (Cialdini 2003), energy consumption (Shultz et al 2007), environmental awareness (Goldstein 2008), fruit consumption amongst teenagers (Stok et.al. 2013) and the intention to contribute to a retirement plan (Duflo and Saez 2003; Bailey et al 2004; Croy et al 2010). Duflo et.al. (2003) observed behavior of 436 librarians in 11 different locations throughout a large University. She found that savings behaviors were biased toward group means in the various locations, with high saving in some locations, and low saving in others dependent on group acceptance of social normative behavior. The studies by Bailey et al and Croy et.al. (2010) took this premise further to try and incorporate messaging pertaining to social norms to gauge saving intentions. In Bailey et.al (2004), they relied on college seniors and the potential future contribution to a 401k plan offered by a prospective employer. They used both descriptive norms and injunctive norms to see the differential impact on savings intentions. Rather than using a national average contribution rate, they used two

descriptive norms. For a "low" range they informed students that people contributed on average between 2% and 5%. For the "high" descriptive norm, they used a range of between 7% and 10% of salary. For the injunctive norm case, they used an expert recommendation of 15% as their proxy for what people *should* contribute. This made for four groups, low descriptive with no injunctive, low descriptive and the 15% injunctive, high descriptive with no injunctive, and a high descriptive and the 15% injunctive. They found that each of the cases showed a strong influence on the decision of how much to save with participants generally choosing to save somewhere between the suggested descriptive norm and the injunctive if given. They also found that students gravitated to increments of 5% which was chosen more than random odds would suggest. They also found a strong gender effect with men opting for a higher savings rate.

The Croy et.al (2010) study examined the intention of 2300 individuals already in Australian superannuation programs. Their study focused on two aspects of managing retirement savings through a social norm. They found for respondents of the study injunctive norms were more powerful than descriptive norms, in terms of increasing savings. Interestingly, they found a no effect for the descriptive norm but, a positive and statistically significant effect from the injunctive norm. This finding calls into question the concept of the descriptive norm for people who are already in a retirement savings plan. One possible explanation for the lack of an effect of the descriptive norm is the information contained in the descriptive norm. Telling the average person that the average person behaves in a certain manner is not necessarily providing new information, as they are already at the descriptive level of savings. They also found less willingness to changing their investment strategy. One rationale provided by Croy for this pattern of

results was that saving more was a one-time decision, whereas managing the investment strategy required ongoing management of the respondent investment portfolio.

According to Cialdini and Trost (1998), there are two types of social norms. The first is a *descriptive norm*. A descriptive norm is the observed average behavior of a group. One of people's basic needs is a sense of belonging (Baumeister and Leary 1995). To ensure this sense of belonging, people are motivated to align with the group. According to Festinger (1954) individuals are motivated by group norms, and they try and reduce deviance from the group by patterning behaviors consistent with group approval (Festinger 1954, 1957). The descriptive norm provides a target for people to align their behaviors to belong with the group. For the present study, a descriptive norm describes the average 401k *deferral* rates of a particular population, i.e., an employee base. According to a Vanguard study, "How America Saves – 2019", the average American, with a 401k plan, had a salary deferral of 6.9% in 2018.

The second type of social norm is an *injunctive norm* which is the approved or socially desirable behavior. The concept of the injunctive norm is what people *should* be doing, rather than simply what they are doing in the case of the descriptive norm (Cialdini & Trost 1998). In the case of retirement savings, as mentioned, the descriptive norm suggests that the average employee saves 6.9% of salary. However, that rate of savings will most likely be insufficient to achieve the goal of fully funding retirement. An injunctive norm makes the prescriptive leap to tell people what kind of savings would be required to achieve their goals. The injunctive norm for retirement savings would be the rate recommended by experts to achieve a 401k balance sufficient to retire comfortably. In this study, I have chosen to use 15% the recommended savings rate because that is the

consensus savings rate necessary for a 25-year-old worker to achieve the retirement savings balance required to fund an 80% replacement ratio in retirement.

Descriptive norms are more straight forward, as they can be directly observed, whereas an injunctive norm requires assumptions about the desirability of a behavior. Determining an injunctive norm is problematic as it depends on numerous assumptions including age, time to retirement, and their existing balance. The "optimal" savings rate for someone 25 years old is closer to 15% (Rhee 2013). However, 50% of all workers aged 45-55 have less than $100k saved for retirement. Thus, even the injunctive norm may be insufficient to provide a comfortable retirement. A frightening fact is that to match the same retirement balance of the 25-year-old saving at 15%, a 45 year old would have to save close to 40% of salary, all else being equal.

It should be noted that normative messaging does not always lead to improved behavior. In the Cialdini (2003) study, they found that descriptive norms may not change behavior in the state of a negative injunctive environment. Cialdini (2003) tested three PSAs which referred to behavior protecting the environment. People were told that they should not litter, and that the group may or may not have demonstrated that behavior. Cialdini showed that in an environment when the descriptive norm was to not litter, by showing the subjects a litter free environment, the subject was far less likely to litter than when a similar message was given without the litter free messaging. Littering in a clean environment was more constrained by disapproval than littering in a dirty environment.

Stok et.al. (2013) found a reluctance on the part of teenagers to adhere to injunctive norms, as the injunctive norm was superseded by negative perceived social influences.

Teenagers felt the prospect of deviating from the descriptive norm was severely negative, and thus rejected the injunctive norms as a perceived unpopular choice. The estimation of descriptive norms was lower than observed behaviors. While they were motivated to adjust behaviors toward the descriptive norm, further adjustment was discouraged as it ran afoul of competing norms. In this case the competing norm was social acceptance. Consuming the average level of fruit was considered socially acceptable but consuming more than the norm was decidedly uncool. This shows the importance of competing norms, and the idea that the research must understand the operant influences to present the norm in such a way as to take precedence over competition. When faced with competing norms, it is important to understand how individuals prioritize these goals. In the case of retirement savings, as a means of aligning behavior with the group, saving at the group norm may prove beneficial, while saving at a rate well above group norms may compete with other priorities such as conspicuous consumption.

In my study, income levels can present such a competing norm. If one has limited capacity to adjust behaviors due to income constraints, it is reasonable to conceive that an injunctive norm may suggest unattainable goals which could have negative results on both injunctive and descriptive norms.

Stok et.al.(2013) also found a difference between intention and teenage fruit consumption behavior. Descriptive norms led to no change in stated intention but did lead to higher actual consumption. Injunctive norms led to lower intention but no change in actual consumption. Both previous studies on retirement savings behaviors concluded that participants had the intention to save more but did not ascertain whether the participant followed through with the intended behavior.

A possible negative effect of normative messaging is what is referred to as the boomerang effect. That is where an individual exhibits behavior that is already above the group or descriptive norm, and as with the individuals below the norm seeks to move toward the average (Schultz et.al. 2016). In financial behaviors, an example of this type of behavior would be the contribution rate to a company 401k program. If the descriptive norm is 5%, then the descriptive norm would suggest that to conform with group behavior people should attempt to save that same amount. That would suggest that people who save at higher rates, say 8%, would be motived to reduce their savings rates to better conform to descriptive norms. The problem with this is that to attain the necessary balances for retirement, the individual needs may be closer to 10%. As with the fruit example, there can be a disconnect between the descriptive norm, and what is suggested as the injunctive norm.

A further complication to norms is perceptions. Studies have shown that people's perceptions of group behavior, descriptive norms, may vary significantly from actual group behavior (Borsari and Carey 2001). Borsari and Carey found that student acceptance of excessive alcohol use was due in part to an over estimation of its prevalence on campus. Students felt that overindulgence was more common than it was, thus felt that the practice was more acceptable. Their estimation of the injunctive norm was at a higher level than was the case. Perceptions of behavior have been shown to deviate from actual behaviors, thus influencing people to gravitate to unrealistic social norms (Schultz et.al. 2016; Borsari and Carey 2001). From the perspective of the individual perceptions of group behavior, perceptions are the descriptive norm, and communicating accurate information regarding what group behaviors are can lead to

improved compliance (Cialdini and Trost 1998). The emphasis on relatedness, and social interaction, is at the heart of Bandura's Social Learning Theory (1977). Bandura suggested that we learn through observation. Consequently, the clarity of group behaviors can have a powerful influence on an individual's behavior.

In personal financial behaviors there are a wide variety of behaviors that we can use social messaging with the desire to shift behaviors and ultimately to increase financial wellness. For example, the Financial Wellness scale from Netemeyer et.al (2017)., uses indicators of both current financial payment history, impulsivity, materialism, and financial self-efficacy. The antecedents to future financial expectations include current financial stress, financial preparedness, risk tolerance, and financial self-efficacy. For this study, I am choosing to focus on retirement savings, as it will play a key role in determining the future financial expectations for a growing number of Americans. Individuals are increasingly reliant on defined contribution plans, 401k and 403b, for retirement income because of the decline in defined benefit pension plans, and Americans increasingly are on their own to finance their future selves (Weiner and Doescher 2008). This suggests that retirement savings are an important component of the main antecedents of future financial expectations.

Specifically, I will provide social normative messaging to three groups within my sample population. The control group will receive a message suggesting that saving toward retirement can have significant benefit for future lifestyle. I will provide no guidance of how much to save. The descriptive group will receive the descriptive norm that most individuals save 7% of salary in a company sponsored retirement plan. This should provide motivation to align with the peer group and boost savings up to the 7% level.

By providing this descriptive information, I hope to offset two issues that generally hinder retirement savings. First, people typically do not know how much their peers contribute to retirement and thus I want to make visible the concept of a group standard. As was suggested earlier, people have a strong motivation to belong to a group, and the "price of admission" is exhibiting behaviors that are consistent within the group. Cialdini (2003) illustrated that adherence to a set of behaviors, such as retirement savings, becomes more positive if it is framed in the context of a group standard. Thus, the descriptive norms will activate a motivating desire to conform.

The second obstacle to saving that I hope to overcome is the issue of numeracy. People find it hard to determine how much they should save and as a result make inefficient choices which leads some individuals to pass on the decision altogether. This is due to inertia (Madrain and Shea 2001) because their easiest choice is to avoid the decision. Thaler and Benartzi (2004) showed individuals will choose to save only the recommended amount which they infer from a variety of places such as the company match, but which was not necessarily intended to impart a recommendation. Therefore, the descriptive norm overcomes this numeracy issue by providing a concrete goal.

H1a: Retirement savings will be higher in the descriptive norm condition relative to control.

For the injunctive group, I will provide information regarding what people should do, an injunctive norm. The injunctive norm will present information relative to the socially approved behavior. As Cialdini (1991) suggests, this injunctive norm will speak to what they *should* do. In the case of my study, I will suggest that people save a total of 15% of their salaries in the company 401k plan because15% is the recommended minimum

salary deferral necessary to achieve a retirement balance required to fund retired lifestyles comparable to those enjoyed while working (Munnell, Webb and Hou 2014).

People have difficulty determining how much they should save (Thaler and Benartzi 2004; Lusardi and Mitchell 2012). People tend to look for guidance from their company 401k information. For example, Thaler (2004) showed that individuals were prone to saving up to the company match. However, no such advice was intended. The company match was historically an amount the company felt it could afford, like a profit-sharing plan. Thaler went on to suggest that a company could improve the employee savings by changing the match to require a higher level of savings to achieve a full match. For example, if a company matched 50% of savings up to a 6% of salary. A company could change the formula to 25% of savings up to 12% and would expect to see an increase in employee savings, at no cost to the company. Madrain and Shea (2001) also showed that employees tend to choose the savings percentage suggested by their company's auto-enrollment feature. Once the employee is automatically enrolled in a 401k plan at the prescribed percentage inertia takes over, and employees seldom switch. The injunctive norm could serve as an objective expert opinion for employees about the optimal savings percentage.

A study from Fidelity Investments reported that the average out of pocket medical costs for a retired couple would amount to $290,000, while in retirement. The descriptive norm will likely cover that but leave little else for funding a comfortable lifestyle. Thus, by illustrating the injunctive norm, expert recommendations for how much to save, people will be motivated to increase their salary deferral to a much higher level.

H1b: Retirement savings will be higher in the injunctive norm condition relative to control.

The impact of shifting retirement savings behavior should have a positive impact on perceived financial wellness. As an individual focuses effort toward strengthening their future selves this will lower stress levels and boost their outlook for the future (Hershfield, Goldstein and Sharpe 2011). The effect of behavioral changes on future financial expectations will be positive (Huston 2010). Empirical evidence will be seen by rising 401k balances. Psychological benefits will be evidenced by an appreciation for the future self (Hershfield, Goldstein, Sharpe 2011; Topa, Lunceford, Boyatzis 2018). Although the expected future financial security component will increase, the potential is there for an offset by a complementary increase in current financial stress. Especially with lower income individuals saving more may entail current sacrifices. If the pain from the current sacrifice outweighs the benefit from the boost to expected future financial security, then the impact on overall financial wellness will be negative. It may also suggest that the increase in savings rates from the social influence may prove to be transitory.

Hershfield et.al. posit there are two types of behavioral modifications to enhance the psychological benefits of delayed gratification. The first is planned saving. As Benartzi and Thaler (2004) suggest in the program of Save More Tomorrow, by planning for delayed saving the individual has the benefit of knowing that their future savings need is scheduled and will take place at the planned date. In the Benartzi and Thaler approach, they are focusing on auto escalate programs, whereby a participant elects ahead of time to save a certain amount, which increases annually. The second modification is what

Hershfield et.al. propose in in their concept of deferred gratification as a way of gifting to one's future self. A delay in immediate gratification is experienced as a loss. This is a common theme in the health related fields where the positive feelings of a "bad" habit are felt more concretely that the future ramifications of that behavior, which seems to be less certain. By making the future benefit of consumption appear more certain the individual feels more of a gain experience by making the gift.

The feeling of increased certainty of having a retirement plan which is set forth by social norms fulfills the tenant of having the benefit taken care of. This self confidence that one has planned out, albeit surreptitiously, retirement funding will lower near term stress, and thereby provide an increase in wellness (Netemeyer et.al. 2017).

H2: Retirement savings will be positively related to perceived financial wellness.

Descriptive norms provide societal guidance relative to how individuals in that society generally act. Adapting to the descriptive norm requires much less of a commitment on the part of workers, particularly those in the lower half of the income spectrum. For someone making $15 an hour, saving $1 of that is a big deal, and may serve as a governor to full adoption of the descriptive norm. For that same worker to save 15%, would require a salary deferral of closer to $2.25 per hour. This would potentially create a hardship which would override that potential benefit of the increase saving.

Injunctive norms provide guidance regarding socially accepted behaviors, which may or may not be consistent with the descriptive norms. Cialdini (2003) revealed as much within in the context of littering. Intrinsically, people understand that littering is poor behavior. However, in the context of an injunctive norm of a littered environment people

were more likely to litter, via conformity because participants received a norm that others were littering. This was opposed to the behavior of not littering in a pristine environment where everyone was refraining from the negative behavior.

In present research, it is my contention that income will influence the relationship between norms and retirement savings. Specifically, I posit that the influence of descriptive norms will be stronger at lower levels of income. For example, providing information regarding actual retirement savings behavior to individuals with lower income relative to the group will provide motivation for them to conform to group averages. My expectation is that those at lower levels of income (e.g. salaries of between $30,000 and $50,000) will be most impacted by descriptive norms because those individuals have participation rates below average, and below average contributions as well (Vanguard 2019). Despite the lower levels of participation. Participants in this salary range also have the ability to contribute, which is an important distinction between this income tier and those with incomes at or below the poverty level. Although people at all income levels may have the intrinsic motivation to increase their savings behaviors, those with the least amount of income would lack both the ability and the self-efficacy to make such a shift.

Weiner and Doesher (2008) caution against providing savings information that differ from participant contribution levels to dramatically. They contend that for individuals to change behavior they must feel like the goal is achievable. If goals are too difficult then motivation wanes (Locke & Latham 1991). Vanguard reports that individuals in the $30,000 to $50,000 income bracket have an average contribution percentage of 5.4%. Seventy percent of people with household incomes of less than $45,000 say they cannot

afford to save for retirement (Plan Sponsor Magazine 11/9/17). Moving an individual from 5.4% to 6.9%, an increase of 1.5% would require an additional contribution of $37.50 to $62.50 per month, compared to an additional contribution of $240 to $400 per month for someone to conform to the injunctive norm. Finding the necessary capacity to increase savings by the lower amount may be within reach, whereas the higher amounts may be too difficult, especially in the short term. Other reasons for not saving by low-income households include the matching percentage (the percentage the company contributes to an individual's retirement plan) as people cite the lack of a company match as a reason for not contributing to their 401k plan (Munnell 2001), wanting to manage funds outside of the plan, and needing access to the funds.

An added complication is that for highly paid workers there exists a variety of statutory limits, which were a total 401k contribution limit of $19,500 as of 2021. The average saving rate, including employer contribution is closer to 10.6%, with the employer chipping in 3.7%. For a worker earning $250,000, they would be capped out at 7.8% due to IRS contribution limits associated with income. Although this doesn't affect the average worker, a highly paid worker would need to save outside their 401k to reach the injunctive norm. Higher income workers the descriptive norms are likely already exceeded, and thus injunctive norms will be most effective. A highly compensated worker is more likely to save at least enough to achieve the full employer match and are more likely to exceed that percentage up to the statutory limit (Kawachi, Smith, and Toder 2005). Higher income workers have the income to achieve the loftier goals, and through a properly framed injunctive norm the individuals should be motivated to adjust savings behavior accordingly. Therefore, I expect income will moderate the influence of

the injunctive norm on retirement savings due to an individual's ability and sense of control over retirement savings.

Thus, it is my expectation that the impact of the social norms will differ depending on the income levels of the individuals. For employees in the lower income levels, a descriptive norm will have a greater influence than injunctive norms due to several factors. They tend to save at lower levels to start with, so the motivational effect of conforming to descriptive norms will be require substantive lifestyle changes. Additionally, the capacity to increase savings is more constrained for lower incomes, so for low paid workers saving up to the norm may be all they feel they can afford, before competing norms come into play. Conversely, at higher income levels the descriptive norm will have less effect as they are probably already saving at or near that amount. However, the injunctive norm will provide important information about how much they need to save and will provide the motivation to save at a level which assures them a much more positive future expectation.

H3: Income will moderate the relationship between the descriptive norm and retirement savings relative to control such that participants reporting lower levels of income should be most receptive to the descriptive norm.

H4: Income will moderate the relationship between the injunctive norm and retirement savings relative to control such that participants reporting higher levels of income should be more receptive to the injunctive norm.

I predict that financial literacy should also moderate the relationship between social norms and retirement savings behavior because of the susceptibility of the individual to

social norms as a key informational tool (Sherif 1933; Asch 1956; Cialdini and Trost 1998). When an individual has done their own research and formed a reasoned belief on a behavior, they are less likely to be swayed by the views of a social norm. Conversely, in the absence of financial knowledge, social norms should provide a powerful motivator. A person with a high degree of financial knowledge presumably will have less uncertainty as to the proper savings behavior, and the appropriate path to wealth accumulation (Lusardi 2014) and thus their retirement savings would be less influenced by social norms. Conversely, those with lower financial knowledge will have a higher degree of uncertainty and thus be more susceptible to descriptive norms. People lacking in the financial knowledge to make rational decisions on their own will seek out heuristics to assist them (Benartzi and Thaler 2007). By providing descriptive norms, we accomplish the objective of supplying the relevant information regarding socially accepted savings rates to those with lower income, who we supposed to be most at likelihood of acting on such information.

H5: Financial Literacy will moderate the relationship between the descriptive norm and retirement savings relative to control such that participants with low financial literacy should be more receptive to the descriptive norm.

H6: Financial Literacy will moderate the relationship between the injunctive norm and retirement savings relative to control such that participants with high financial literacy should be more receptive to the injunctive norms.

CHAPTER IV

PROCEDURES AND METHODS

As a first step of my data collection effort, I conducted a series of pretests to develop the stimulus materials (descriptive and injunctive social norms) and validate the measures used throughout the study. The first set of pilot studies evaluated reactions to written text only and the feedback I received was such that written text was difficult to follow, and based on responses of the participants, the manipulation did not work. Thus, I created a PowerPoint presentation with more pictures and fewer words with audio of the messages in each condition, rather than a written message. Participants reported the new format to be much more salient. Additionally, I referenced the manipulations (7% and 15%) two additional times during the survey: at the mid-point and again at the conclusion of the PowerPoint presentation to reinforce the social norm in each condition. The reinforcing messages were specific to each condition. The descriptive group received two messages reminding them that the average savings rate for retirement by American workers was 7%. The injunctive group received a reminder that experts recommend they should save 15% of their salary toward retirement. I administered a 2-item manipulation check at the conclusion of each of each survey at each of the three time periods. Specifically, I asked

participants what the average American worker saved for retirement, and what experts recommended the average American worker should save. I kept the language of these questions identical to the wording of the manipulations. There is some evidence in the literature that motivation could be influenced by the loss or gain framing of the message (e.g., citation). Thus, I also tested a loss avoidance message, in addition to a positive gain message. The loss avoidance message consisted of dire images of what might happen if people did not save enough money for retirement and presented the concept that through saving for retirement a difficult financial future could be avoided. The gain message showed images of smiling happy seniors living a good life, and the participants were told that by saving for retirement people could have a happy outcome. I tested these two versions to determine which of the two would influence participants' responses in the manipulation. People tended to respond better to the positive message; thus, I used this version to test my hypotheses.

Study Design

I conducted the study over a period of one month in which I surveyed participants three separate times with one week between each administration. After participants were consented, they were randomly assigned to one of three treatment groups: (a) control, (b) descriptive norms, (c) injunctive norms. The manipulation for each group was presented in a 2-minute PowerPoint presentation which exposed participants to their assigned manipulation. The message was identical for all three groups except for the manipulation. In the control condition, the video included the message that "Living a happy retirement means planning now, so that you can enjoy the fruits of your labor". In the descriptive norm condition, participants received the same message along with the prompt that "the

average American worker saves 7% of salary for retirement". In the injunctive norm condition, participants received the same messages as the descriptive norm group with the addition of "Experts suggest that 7% may not be enough. They recommend your save 15% for retirement". The full manipulations are presented in the Appendix. The messaging consisted of an audio voice over as the PowerPoint slides advanced. The video was designed to make the participants aware of the benefits of retirement savings.

The video was embedded into Qualtrics after the information sheet to consent participants and before the surveys. We included a timer such that the video could not be skipped, and participants could not proceed to the survey until they watched the video. Participants were then asked their current 401k contribution percentage. They also completed measures about their financial wellness, financial literacy, and current financial health through an inquiry about credit card management.

Participants then received additional messaging about saving for retirement to help bolster the manipulation. Specifically, the control group received the message "Good Job you are 2/3s done with the survey. Participants in descriptive norm condition received the same progress report (2/3rds done) plus the reminder that the average American saves 7% for retirement. Injunctive was given the progress report plus a reminder that experts recommend you should save 15%. These reminders were meant to reinforce the manipulation.

Next participants were asked about their future savings intentions and their perceived level of control over their future savings decisions. Participants were then asked about

their acceptance of social influence in financial planning, and their individual demographic information.

Next, participants received the manipulation checks. Finally, they received a thank you message encouraging them to save more for retirement, along with the appropriate message for their condition regarding retirement saving. The control group received the message "You can expect a follow up survey in a weeks' time. Meanwhile we would encourage you to contact your Human Resources Department to review your 401k and Retirement Contributions." Participants in descriptive norm condition received the same message plus the reminder that the average American saves 7% for retirement. Participants in the injunctive norm condition was given the same message as the descriptive norm condition plus a reminder that experts recommend you should save 15%. These final messages were meant to provide motivation to act on the manipulations.

Approximately one week after the initial survey, participants were asked to complete survey 2. The second survey was limited to questions about savings rates, savings intentions, financial wellness, and questions about participant risk tolerance. Finally, one month following the first survey, participants were asked to complete survey 3. Survey 3 asked about savings rates and financial wellness.

Sample

There were two separate efforts at data collection to test the hypotheses. First, I conducted a survey with employees at a large financial services company in the Midwest. Unfortunately, just prior to data collection the company entered a merger agreement with another company. Management was concerned about launching a survey regarding

retirement savings during the merger phase. This limited our sample size to 140 participants who were not involved in the merger. Only 24 participants completed all three rounds of surveys. This sample was not large enough to draw statistical conclusions. As such the analyses that followed will not deal with this sample from the financial services company.

Next, I extended my data collection by collecting data from MTurk employees via crowdsource. I surveyed 598 workers for my initial survey. Screens for data integrity resulted in a sample size for the initial survey of $N = 373$. Of the 598 original survey responses, 61 were removed from the analyses due to failing the attention checks. An additional 28 were removed for giving responses to the 401k contribution questions that were above legal limits. The statutory limit for 401k's is $19,500 plus a $6,500 catch up provision for those over 50. If a respondent reported a contribution above the legal limit they were eliminated. As our third screen we eliminated 136 people who failed the manipulation check. The screening resulted in the final sample with complete data consisting of $N = 373$.

Participants were paid $2 for each of the three surveys, for a total of $6 if someone completed all three surveys. This comprised a representative sample of the working population: 57.8% of participants were male versus 40.9% female, and 1.3% identifying as other, average age was $M = 36.9$ ($SD = 10.2$). 59.1% had college degrees, 22.5% reported advanced degrees, and 13.4% reported some college or a 2-year degree. The racial breakdown was 75.5% White, 12.7% African American, 4.2% Hispanic, 5.2% Asian American. Median income was $59,600 ($SD = \$43,600$). It should be noted that the income distribution was skewed slightly, with the mean reported to be $71,600. Finally,

60% of participants reported having only one job, while 35.2% reported multiple jobs and 4.6% reported being retired or not working.

Measures

Unless otherwise noted all the measures within the survey consistent of questions on utilizing a 5-point Likert-type scale (*1 = Strongly Disagree, 5 = Strongly Agree*). Analysis was performed using IBM SPSS Statistics version 12.0.

Retirement Savings. Each participant was asked what their 401k contribution was, and what their overall retirement savings percentage was. They were also asked if they participated in company sponsored financial education

Financial Wellness. Financial wellness consists of two distinct subscales. Current money management stress and expected future financial security (Fernandes, Lynch & Netemeyer 2014). *Current money management* is "a state of being wherein you have control over day-to-day, month-to-month finances; have the capacity to absorb financial shock; are on track to meet your financial goals; and have the financial freedom to make the choices that allow you to enjoy life" (CFPB 2015, 5).. *Expected future financial security* is how comfortable one feels about their long-term financial outlook (Fernandes et.al. 2014). Each of these two scales consists of five questions. I scored each scale by obtaining the mean of the item ratings. The internal consistency estimate (coefficient alpha) for scores on current money management stress was $\alpha = .89$. ($M = 3.31$, $SD = 1.06$ The internal consistency estimate (coefficient alpha) for scores on future financial expectations was $\alpha = .90$ ($M = 3.64$ $SD = .97$).

Financial Literacy. Financial literacy was estimated using a five-question survey to determine the respondent's financial acumen (Lusardi & Mitchell 2011). The resulting answers were scored 1 = correct and 0 = incorrect and summed the item scores. As can be seen in Table 1, the participants scored relatively low on the financial literacy quiz. The average American aged 25-50 would score approximately 68%, according to a recent study by the National Financial Educators Council. Our participants scored a 50.4% on average.

Financial Behavior Financial behavior deals with efficient usage of available credit. In this sections we asked if the utilized credit cards, if so how many and what was their experience with late payments.

Savings Intention and Control. Savings intention and control were measured by two scales adapted from Croy, Gerrans and Speelman (2010). Savings intention was a three-item scale which asked participants their desire to increase savings. A sample item is "I intend to increase my contributions to my 401k program". Control was measured with a four-item scale which asked the participant if they thought they had the ability to control savings decisions. A sample item is "Making a change to my retirement savings rate is within my control". The internal consistency estimate (coefficient alpha) for scores on savings intentions was $\alpha = .80$. The internal consistency estimate (coefficient alpha) for scores on savings control was $\alpha = .85$.

Social Influence. Social influence was measured using an 8-item survey adapted from Keyes (1998). I adapted the scale by using financial behaviors as the referent. For example, I used the statement "When at a party or dinner with friends, I often discuss

financial matters". Social influence was scored by obtaining the mean of the eight ratings. The internal consistency estimate (coefficient alpha) for scores on social influence was α = .91, *M* = 3.36, SD = 1.30.

Demographics Information. In the initial survey, I collected income level. Income was measured by asking participants their estimated household income. I also asked their gender, age, race, and highest educational level achieved. Finally, I inquired as to the number of jobs held by participants and verified that they were not retired.

Control Variables. Gender is expected to have an influence on savings rates and financial wellness because generally, women tend to have portfolios that are concentrated in lower risk investments due to a lower level of risk tolerance (Barber and Odean 2001). Barber and Odean also suggested that men have tendencies toward overconfidence, and higher levels of risk tolerance. Risk tolerance has been shown to have a positive influence on wealth accumulation (Lusardi 2014). Further, it has been shown that social norms have a greater influence when there is uncertainty (Cialdini and Trost 1998). Thus, is could be that women will have a larger capacity for change in savings and wellbeing. Consequently, I assessed gender identification and measured desired level of risk tolerance and perceived uncertainty.

CHAPTER V

DATA ANALYSIS AND RESULTS

Data analyses were conducted using IBM SPSS Statistics Version 12. Prior to testing my hypotheses, I first assessed the efficacy of my manipulation. The manipulation check was administered at the end of the first survey. As can be seen from Table 1, 53.6% participants in the descriptive norm condition answered correctly. This suggested that almost half of survey participants did not correctly receive the descriptive norm. I attribute the low level of success with the descriptive norm to participant average savings being close to the national average, thus the norm contained no new information. I performed the analyses that follows only on those participants who passed the descriptive norm manipulation N=86.

In the injunctive norm condition, 64.1% answered the manipulation check item correctly. The sample was slightly skewed to the right with the average incorrect answer being lower than expert recommendations. This suggested that the injunctive norm message was successful with only 2/3rds of participants. This was better than the descriptive norm group, but still below optimum. I attribute the higher success level of the injunctive norm group to the idea that a 15% expert recommendation was more than current savings rates, so this

provided useful information. I performed the analyses with only those participants who passed the injunctive norm manipulation (N = 107).

Table 1

	Descriptive			Injunctive		
Variable	N	M	SD	N	M	SD
Descriptive Manipulation	161	9.22	3.86	---- -	-----	-----
Manipulation correct	86	7.0	0.00			
Injunctive Manipulation	---- -	-----	-----	167	13.8	2.71
Manipulation correct				107	15.0	0.00

The analyses that follow including the table below I have omitted any participant who failed the manipulation check. Table 2 shows the scores for the relevant variables by condition.

Table 2

	Conditions								
	Control			Descriptive			Injunctive		
Variable	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
Retirement Savings - T1	180	7.06	4.77	86	5.72	4.3	107	6.45	5.17
Retirement Savings - T2	149	7.44	4.71	73	6.56	4.42	79	7.24	4.91
Intention - T1	180	3.99	0.80	86	3.60	1.11	107	3.68	1.11
Intention - T2	149	4.07	0.78	73	4.00	0.81	79	3.99	0.77
Intention Change	149	0.09	0.85	73	0.46	1.09	79	0.27	1.19
Financial Literacy	176	2.28	1.61	86	2.67	1.43	103	2.80	1.55
Income	185	$65,127	$35,127	86	$62,631	$40,592	107	$68,579	$43,561
Future Expectations - T1	180	3.68	0.94	86	3.68	1.02	107	3.55	1
Future Expectations - T2	148	3.85	0.88	73	3.76	0.95	79	3.81	0.81

*Variables include only participants that passed the manipulation checks. Future = future financial expectations

Table 3: Descriptive Statistics, Reliability estimates, and Study Intercorrelations

	M	*SD*	α	1	2	3	4	5	6	7
T1 - 401k	6.42	4.78	—							
T2 - 401k	7.18	4.73	—	.20*						
Intentions T1	3.80	1.00	.84	.30*	.11					
Intentions T2	4.04	.79	.78	.05	.26*	.37*				
Income	$67,015	$39,625	—	.05	-.08	.00	-.12*			
Financial Literacy	2.62	1.53	—	-.41*	-.05	-.17	.00	.05		
Future T1	3.64	.97	.90	.39*	.11	.43*	.16*	.24*	-.25	
Future T2	3.82	.88	.88	.04	.39*	.18*	.50*	.11	-.10	.26*

Note. N = 19. * $p < .05$ level. T1 = Time 1; T2 = time 2; Future = future financial expectations

Hypothesis 1a suggested that retirement savings will be higher in the descriptive norm condition relative to control. Hypothesis 1b suggested retirement savings will be higher in the injunctive norm condition relative to control. I conducted a repeated measures ANOVA because I was interested in how the manipulation affected individuals over time. Furthermore, as can be seen in Table 2, savings rates were higher in the control group than for the descriptive and injunctive. The initial analysis reported both manipulations simultaneously, compared to the control condition. My results show the hypotheses to be supported, when evaluating the effect of the manipulation on retirement savings between time one and time two. The effect of the manipulation on the sample was statistically significant $F(2, 298) = 4.33$, $p = .038$, $\eta^2 = .01$ which suggests that the social norm influences savings behavior. This model explained 1% of the variance of time 2 savings.

When looked at separately, the results show neither the descriptive norm *H1a* nor the injunctive norm *H1b* were be supported. Figure 1 shows the results of the repeated

measures ANOVA comparing the descriptive norm group with the control group. Descriptive – $F(1, 220)$ 2.09, $p = .15$, $\eta^2 = .01$.

Figure 1

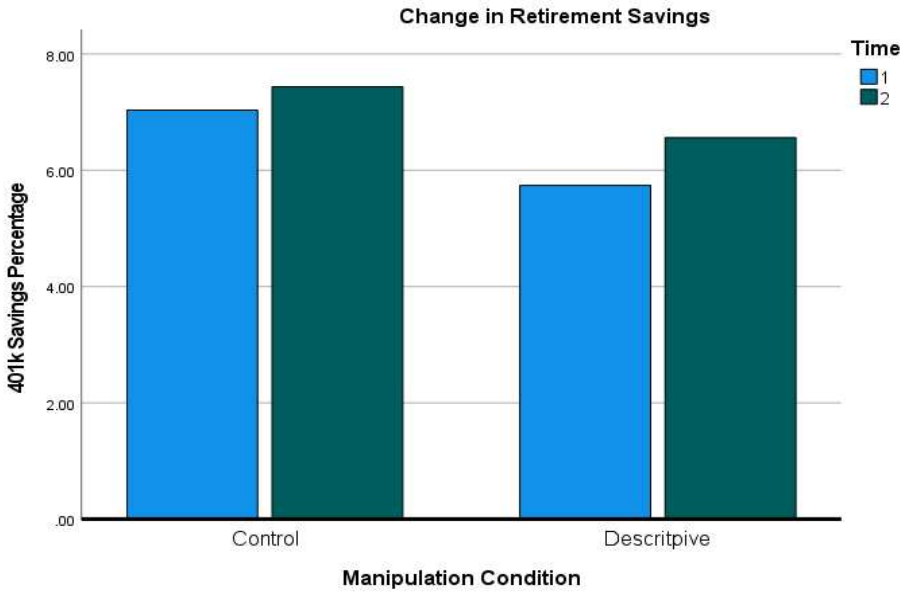
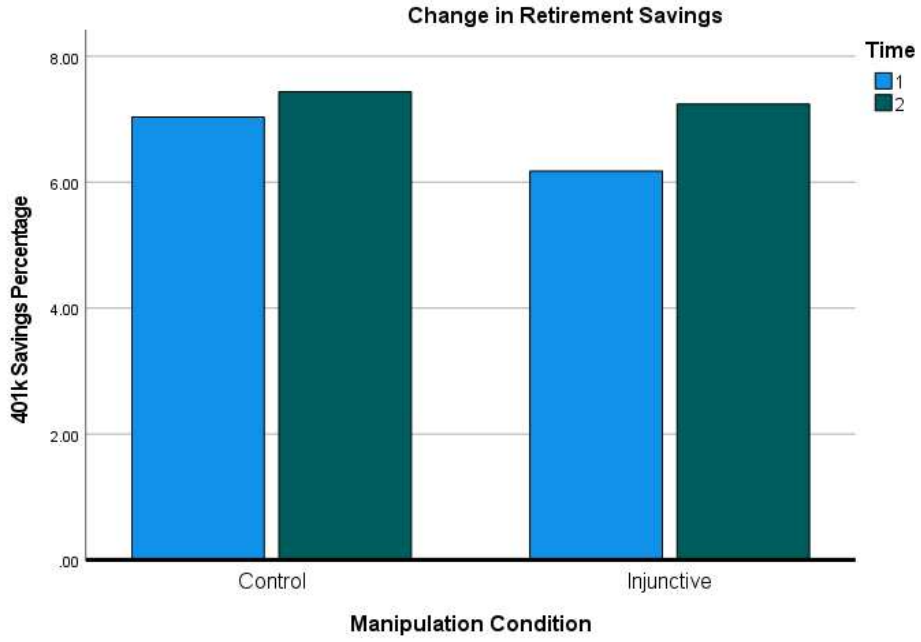


Figure 2 show the result of the repeated measures ANOVA for the injunctive case H1b: Injunctive $F(1, 226) = 2.70$, $p = .10$, $\eta^2 = .01$. As can be seen, while not statistically significant, the means increased more in the injunctive case than in the control. Control increased by40 basis points, while the injunctive group increased their retirement savings by 106 basis points.

Figure 2



I surmise that the difference has to do with the sample size necessary to achieve statistical significance.

Hypothesis 2 posited that an increase in retirement savings would be positively related to an increase in financial wellness. To test this hypothesis, I conducted a moderated mediation regression using the Process 4.0 from Andrew Hayes. My regression used future financial expectations at time 2 as my dependent variable. The implication for hypotheses 1 and 2 was that the relationship between time 1 retirement savings and future wellness would be mediated by retirement savings at time 2, and that this mediated relationship would be moderated by the manipulation conditions. Therefore, I ran the full model in a regression. Hypothesis 2 was supported by my results as the 401k savings in time two was a statistically significant predictor of financial wellness in time two (B=0.07, $p<.001$; see Table 4). As can be seen from Table 4, there was a statistically significant, negative relationship between the descriptive norm condition and 401k savings at time 1 (control == 0; descriptive norm = 1) which indicates that savings rates at time 1 were significantly higher for the control group than the descriptive norm group. This was not expected given the random assignment to conditions.

Table 4. Moderated Mediation Analysis

	Mediator		Dependent	
	401k T2		Future financial expectations	
	B	*SE*	*B*	*SE*
[1]Constant	6.77***	0.66		
401k Time 1	.10	0.08		
Descriptive Norm	-2.75***	1.13		
Injunctive Norm	-.66	1.05		
401k Time 1 × Descriptive Norm	.34**	0.15		
401k Time 1 × Injunctive Norm	.09	.13		
[2]Constant			3.33***	.099
401k Time 1			-.008	.010
401k Time 2			.07***	.01
R^2	0.06		.15	
Moderator: Manipulation	Effect	SE	Lower CI	Upper CI
Control Condition	.0073	.007	-.006	.022
Descriptive Norm Condition	.0331	.012	.010	.057
Injunctive Norm Condition	.0137	.009	-.004	.034
Note. *N*=311 Descriptive norm compared to control; Injunctive Norm compared to control				

One issue I had when examining the data was that there were potential problems with the self-reported nature of the information on retirement savings. The problems had to do with the consistency of the reported savings rates by participants. Participants estimated savings rates over time that appeared to be illogical, especially in time three. Consequently, I focused my analyses on time one versus time two data. This was primarily because I asked savings intention information at time 2, but not in time 3, and could examine this in parallel with the retirement savings data. Acknowledging that retirement data may suffer due to potential problems with self-reported data being misrepresented, I retested hypotheses 1a and 1b using savings intention versus reported

savings rates. This would be consistent with Croy et.al. 2010, as they tested savings intentions with the assumption that savings intentions would translate into savings behavior. In the case of intention, both of my hypotheses are supported. Hypothesis 1a and 1b using intentions as the outcome were supported: $F(2, 298) = 19.9$, $p < .001$, $\eta^2 = .06$. The eta squared would suggest that 6% of the variance in intention was explained by the manipulation. As seen in Table 2, the change in intentions from time 1 to time 2 was significantly stronger in the descriptive and injunctive norms than in the control condition.

Hypothesis 3 suggested that income will moderate the relationship between the descriptive norm and retirement savings relative to control such that participants reporting lower levels of income should be most receptive to the descriptive norm. To test this hypothesis, I conducted a test of moderation between Time 1 savings and Time 2 savings moderated by financial literacy and income. I conducted this test, using only those participants who were in the descriptive norm group, and answered the manipulation correctly. My research showed these relationships to be not supported (see Table 5). For hypothesis 3, the regression model revealed income to have minimal effect size B = .02, $p = .52$. The interaction effect of income and the descriptive norm was similarly minimal B = -.02, $p = .36$.

Table 5

	401k Time 2			
	B	*SE*	*b*	*P*
Constant	4.07	2.45		.10
401k Time 1	.19*	.07	.20*	.01
Descriptive Norm	1.42	1.72	.14	.41
Financial Literacy	.62	.62	.21	.31
Income	.02	.02	.13	.52
Income × Descriptive Norm	-..02	.02	-.21	.36
Financial Literacy × Descriptive Norm	-.40	.46	-.21	.39
R^2	.05			
Note: *N* = 222 * = *p , .05 Descriptive norm compared to control*				

Hypothesis 4 suggested that income will moderate the relationship between the injunctive norm and retirement savings relative to control such that participants reporting higher levels of income should be more receptive to the injunctive norm. To test this hypothesis, I conducted a test of moderation between Time 1 savings and Time 2 savings moderated by financial literacy and income. I conducted this test, using only those participants who were in the injunctive norm group, and answered the manipulation correctly (see Table 6). My research showed these relationships to be not supported. The regression model revealed a small effect income B = .01, *p* = .46. The interaction term was also not statistically significant (B = -.01, *p* = .15).

Table 6

	401k Time 2			
	B	*SE*	*b*	*P*
Constant	4.85*	1.17		.01
401k Time 1	.14*	.07	.15*	.04
Injunctive Norm	1.03	.90	.20	.25
Financial Literacy	.26	.01	.08	.54
Income	.01	.02	.11	.46
Income × Injunctive Norm	-.01	.01	-.26	.15
Financial Literacy × Injunctive Norm	-.08	.22	-.07	.73
R^2	.04			
Note: *N* = 228 * = *p , .05 Injunctive norm compared to control*				

Hypothesis 5 suggested that financial literacy will have an inverse moderating effect on the relationship between the effect of the descriptive norm and increases in retirement savings relative to control. The idea being that individuals with low financial literacy will have a greater likelihood of being influence by group behavior. I tested hypothesis 5 using a regression of the relationship between retirement saving at time 1 and time 2 with the moderation of financial literacy. My results did not support that hypothesis. I found no relationship between financial literacy and retirement savings for either main effect or the interaction (see Table 7).

Table 7

	401k Time 2			
	B	*SE*	*b*	*P*
Constant	5.03*	1.90		.01
401k Time 1	.19*	.07	.19	.01
Descriptive	.50	1.36	.05	.71
Financial Literacy	.65	.62	.23	..29
Financial Literacy × Descriptive	-.43	.46	-.23	.35
R^2	.05			
Note: *N* = 222 * = *p , .05 Descriptive norm compared to control*				

Hypothesis 6 suggested that financial literacy will moderate the relationship between the effect of the injunctive norm and increases in retirement savings relative to control. The idea being that people with a high degree of financial literacy are less likely to be swayed by expert advice. I tested hypothesis 6 using a regression of the relationship between retirement saving at time 1 and time 2 with the moderation of financial literacy. My results did not support that hypothesis. I found no relationship between financial literacy and retirement savings for any of the conditions (see Table 8).

Table 8

	401k Time 2			
	B	*SE*	*b*	*P*
Constant	5.71*	1.39		.00
401k Time 1	.14*	.07	.15	.04
Injunctive	.26	.72	.05	.72
Financial Literacy	.28	.42	.09	.52
Financial Literacy × Injunctive	-.10	.23	-.08	.67
R^2	.02			
Note: *N* = 228 * = *p , .05 Injunctive norm compared to control*				

CHAPTER VI

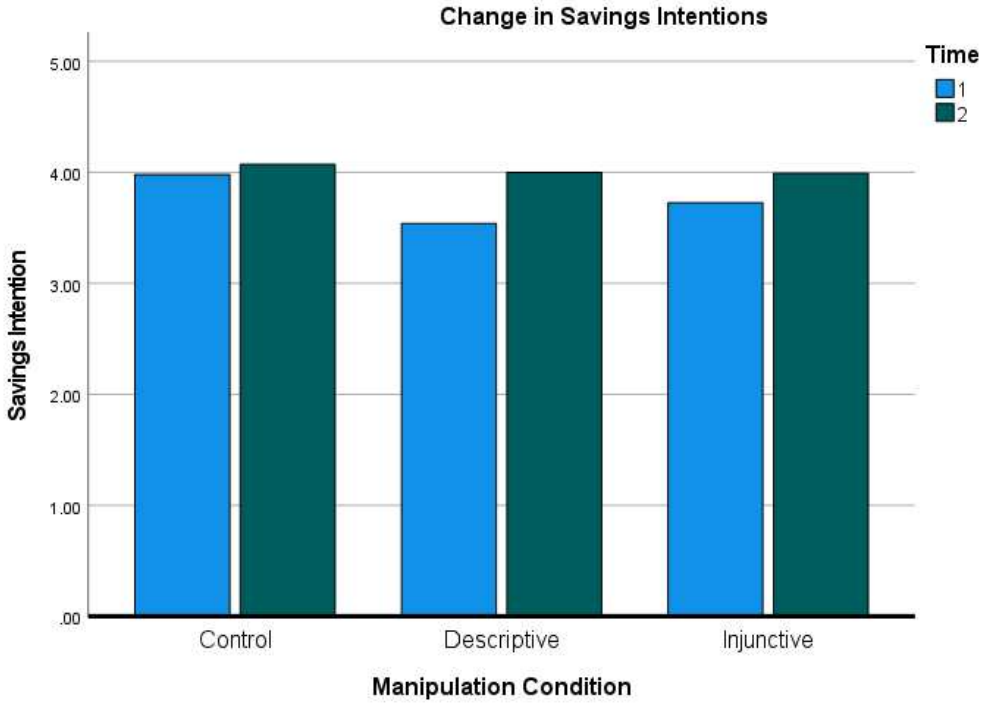
CONCLUSIONS

My research suggests that social norms can motivate people to save more for retirement, though the effect size was small. My results did show that financial wellness, both current wellness and future financial expectations, are influenced by retirement savings. The results of the present study suggest that a continued effort to induce motivation to increase retirement savings is warranted, as it leads to better perceived outcomes. Neither financial literacy nor income were shown to be a significant influence on these relationships.

I did obtain evidence that the intention to save more in the future is positively influenced by social norms. My research revealed a small effect size on retirement savings, but a much larger. My research revealed a small effect size on retirement savings,

but a much larger effect size for savings intentions. As was suggested by Croy (2010), based on the work of social scientists such as Ajzen (1985), intentions do translate to behavior. This creates a conundrum worthy of future exploration. Do retirement savings intentions truly translate into retirement savings and at what rate? And if so, how can we increase the motivational effect of social messaging to create motivation to increase actual savings? As Choi (2001) found 68% of people believe they should save more, versus only 2% who believe they save too much. This is consistent with my findings whereby I found intentions to be relatively high and increased after the manipulation. Although not hypothesized, I ran a supplemental repeated measures ANOVA to examine intentions over time because of the manipulation. Specifically, I compared the mean intention at time 2 versus the mean intention at time 1. As seen in Figure 3, the mean intention changes for the control group increased by .07, for the descriptive group by .43, and for the injunctive group by .30. These levels were statistically significant $F(2, 315) = 3.48$, p .03, $\eta 2 = .06$.

Figure 3



Croy did not investigate the concept of translation of intention to financial behavior financial intentions. My contention is that there are numerous potential roadblocks along this path. Croy did see a lack of follow through regarding 401k rebalancing decisions (the annual decision regarding the proper allocation of retirement assets). The reason for this difference is a 401k contribution is a one-time decision for many individuals while management of an individual's allocation decision requires continuous attention. In my study, I recognized the potential that seasonality may play a role in why savings may not follow intention. The timing of the intervention could have delayed potential implementation. The present study was conducted at the end of the third quarter of the year. Normally, people make retirement decisions either in the late fourth quarter when their companies do their annual reenrollment, or in the first quarter when they get their annual statements. This contrast may be an explanation why the effects involving intentions were stronger than actual retirement savings. Intentions to increase savings for

the control group increase by about 0.07, whereas intentions were higher in both the descriptive and injunctive categories by .42 and .30, respectively

I did observe a positive relationship from the introduction of the benefits of increasing retirement savings. Showing the video with the manipulation was related to both the retirement savings and intention to save more. This was statistically significant in terms of the social norm manipulation, but the effect size was small. As seen in the figure below, each condition showed an increase in savings rates from time 1 to time 2. It appeared that people reacted to the making the topic salient, as well as to the social messaging.

The descriptive norm group had the intention to increase savings but lacked the motivation to implement a larger increase in retirement savings rate. While the descriptive norm group showed gains they still fell below the descriptive norm. Our descriptive norm informed participants that the average American saved 7% of salary toward retirement. Our participants were near that level, so the descriptive norm carried minimal information for them. In fact, there is a strong possibility that knowing they were already at the group average, they were incented not to increase savings, as their savings rate was already aligned with group behaviors.

The largest increase in savings rates were observed in the injunctive norm group. These savings gains while relatively large when compared to the other two conditions still fell short of the expert recommendations. One potential explanation is that 15% was too far a reach for a large percentage of our sample. People saving 7% on average may be hesitant to essentially double their rate of savings. Our participants had a mean retirement

contribution of $5,000 per year with mean income of $68,500. A move toward the injunctive norm of 15% would require an additional contribution of an additional $5,300 per year, or roughly $850 per month. This may prove to be too large a move in one step. This explains why many 401k plans have an auto-escalate provision that increases a participant's contribution by 1% per year. The goal is to increase up to the target, but it may take several years to avoid a large disruption in a participant's standard of living. The positive was the relationship between the savings rate and the manipulation was positive. By testing other avenues of influence there may be something gained through this approach.

An important finding of my research is that this study confirms what was described by Fernandes, Lynch and Netemeyer (2014) that financial literacy is insufficient to incent action by individuals to save for retirement. Although my sample group was low in their financial literacy, I obtained no difference between the level of financial literacy and the savings behavior of the participants. My findings have a great deal of relevance for companies, who spend billions on educational programs which according to my research have a limited impact on participant behavior. They would be better off focusing efforts on keeping retirement savings decisions salient. If companies want to spend money on building financial awareness, the effort would be more impactful if directed at short term financial decisions, whereas reminders of the benefits of savings need be put forth often, especially around times in which investment decisions are relevant such as enrollment dates and annual statement dates.

It was somewhat surprising that income was not related to savings rates for any of the conditions because I had hypothesized there are certain conditions which affect high

income savers, such as savings limits, which should have influenced their behavior. Similarly, I expected that low-income savers would not be swayed by the injunctive norm as it may be perceived as too expensive from a current spending capacity to be effective. However, the relationship between income and retirement savings proved to be non-significant about either of the social norm conditions. I believe that the lack of a significant increase in savings comes down to a capacity issue. Although I did not measure capacity, it may be that many participants in my sample could not, in their estimation, afford to save more. Participants making under $40,000 in my study saved an average of 5%. This would be close to the descriptive, but 10% shy of the injunctive norm. I did try several combinations of the data including only people saving less than 5%, but income was still not significant predictors of retirement savings.

The finding regarding income is problematic from a purely implementation perspective. Individuals reporting lower income levels save less than those at higher income levels, which suggests that they need the help more than those in higher income brackets. My study found individuals one standard deviation below the mean of income saved at only 5% on average versus 7.3% for the full sample. This is consistent with industry estimates. Capacity may play a role in influencing the willingness to shift current consumption to savings. Ways to motivate lower earners will be important for industry, as this is the area most in need of the help. However, people in the lowest income levels may need more in the way of social programs to aid in their retirement preparations as they may lack the capacity to increase savings on their own.

CHAPTER VII

LIMITATIONS

My study had several potential limitations. First, although they can be accurate and valid, samples from MTurk do come with some concern about the accuracy of the responses (Sharpe Wessling, Huber and Netzler 2017). I put systems in place to flag cases of poor quality such as logic checks regarding contribution levels. Nevertheless, nearly 50% of the sample failed the manipulation check which is evidence that there may be issues with motivation. Although we had a significant sample size and attention checks throughout the first survey, it is possible that one of the reasons that retirement savings were not predicted by the response to social norms was due to the sample rather than the lack of information contained in the social norms.

An additional limitation is dealing with self-reported information and for the present study in particular, the experimenter expectancies or demand characteristics. Participants may have responded in a way that they thought the researcher wanted them to respond rather than how they behave (Bowman and Delucia 1992). There are also issues regarding the accuracy of recall and the extent to which participants know how much they save for retirement. These self-reported biases could potentially influence the

accuracy of data collection and presents threats to internal validity. In the case of my survey, there were some participants that provided variability in their self-reported retirement savings over time that was not possible. Indeed, savings rates at time 1 were significantly higher in the control group than the descriptive norm group. Given that I applied random assignment, I would have expected savings rates at time 1 to be equal across the groups. I collected savings rates after the manipulation was introduced but one would not expect the manipulation to influence savings rates since those are verifiable information. It may indeed be that this was not a conscious decision to give bad data, rather, it may be that they don't know how much they save and were simply guessing. Working directly with a company that records actual savings rates may be more accurate and might eliminate the need for self-reported savings. For example, the company could provide reports of actual 401k contributions which could be compared with their self-reported savings. It is entirely possible that individuals don't have a firm grasp on what they contribute to their 401k plan and working with a company to obtain a secondary check of that information could prove helpful. To help mitigate the negative effects of self-reported data, I eliminated those who failed the manipulation check, failed the attention checks, and provided responses to the 401k contribution questions that were above legal limits. Thus, there was a serious attempt at eliminating dirty data (DeSimone, Justin, & Harms, 2018) to capture more valid and accurate responses.

Another potential limitation was that our sample population exhibited lower financial literacy than published rates of literacy. Our average score of 42% on the financial literacy test was below the national average (National Financial Educators Council). People with low financial literacy may not understand the relevance of the questions asked. For example, our sample expressed a high degree of current financial wellness, yet also said they had almost twice the

national average of credit cards outstanding. Large consumer debt on unsecured credit is typically not associated with financial wellness and calls into question the validity of the self-reported data.

Another potential limitation would be timing of the current study. I conducted the first data collection effort from employees at the Midwest financial services company at a time when they were significantly distracted by a merger, thus the lack of participation (I began with 150 participants and received 24 fully completed surveys). If the timing had been better, I would have had a larger starting pool, and would have expected less attrition. Additionally, the timing of the second round of data collection occurred at the end of the third quarter. Because many people make changes to their 401k contributions at a specified time of the year (e.g., 4th quarter reenrollment or first of the year), I might not see specific behavioral changes for several more months. This could explain why results were more favorable for intentions than for actual savings behaviors.

CHAPTER VIII

FUTURE RESEARCH

Additionally, using the descriptive norm of 7% may not have been significantly motivating, as it closely aligned with current savings *M*=7.3%, SD = 4.89%. Further, the gap between expert recommendations (15%) and the group average was 1.5 standard deviations above the group mean. Future research may benefit from targeting a descriptive norm that exceeds the group mean. For example, we could provide guidance that says the descriptive norm is 10% and the injunctive is 12%. There is evidence that 10% is the single most popular 401k deferral (Bailey, Nofsinger & O'Neill 2004). Consequently, the descriptive norm could be changed to "The most popular 401k savings rate was 10%". The injunctive norm could then be tied to one standard deviation above the mean. These incremental increases in savings could be more attainable, and thus provide stronger motivation.

Exploring reasons for the difference between existing savings and intentions is especially important. Current literature suggests that intentions lead to behavior (Ajzen 1991). Ajzen's Theory of Planned behavior states that behaviors can be predicted from intentions with a few conditions. One must understand the attitude of the participant toward the behavior is question as well as the degree of control to perform on those intentions. My study suggested otherwise as it showed that although intentions increased significantly, actual retirement savings behavior did not. A study designed to explore the difference of intentions relative to financial behavior may show differences because of the effect of time horizons. One possible shortcoming in terms of behavior is the temporal orientation of participants. It is one thing to know you should begin saving for the future, but quite another to do it. Exploring factors may be the key to receptiveness to behavior. Conducting the manipulations to be aligned with open enrollment or at the start of the new year when people get their 401k statements might better align with changes to retirement benefits. Additional trigger events may align with significant life events such as the birth of a child or significant milestones such as turning 40 or 50.

I believe that timing is a significant issue which should be explored further. Is running a survey on retirement saving behavior seasonal? Could results be improved by providing social cues at a time when people are more aware of their savings balances and are able to affect them? These are two big issues that further research could address.

My study was limited to the effect on retirement savings. Looking at near-term financial behaviors may prove interesting as well. Looking at ways that credit card management, which could prove the key to unlocking capacity which could led to an increase in retirement savings. Fernandes, Lynch and Netemeyer (2014) showed that current

financial wellness was a necessary component of future financial wellness. And that both together contribute to overall financial wellness. By looking different ways to motivate people into better financial management practices such as ways to manage credit cards, how to borrow money wisely may ultimately provide a holistic view of financial management.

Another avenue for delivering and reinforcing proper financial behavior both current and long-term is through social media channels. Dufflo and Saez (2003) found nurses adjusted their behavior relative to retirement savings to adapt to perceived group norms. Could a chat group affect a similar boost in financial behaviors on a larger scale through a financial behavior forum in a social media environment. Additionally, could such a group be seeded with people who exhibit the desired behavior? These plants could act to sway the group perception of how successful behavior results in financial wellness.

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APPENDICES

Appendix 1

Measures:

Financial Wellness. Measure is divided into two sections, Current Financial Stress and Expected Future Financial Security. These questions were developed by Netemeyer et.al. 2017. Both graded on a five-point Likert scale.

Current Financial Stress: Reverse scored with 1 being "Does not describe me" to 5 being "Describes me extremely well".

1) Because of my money situation, I feel I will never have the things I want in life

2) I am behind with my finances

3) My finances control my life

4) Whenever I feel in control of my finances, something happens that sets me back

5) I am unable to enjoy life because I obsess too much about money

Future Financial Security. Scored with 1 being Does not describe me to 5 being Describes me extremely well.

1) I am becoming financially secure

2) I am securing my financial future

3) I will achieve the financial goals that I have set for myself

4) I have saved (or will be able to save) enough money to last me to the end of my life

5) I will be financially secure until the end of my life

Financial Literacy. Measure is comprised of 5 questions whereby there is a correct answer. These questions were developed by Lusardi for incorporation into the National Longitudinal Survey of Youth, administered by the Bureau of Labor Statistics. The number of correct answers will be added up, and a score from 0 (none correct) to 5 (all correct) will be accounted for.

1) Imagine you are given $1000. You have to wait one year to get the $1000. Inflation for the year is 2%. In one year's, time you will be able to buy:
Less than today

2) Suppose you have $100 in a savings account and the interest rate on the account was 2% per year. After 5 years, how much would you have in the account if you left the money in the account to grow?
More than $102

3) Buying a single company's stock usually provides a safer return than a stock mutual fund or an Exchange Traded Fund (ETF).
False

4) Imagine two college friends, Kendall, and Christina. They each invest $5000 every year at the start of the year. They each save for 10 years. Kendall begins saving immediately and saves for 10 years, then stops but allows the savings to continue to accumulate. Christina waits to start saving until she is more established, 10 years later, then saves for the next 10 years. Christina and Kendall both invest a total of $50,000. Which friend will be in a better position after 20 years?
Kendall

5) If interest rates rise, what typically happens to the prices of bonds? Do they rise, fall, stay the same or is there no relationship?
Fall

Financial Risk Tolerance. Measure is comprised of 13 questions. The questions have a variety of scoring. This series of questions was adapted from Grable (1999).

1) Your trusted friend and neighbor, an experienced biotech engineer, is putting together a group of investors to fund an exploratory coronavirus vaccine. If successful the venture could return you 50-100 times your original investment. If not, the project will go bankrupt, and you will lose your entire

investment. Your friend estimates the probability of success at 20%. if you had the money, how much would you be willing to invest?

2) In general, how would your best friend describe you as a risk taker?

3) In addition to whatever you own, you have been given $1,000. You are now asked to choose between: (Communicated as a gain alternative)

4) You are on a TV game show and can choose one of the following. Which would you take?

5) You have just finished saving for a "once in a lifetime" vacation Three weeks before you plan to leave, you lose your job. You would:

6) If you unexpectedly received $20,000 to INVEST, what would you do?

7) In terms of experience, how comfortable are you investing in stocks or stock mutual funds?

8) When you think of the work "risk" which of the following words comes to mind first?

9) Suppose some experts are predicting prices of assets such as gold, jewels, collectibles, and real estate (hard assets) to increase in value; bond prices may fall, however, experts tend to agree that government bonds are relatively safe. Most of your investment assets are now in high interest government bonds. What would you do?

10) If you had to invest $20,000, which of the following investment choices would you find most appealing?

11) Suppose a relative left you an inheritance of $100,000, stipulating in the will that you invest ALL the money in one of the following choices. Which would you choose?

12) Given the best case and worst case returns of the four investment choices below, which would you prefer?

13) In addition to whatever you own, you have been given $2,000. You are now asked to choose between: (Communicated as a loss alternative)

Consumer Social Support. Measure is comprised of 12 questions. The measure has two components: Normative and Informational. Scoring is on a seven-point Likert scale with 1 being strongly disagree to 7 being strongly agree. Adapted from Netemeyer 1989.

Normative

1) I rarely purchase the latest fashion styles until I am sure my friends approve of them.

2) It is important that others like the products and brands I buy.

3) When buying products, I generally purchase those brands that I think others will approve of.

4) If other people can see me using a product, I often purchase the brand they expect me to buy.

5) I like to know what brands and products make good impressions on others.

6) I achieve a sense of belonging by purchasing the same products and brands that others purchase.

7) If I want to be like someone, I often try to buy the same brands that they buy.

8) I often identify with other people by purchasing the same products and brands they purchase.

Informational

1) To make sure I buy the right product or brand, I often observe what others are buying and using.

2) If I have little experience with a product, I often ask my friends about the product.

3) I often consult other people to help choose the best alternative available from a product class.

4) I frequently gather information from friends and family about a product before I buy.

Financial Behavior. The critical questions in the financial behavior section are:

1) Do you participate in your company's retirement plan? For example, a 401k or 403b, etc.

2) If you answered yes to the previous question, how much do you save as a percentage of income?

   a. Uses a scale of 0% to 100%

3) Do you have savings outside of your company's retirement plan?

4) How much would you estimate you have saved currently for future retirement purposes?

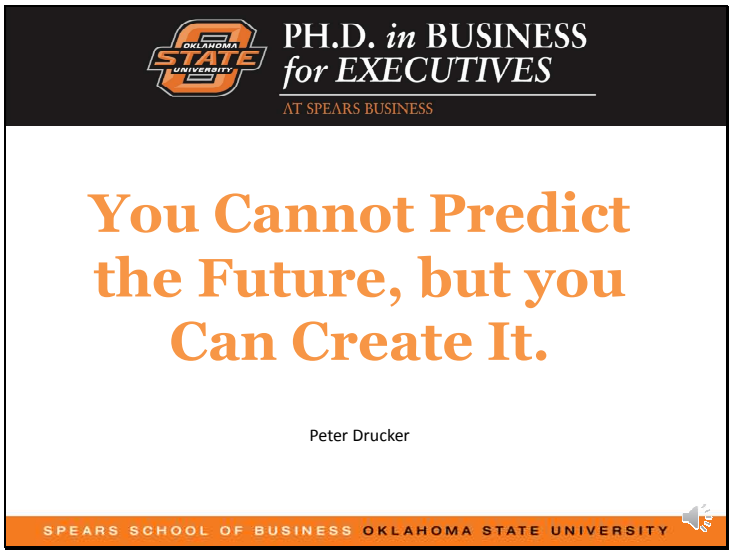
   a. This will be segmented into $10,000 increments.

In addition to the two questions above, we also ask about credit card usage, emergency savings, financial education provided by their employer, expectations for handling unexpected expenses, and knowledge of their personal FICO score.

General Demographic Information. We ask their gender, age, income, ethnicity, home profile (children).

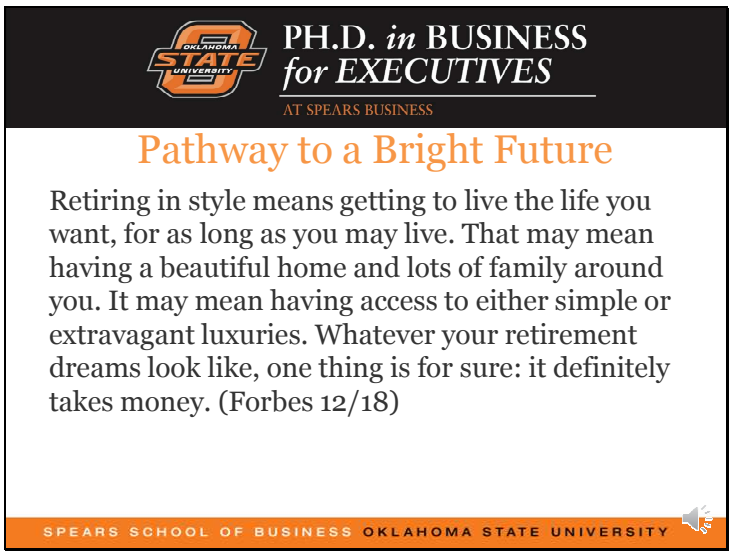
Appendix 2

Slide 1



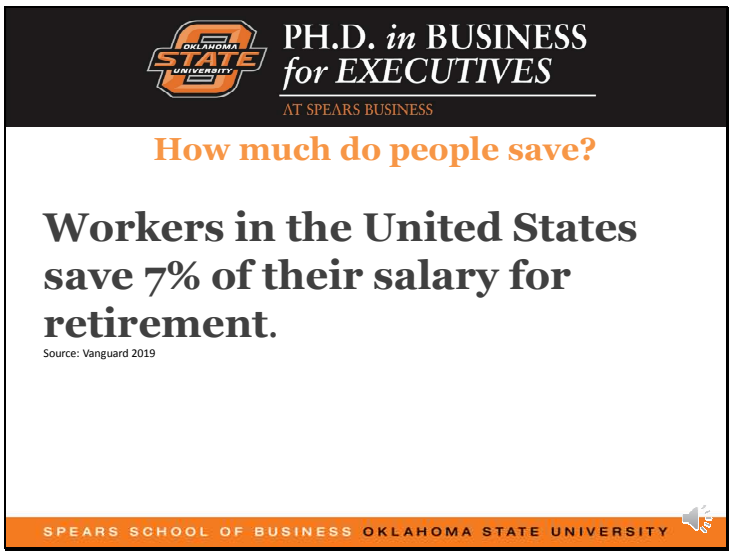
LIVING A HAPPY RETIREMENT MEANS PLANNING NOW, SO THAT YOU CAN ENJOY THE FRUITS OF YOUR LABORS.

Slide 2



AS NOTED IN A 2018 ARTICLE IN FORBES MAGAZINE, A COMFORTABLE RETIREMENT REQUIRES MONEY TO SUPPORT YOUR CHOSEN LIFESTYLE.

Slide 3

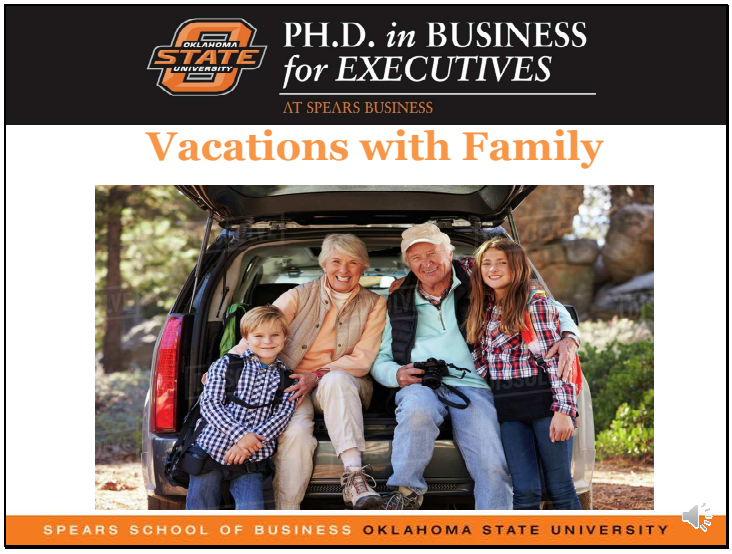


HOW MUCH SHOULD YOU SAVE IS A QUESTION FACING MANY WORKERS. THE AVERAGE WORKER IN THE UNITED STATES SAVE ABOUT 7% OF THEIR SALARY FOR RETIREMENT. THEY BELIEVE THAT SAVING THIS AMOUNT WILL HELP THEM ENJOY A COMFORTABLE RETIREMENT.

Slide 4

WHAT DOES A HAPPY RETIREMENT MEAN? IT COULD MEAN BEING ABLE TO DINE OUT WHEN YOU DESIRE.

Slide 5



IT MEANS BEING ABLE TO TAKE VACATIONS WITH FAMILY.

Slide 6

IT MEANS LIVING A HEALTHY ACTIVE LIFESTYLE.

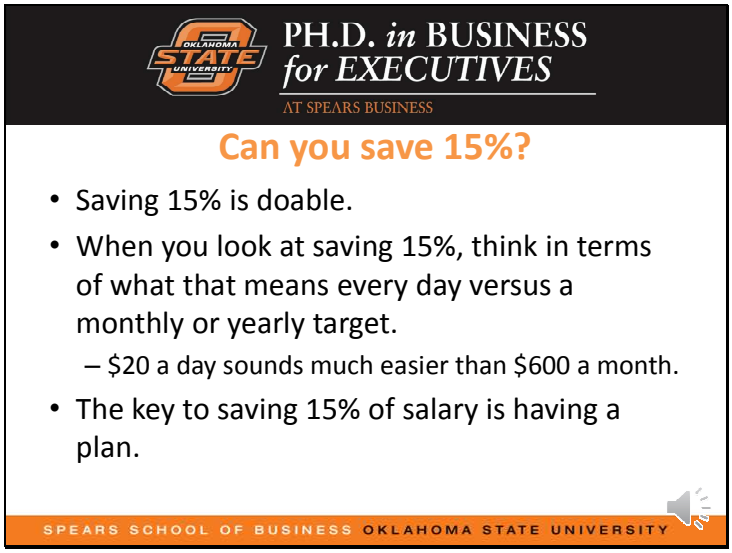
Slide 7

EACH OF THOSE IDEALS REQUIRE MONEY. SAVING FOR RETIREMENT IS SOMETHING YOU CONTROL. BY TAKING CONTROL OF YOUR FINANCES, YOU ARE GIVING A GIFT TO YOUR FUTURE SELF.

Slide 8

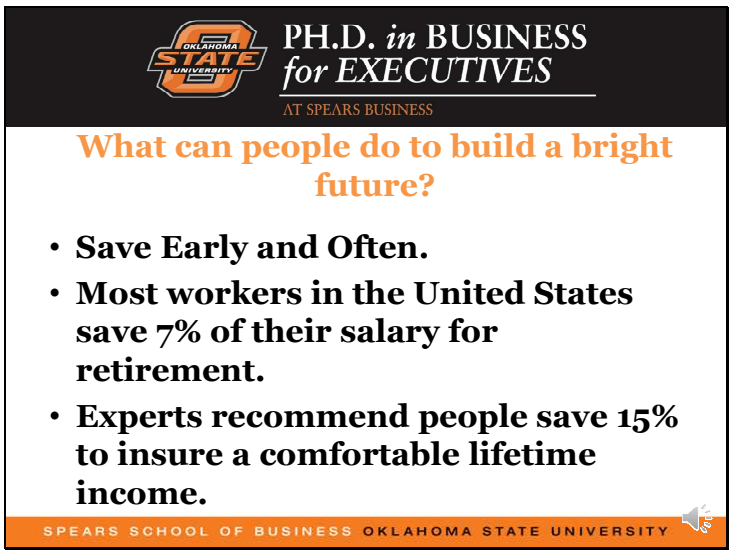
HOWEVER, 7% MAY NOT BE ENOUGH. EXPERTS GENERALLY RECOMMEND INDIVIDUALS SHOULD SAVE 15% OF THEIR SALARY. SAVING 15% OF SALARY HAS BEEN SHOWN TO GROW INTO A BALANCE CAPABLE TO FUNDING A COMFORTABLE LIFESTYLE.

Slide 9



SAVING 15% IS TOTALLY DOABLE. IT BREAKS DOWN TO ABOUT $20 PER DAY FOR SOMEONE EARNING $50,000 PER YEAR. TO ACHIEVE A 15% GOAL, YOU NEED TO MAKE A FEW CHANGES TO YOUR SPENDING HABITS. AS AN ADDED BONUS THAT 15% IS BEFORE TAXES, SO YOU PAY YOURSELF FIRST BEFORE UNCLE SAM TAKES HIS CUT.

Slide 10



SAVING TODAY PROVIDES YOU WITH A GIFT THAT WILL KEEP PAYING YOU BACK FOR YEARS TO COME. HOW DO YOU PREPARE FOR RETIREMENT, SAVE EARLY AND OFTEN. REMEMBER THE AVERAGE WORKER SAVES 7% OF THEIR SALARY TOWARD RETIREMENT. HOWEVER, AS I MENTIONED EXPERTS BELIEVE THE 15% SAVED TOWARD RETIREMNT WILL BE NECESSARY TO PROVIDE THAT COMFORTABLE LIFETIME

INCOME. I WOULD ENCOURAGE YOU TO CONTACT YOUR HUMAN RESOURCE DEPARTMENT TO REVIEW YOUR 401K AND RETIREMENT CONTRIBUTIONS.

VITA

Jeffrey R. Tyler

Candidate for the Degree of

Doctor of Philosophy

Dissertation: CAN A RISING TIDE LIFT ALL BOATS? SOCIAL NORMS INFLUENCE ON RETIREMENT SAVINGS

Major Field: Business Administration

Biographical:

Education:

Doctor of Philosophy, Business Administration (2021)
Oklahoma State University

Master of Management, Finance and Economics (1981)
J.L. Kellogg Graduate School of Management, Northwestern University

Bachelor of Arts, Business Economics and Accounting (1979)
University of California, Santa Barbara

Research Interests:

My primary research interest is in the field of Consumer Financial Decision Making

Papers under review and working papers:

Tyler J, Servi J. *Pathway to Personal Financial*

Teaching Experience:

Grand View University, Des Moines, Iowa (2021)
California State University, Long Beach, Long Beach, CA (2018)

Professional Experience:

Principal Funds Inc, Des Moines, IA Portfolio Manager (2018)
EXOS Partners, San Francisco, CA Chief Investment Officer (2011)
American Century Investments, Mountain View, CA Sr. Portfolio Manager (2009)
Citicorp Securities, San Francisco Assistant Vice President (1987)