

401(K) Retirement Plan Contribution Decision Factors: The Role of Social Norms

Jeffrey J. Bailey, University of Idaho
John R. Nofsinger, Washington State University
Michele O'Neill, University of Idaho

To improve our understanding of retirement investment decision-making, several researchers have begun to look beyond plan characteristics and demographic data to investigate behavioral and social influences on such decisions. This paper reports the findings of a study on the effects of descriptive and injunctive social norms on 401(k) contribution decisions in an experimental situation. Results show that both descriptive and injunctive social norms have strong effects on contribution decisions. Thus, the type and presentation of information provided to individuals influenced their retirement plan contribution decisions. We find a strong tendency for people to anchor to contribution levels that are multiples of five percent. We also find a strong gender effect, with men contributing significantly more than women. We discuss the implications and suggest directions for future research.

Certain events during the past few years have increased research and sponsor interest in defined contribution retirement plans. In 1993, 401(k) total contributions were already valued at about \$69 billion and exceeded defined benefit employer contributions (Bassett, Fleming, & Rodrigues, 1998). Only seven years later, at the beginning of 2001, approximately 42 million American workers held 401(k) accounts valued at nearly \$1.8 trillion (Holden & VanDerhei, 2001a). Because of the large number of workers and significant amount of assets involved, 401(k) accounts are an increasingly important component of many workers' retirement incomes. Furthermore, the gradual shift from defined benefit to defined contribution plans has made employees responsible for contribution size and allocation decisions, both of which greatly impact an employee's level of retirement income. As a result, there is increasing concern about the financial security of older Americans and inadequate savings by many individuals (Duflo & Saez, 2003). The recent bear market and a few high profile retirement plan debacles have only deepened those concerns. Consequently, the attentions of plan participants, administrators, and sponsoring companies, along with government officials and researchers, are now focused on the specific construct of defined contribution plans and the ways in which employees use these plans.

To assess the effect of economic incentives on employee retirement choices, researchers have traditionally studied the impact of tax deferral and different plan features on participation rates and contribution levels (Duflo & Saez, 2003). Only recently are studies focusing on non-economic influences to get a more complete picture of 401(k) investment behavior. Some of the non-economic influences include psychological biases, inertia, and social influences. To investigate further how such factors may influence employee contribution size and

allocation decisions, we conduct an experimental study that mimics plan decisions while manipulating potentially influencing variables. Insights gained to the resulting decision-making processes can help researchers and sponsors devise more effective retirement plans and employee education programs, i.e., ones that incorporate and accommodate decision-making influences on 401(k) investment choice behaviors.

In this paper we assess the effects of descriptive and injunctive social norms, in particular, on 401(k) participation and contribution decision-making. Cialdini, Reno, and Kallgren (1990) describe descriptive norms as the norms of what is commonly done (norms of what is) and injunctive norms as the norms of what is commonly approved or disapproved (norms of ought). They emphasize the importance of differentiating the two norms because each is a separate source of influence on individual behavior. Next, to provide background on the context and the theory for our experimental study, we briefly review 401(k) decision-making research and social norms research. Following that, we describe the design and procedures used in our experimental study, present results, and discuss implications.

401(K) DECISION VARIABLES

What elements influence employee 401(k) decision-making behavior? In their review, Bailey, Nofsinger, and O'Neill (2003) classify influences on retirement plan decisions into four broad categories: plan characteristics, employee demographic characteristics, psychological biases, and social effects.

There are many plan characteristics that influence employees' decisions regarding their participation, contribution levels, allocations, etc. For example, 401(k) plans in which the employer provides some level of matching contribution typically result in higher employee participation rates and contribution levels (Andrews, 1992; Bassett et al., 1998; Hansen, 1999; Holden & VanDerhei, 2001b). Employees are also more likely to participate when the plan includes an 'automatic enrollment' feature that requires employees to actively choose not to participate (Madrian & Shea, 2000). Portability, opportunity to borrow against the account, opportunity to make frequent changes in account allocations, and pre-retirement access to funds are additional plan characteristics found to influence employees' 401(k) decisions (Dulebohn, Murray, & Sun, 2000; Gunderson & Luchak, 2001; Holden & VanDerhei, 2001a). Moreover, sometimes plan characteristics not only influence decision-making behaviors, but also cause unintended consequences. For example, Benartzi and Thaler (2001) find that the number and type of allocation options within a plan influence decision-making behavior such that overall risk exposure is dramatically affected.

Demographic characteristics have also been examined in the context of 401(k) decision-making behavior. Participation rates and contribution levels tend to increase with age and allocation to equity funds tends to decrease with age (Bassett et al., 1998; Holden & VanDerhei, 2001b). Income level is an important determinant of employee participation in 401(k) plans, with participation rates rising as income rises (Bassett et al., 1998). Contribution levels also tend to increase with income, up to a salary of around \$80,000, at which point before-tax contribution limits reduce the percentage of salary contributed. Other demographic characteristics found to be associated with participation rates and preferences for particular plan features include gender, marital status, number of dependents, health status, education

level, and job tenure (Bassett et al., 1998; Clark & Pitts, 1999; Dulebohn et al., 2000; Gunderson & Luchak, 2001).

The field of behavioral finance has investigated several psychological biases that influence individual investors and similarly, influence employees when establishing 401(k) accounts. For example, employees often exhibit a familiarity bias, favoring investments in companies with which they are familiar. When company stock is one of the allocation options within a plan, employees show a strong bias towards allocating large portions of their accounts to such stock (Bernartzi, 2001). A status quo bias appears in employees since they often choose to make no changes to their contribution levels or allocation levels over long periods of time (Madrian & Shea, 2001; Samuelson & Zeckhauser, 1988). Framing biases also influence employees. Bernartzi and Thaler (2002) find that employee preference for an allocation option given a particular level of risk is greatly influenced by the risk levels assigned to other possible allocation options.

The fourth category of 401(k) decision-making influences that Bailey et al. (2003) identify is social influences. Of particular interest to retirement decision behavior research is studying what happens when social interactions influence financial decisions. For example, researchers may be interested in knowing if a given employee's decisions regarding participation and contribution level may be influenced by the employee's co-workers' participation and contribution levels. Of the four main categories of influences identified by Bailey, et al. (2003), social effects is the least investigated for 401(k) or similar tax deferred retirement account decision-making. However, because the influence of social norms is the primary focus in our study, we will briefly review the social norms research and connect it with the peer effects studies in retirement investment decision-making.

SOCIAL NORMS

Social norms have been found to exert a great deal of influence on individual behavior across a broad range of behaviors and social contexts: expression of prejudices (Crandall, Eshleman, & O'Brien, 2002), labor markets (Akerlof, 1982; Akerlof & Yellen, 1990; Fehr, Kirchler, Weichbold, & Gächter, 1998; Kahneman, Knetsch, & Thaler, 1986), dictator games (Hoffman, McCabe, & Smith, 1996), bilateral bargaining games (Roth, 1995), public good games (Ledyard, 1995), alcohol consumption (Prentice & Miller, 1993), expressed emotions in the workplace (Sutton, 1991), intentions to perform health behaviors (Finlay, Trafimow, & Moroi, 1999), conformity to authority (Asch, 1956), and numerous others. Obviously, many studies conclude that social norms significantly affect behaviors. There is no consensus, however, about the genesis of social norms (McAdams, 1997), the development of norms (McAdams, 1997), the explanatory and predictive value of norms (Kallgren, Reno, & Cialdini, 2000), or the specific nature of the influence norms might have on behavior in various domains (Carlson, 2001).

Cialdini et al. (1990) and Cialdini, Kallgren, and Reno (1991) address skepticism about the explanatory and predictive value of social norms for behavior by being more precise in their definition of social norms such that they define two types, descriptive and injunctive. As mentioned earlier, descriptive norms specify what is typically done in a situation. For example, the statement "Employees typically contribute 4% of their income to their pension savings" would provide information about a descriptive norm. Injunctive norms specify what is typically

approved or disapproved. Likewise, the statement "Experts believe employees should be contribute 9% of their income to their retirement savings" would provide information about an injunctive norm. In a series of studies the researchers demonstrated the importance of distinguishing between the two forms of social norms (Cialdini et al., 1991; Cialdini et al., 1990; Kallgren et al., 2000; Reno, Cialdini, & Kallgren, 1993). Thus, by defining social norms more specifically into two types and methodically demonstrating the relationships that can be expected to occur, these researchers advanced the usefulness of discerning descriptive and injunctive norms as a framework for understanding normative influence on individual behavior.

Social effects on retirement plan decisions have been investigated via "peer effects." Madrian and Shea (2000) find peer effects for both employee 401(k) decision-making and a stock purchase plan at a large U.S. corporation. Similarly, Duflo and Saez (2002) find evidence of peer effects for participation decisions and vendor choice at a large university. These studies are observational in nature, which does not allow the researchers to disentangle possible effects from other influences on behavior (Duflo & Saez, 2002). To begin to address this problem, Duflo and Saez (2003) conduct a randomized experiment at a large university on the effects of economic inducement and social interaction on employee attendance at a benefits fair. They found that for employees not previously enrolled in the tax deferred account plan, 28% of treated employees (those who were promised a financial reward of \$20) attended the fair, 15.1% of non-treated employees in the departments that had treated employees (i.e., treated departments) attended the fair, and 4.9% of employees in non-treated departments attended the fair. The treated individuals and other employees in treated departments attended at significantly higher rates than the others. The higher rates of attendance by non-treated employees who were part of a treated department can best be explained by social interactions within their departments. Eleven months after the fair, they find that being in a treated department significantly increases an individual's probability of participation, from 7.4% to 8.8%. They point out that this represents a 19% increase.

The Duflo and Saez (2003) study is significant for peer effects and ultimately, social norms effects, because it begins to provide more evidence of direct effects of social interaction on employee financial decision-behaviors. Our study is intended to complement and add to these findings by directly examining the potential influence of social norms on retirement plan decisions. We conduct an experimental, laboratory study in which we manipulate the social norm information provided to individuals. We examine whether and how different social norm information influences 401(k) contribution decisions.

METHOD

Participants

One hundred and twenty-nine upper division university students (66 women, 63 men, mean age = 22.3 years) nearing graduation volunteered to participate. Of the 129, 79 students were enrolled in a business finance class while 50 were enrolled in a business strategic management class (no student was enrolled in both classes). Ninety-one percent of the students were business majors. Volunteers were offered extra credit points towards their class grade for completing the questionnaire.

Design and Procedure

The participants responded to a questionnaire (see Appendix A) that consisted of a scenario and required a decision to be made about the amount to be contributed to a 401(k) retirement account. Included in the questionnaire were a few questions to provide us sample demographic characteristics.

The scenario informs the subjects that, across the U.S., most college students who graduate and begin their first career job choose to contribute some of their salary to a retirement account. "Percent of salary most choose to contribute" is one of two factors manipulated and represents the descriptive social norm (typical behavior in a situation). To keep the influencing variable realistic, the scenario informs that amounts contributed range between 2% and 5% (to test the impact of a 'low' level for the descriptive norm) or between 7% and 10% (to test the impact of a 'high' level). The second factor manipulated, "expert advice", tests the injunctive social norm (approved behavior in a situation). In the "low level" of this factor, there is simply no expert advice. The absence of advice is a more plausible situation than providing expert advice suggesting employees ought to contribute very little, or nothing, to one's 401(k). In the "high level" of this factor there is expert advice suggesting that employees should contribute the maximum amount of 15%. The decision outcome, i.e., the dependent variable, is the amount contributed to the 401(k) plan.

Additional information provided in the scenario instructs subjects to assume they are graduating at the end of the semester and have been offered a job. The company is completing paperwork for them and needs to know how much they will be contributing to the 401(k). There is no matching of contributions by the company, and the new job pays \$36,000 a year.

RESULTS

The frequency of the survey responses in the four samples of the low/high descriptive social norm and low/high injunctive social norm combinations are shown in Figure 1. Formal statistical analysis of the responses follows. However, we first note that one pattern stands out in all four samples. Respondents seem to favor choosing contribution levels that are multiples of 5 (0, 5, 10, and 15). While the four multiples of 5 in our sample represent only 25% of the possible choices available, they are selected 70.5% of the time (91 times out of 129).

When a respondent chose a contribution level within the range of the descriptive norm, it was most frequently the multiple of five that was in the range. For example, the low descriptive social norm sample range was 2%-5%. Figure 1, part A, shows the responses for the low descriptive social norm with no injunctive social norm. Of the 14 people who selected contribution levels within the descriptive social norm range, 8 picked 5%. In the low descriptive social norm with high injunctive social norm sample, depicted in Figure 1 part B, six of seven respondents selected 5%. A similar pattern appears in the high descriptive social norm samples shown in Figure 1 parts C and D. The most selected contribution in the high descriptive social norm range (7%-10%) is 10%. Lastly, we note that when respondents select a contribution level that is outside the descriptive social norm range and is not the injunctive social norm, it is most often a multiple of five. In the two low descriptive social norm samples, the most commonly selected contribution outside the norms is 10%. In part C,

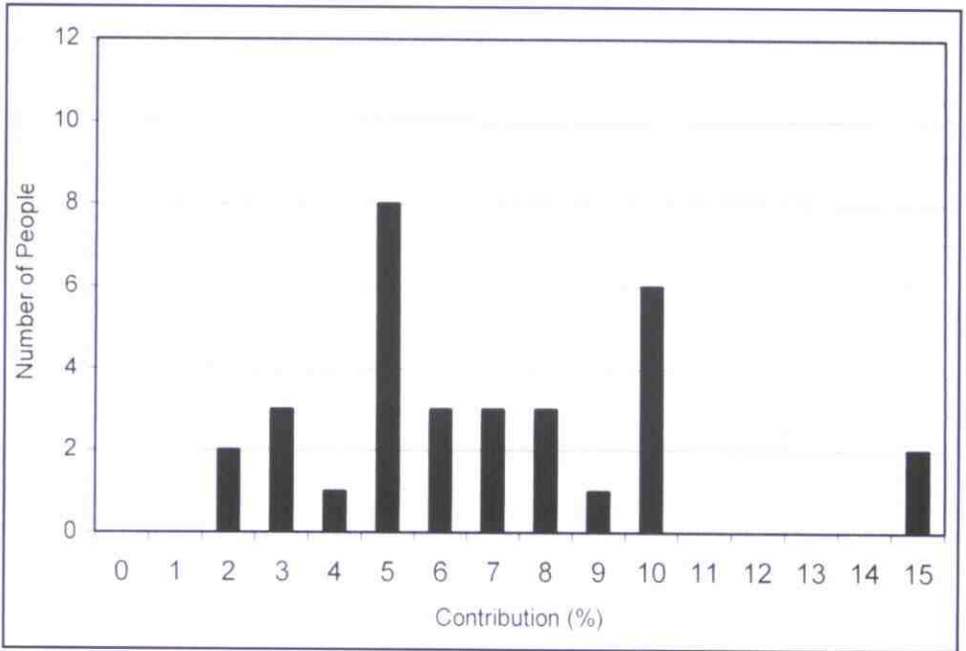


Figure 1(a). Frequency Distributions: Descriptive Social Norm 2-5%, Injunctive Social Norm none.

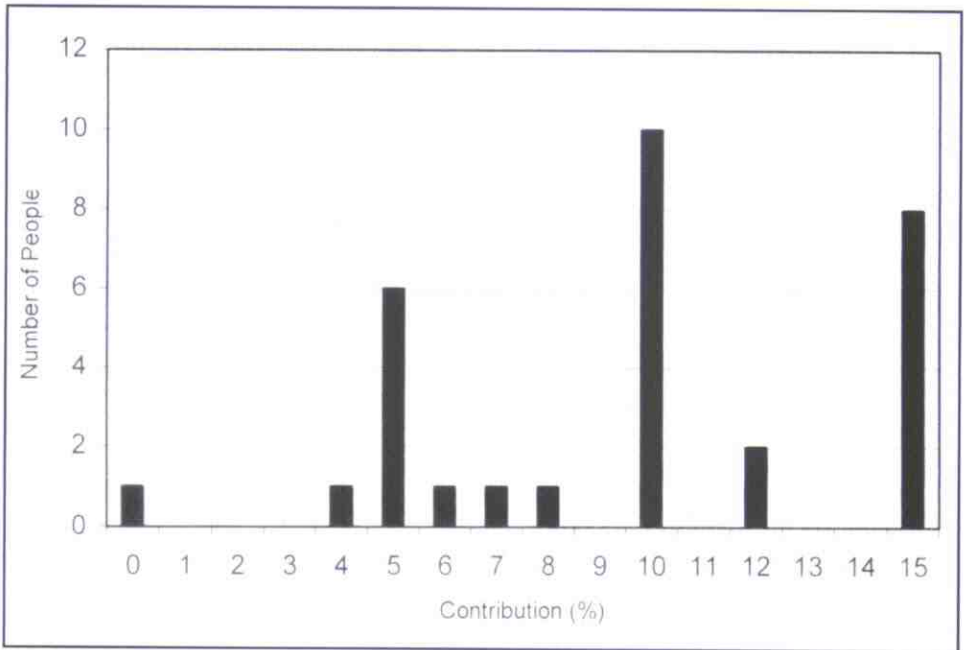


Figure 1(b). Frequency Distributions: Descriptive Social Norm 2-5%, Injunctive Social Norm 15%.

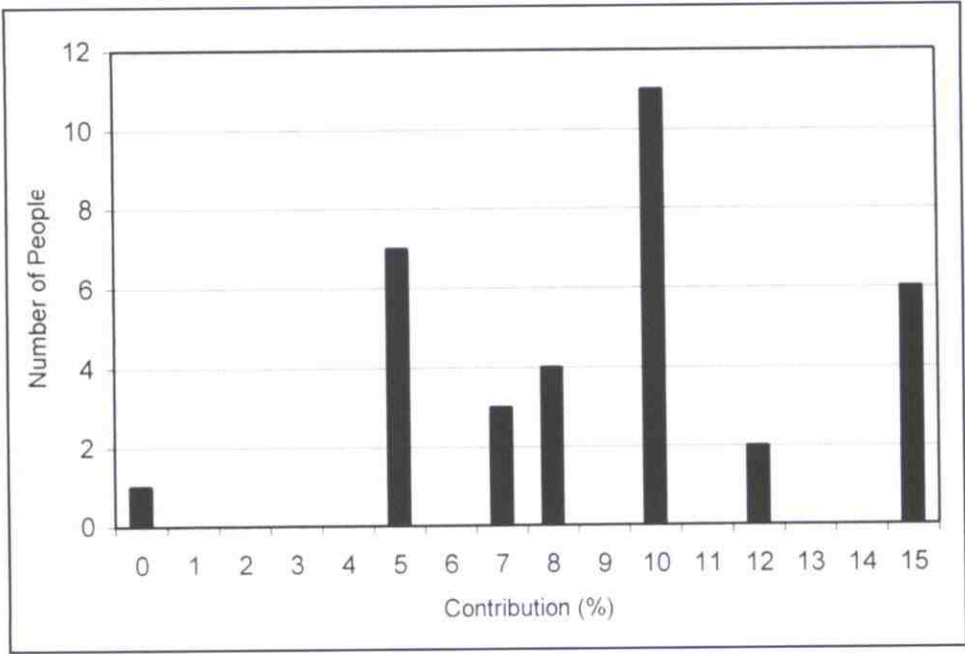


Figure 1(c). Frequency Distributions: Descriptive Social Norm 7-10%, Injunctive Social Norm none.

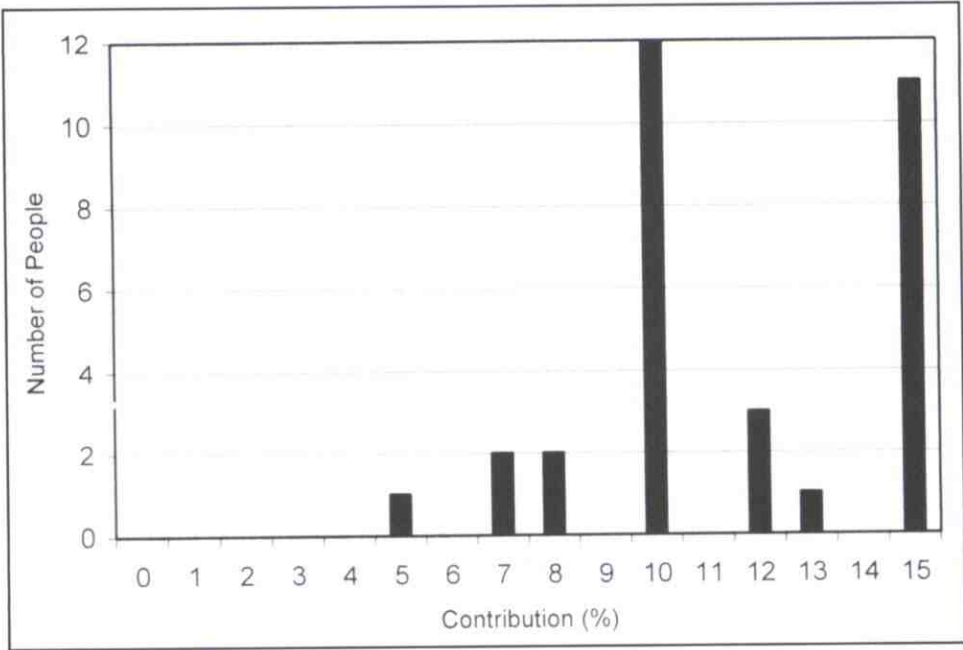


Figure 1(d). Frequency Distributions: Descriptive Social Norm 7-10%, Injunctive Social Norm 15%.

the most common level selected outside the descriptive and injunctive norms is 5%. People appear to anchor their contribution levels to multiples of five.

For our statistical tests for the effects of descriptive and injunctive norms on 401(k) contribution amounts, we analyzed the data using a two-way ANOVA, with two between-groups factors. This analysis revealed a statistically significant main effect for descriptive social norms, $F(1, 125) = 11.24; p < .001$ and a significant main effect for injunctive social norms, $F(1, 125) = 16.94, p < .0001$. The descriptive statistics are displayed in Table 1 and the analysis of variance results are displayed in Table 2. The interaction between descriptive social cues and injunctive social cues was not significant, $F(1, 125) = .13; p = .722$. Thus, it appears there is a strong main effect for both descriptive norms and injunctive norms. The norms presented to the participants had a significant effect on their own contribution levels.

TABLE 1
N Sizes, Means*, and Standard Deviations

Groupings	N	Mean	s.d.
DSN Low / ISN Low	32	6.8	3.3
DSN Low / ISN High	31	9.6	4.2
DSN High / ISN Low	34	9.2	3.7
DSN High / ISN High	32	11.5	3.0
DSN Low (combined)	63	8.2	4.0
DSN High (combined)	66	10.3	3.5
ISN Low (combined)	66	8.0	3.7
ISN High (combined)	63	10.6	3.7

DSN Descriptive Social Norm (low = 2-5%, high = 7-10%)

ISN Injunctive Social Norm (low = none, high = 15%)

* Means are of percentage of salary contributed to a 401(k)

TABLE 2
Analysis of Variance for Descriptive Social Norms and Injunctive Social Norms

Source	SS	df	MS	F
Descriptive Social Norm	141.6	1	141.6	11.24*
Injunctive Social Norm	213.4	1	213.4	16.94**
DSN × ISN	1.6	1	1.6	.13
Error	1574.2	125	12.6	

* $p < .001$

** $p < .0001$

We collected demographic data on subjects' gender, age, marital status, children, and whether or not they currently had a retirement account. Marital status and having children did not significantly influence contribution levels, but we note that there were very small numbers of married, 12 of 129, and only 6 participants had children. Also, there was no relationship

between age and contribution levels, but we note that the age of most subjects was within a few years of the mean. Hence, we probably cannot make any conclusions about the influences of age, marital status, and having children on contribution behavior. There were 20 subjects who currently had retirement accounts and they contributed an average of 11.7% while the 109 who did not have retirement accounts contributed an average of 8.9%. The difference was statistically significant at the $p < .005$ level. Finally, men contributed 10.1% and women contributed 8.5%, the difference of which was statistically significant at the $p < .05$ level.

A growing body of literature suggests that men and women often make different investment choices. Researchers are trying to identify the factors that cause these differences. While personal characteristics like experience and wealth may be important, psychological factors like risk aversion also appear important. In the context of our study, we explore the impact of gender on social norms effects. Specifically, we test a three factor $2 \times 2 \times 2$ design using gender as an independent factor to determine if gender interacts with the strong effects of social norms. The analysis revealed a significant main effect for descriptive social norms, injunctive social norms, and gender. Each of the two-way interactions and the three-way interaction was not significant. The descriptive statistics are displayed in Table 3 and the analysis of variance results are displayed in Table 4.

TABLE 3
N Sizes, Means*, and Standard Deviations

Groupings	N	Mean	s.d.
DSN Low / ISN Low / m	15	8.3	3.4
DSN Low / ISN Low / f	17	5.5	2.6
DSN Low / ISN High / m	16	10.4	4.3
DSN Low / ISN High / f	15	8.8	4.0
DSN High / ISN Low / m	20	9.4	4.1
DSN High / ISN Low / f	14	8.9	3.2
DSN High / ISN High / m	15	12.5	2.4
DSN High / ISN High / f	17	10.7	3.2
m (combined)	66	10.1	3.9
f (combined)	63	8.5	3.7

DSN Descriptive Social Norm (low = 2-5%, high = 7-10%)

ISN Injunctive Social Norm (low = none, high = 15%)

m male

f female

* Means are of percentage of salary contributed to a 401(k)

TABLE 4
Analysis of Variance for Descriptive Social Norms, Injunctive Social Norms,
and Gender Effects on 401(k) Contributions

Source	SS	df	MS	F
Descriptive Social Norm	141.6	1	141.6	11.70**
Injunctive Social Norm	213.4	1	213.4	17.63***
Gender	87.8	1	87.8	7.25*
DSN × ISN	.2	1	.2	.02
DSN × Gender	10.5	1	10.5	.87
ISN × Gender	.1	1	.1	0
DSN × ISN × Gender	12.5	1	12.5	1.03
Error	1464.6	121	12.1	

* $p < .005$

** $p < .001$

*** $p < .0001$

DISCUSSION

Using an experimental study, we find that there is a strong influence for both descriptive and injunctive social norms on the decision making of individuals choosing a contribution amount for 401(k) retirement plans. The participants who were informed of the descriptive social norm level of 7% -10% subsequently chose to contribute at significantly higher rates than participants receiving the lower descriptive social norm level of 2% -5%. Similarly, individuals informed of expert advice suggesting they ought to contribute 15%, representing the high level of injunctive social norm, chose to contribute at a significantly higher rate than participants who did not receive the expert advice. These findings suggest the importance of normative information on such decisions. Furthermore, we find no significant interactions. This indicates independent effects for descriptive and injunctive social norms as well as for gender. The results are particularly strong perhaps because the normative information was very relevant to the participant group and yet they were fairly unfamiliar with the actual norm.

The findings are consistent with earlier research in which evidence suggests that there are social effects influencing individuals' retirement investment decision making. In particular, these results complement the Duflo and Saez (2003) findings, i.e., that social interaction with co-workers contributed to attendance at a benefits fair and then subsequently benefits fair attendance contributed to Tax Deferred Account enrollment at higher levels compared with non-attendees. Our results add to research in this area because we examine the effects of social norms rather than the peer effects of social interactions. Upon first being hired, a new employee will typically be asked to make decisions about participation and contribution levels without having had any, or at least not much, coworker interaction within the new organization. In these situations a new employee may be influenced by what he/she perceives the norm to be, consistent with what we find in this study. We also use an experimental

setting to more directly address causal relationships. While there are benefits associated with isolating causal effects in an experimental, laboratory study, there are also serious limitations, such as external generalizability issues, which are addressed below.

Our data also appear to support the notion that large changes in retirement savings behavior can be motivated by the power of suggestion, in this case the suggestion deriving from normative information. This is consistent with the support for the above notion that Madrian and Shea (2001) find using very different types of retirement savings data. Motivating changes in saving behavior is considered very important to the national economy and economic health of families and has generally been a concern of public policy makers for some time (Summers, 2000).

Our results also serve to suggest the possible usefulness of social norms management efforts to get non-participating employees to participate and contribute more to a 401(k) plan. The concept of social norms management basically refers to purposeful attempts to change the perceived norms of a group of individuals. There is a growing amount of research developing this concept but none has focused on retirement plan participation. Common to these social norms management efforts is the desire to get more people to behave in ways that are beneficial to them. Primarily this has been done through a process of informing these individuals about existing descriptive norms, which are different from their less beneficial, misperceived norms regarding a particular behavior. These efforts are geared towards getting accurate normative information out to individuals with the intention that the more accurate beliefs will lead to more beneficial behavior. There are reasons to expect that social norms may play a role in individual 401(k) decision-making. The plans can seem tedious, and many (if not most) employees are unfamiliar with retirement plan language and investment principles. As a result, it is reasonable to expect that many individuals may be guided in their 401(k) decision-making behavior by others in the form of normative information and interaction with co-workers, family, or friends. For these individuals, both descriptive and injunctive social norms may be not only effective influences, but also, welcomed influences.

Examples of successful application of social norms management efforts can be found on many university campuses across the U.S. Social norms management efforts have been employed as a central component of programs aimed at reducing student alcohol consumption behavior (Carter & Kahnweiler, 2000). Researchers have found that students generally misperceive the norm concerning alcohol consumption such that they think others are consuming more alcohol than is really the case (e.g., Prentice & Miller, 1993). Many students have reduced their alcohol consumption because of education and the active promotion of a more accurate understanding of the actual norms regarding alcohol consumption levels (e.g., Haines & Spear, 1996). The strong influence of social norms, both descriptive and injunctive, on the contribution levels found in the present study suggests the importance of this normative information to the retirement saving decision process. The implication is that social norms management may be quite successful at positively influencing the decisions of new employees or employees who are currently not participating or who are contributing at low levels in company sponsored 401(k) plans.

Some social norms management efforts have also involved attempts to create or manage injunctive norms (as compared with management of descriptive norm awareness discussed

above). Such efforts attempt to get individuals to recycle, to not smoke cigarettes, to use seatbelts in automobiles, or otherwise engage in beneficial behaviors because it is a good thing to do and what one ought to do. One area of on-going discussion about the usefulness of such social norms management is found in the legal literature where it is being viewed as a possible non-legal regulatory tool to actively influence pro-social behaviors (cf., McAdams, 1997; Carlson, 2001). In particular, there is interest in how to encourage behavior associated with large number, small payoff collective action problems such as recycling (Carlson, 2001). Similarly, our finding that injunctive norms have a strong influence on retirement savings behavior suggests that this type of "injunctive social norms management" effort may be quite successful in promoting beneficial levels of retirement savings in a non-legal and non-economic manner. Plan sponsors, consumer-group advocates, and labor union officials interested in affecting participation rates, allocation amounts, or fund allocations, to name a few areas, may want to investigate this topic area further in order to develop effective retirement plan designs and enrollment procedures.

We find, too, that women decide to contribute less than men. On average, women contributed 8.5% of their salary while men contributed 10.1%. This is consistent with Bajtelsmit, Bernasek, and Jianakoplos (1999), who find that women show greater relative risk aversion in their allocation of wealth into defined contribution pension assets. Also, Hinz, McCarthy, and Turner (1997) examine a survey of U.S. federal government employees and their decisions in the pension plan, the Thrift Savings Plan (TSP). They report that lower percentages of women than men contribute to the TSP plan, 62% versus 75%. When women did contribute to the plan, they selected less risky investment options. Only 28% of females contributing to the plan allocated money to common stocks compared to 45% for males. Similarly, Bajtelsmit and Jianakoplos (2000) report that in 1998, comparing allocations of assets within defined contribution accounts between employed women and employed men, 20% of the women and 14% of the men invested most of their account balances in low-risk, low-return assets. Interestingly, also by 1998, nearly similar percentages of employed men (44%) and employed women (41%) had their defined contribution plans invested mostly in stocks. As a consequence of lower salaries and/or differences in investment decisions, as well as other factors, employed women had lower average accumulations in their defined contribution accounts than employed men.

Identifying the apparent higher risk aversion in women does not necessarily explain it. Indeed, Bajtelsmit and Bernasek (1996) discuss several sources for the gender differences in risk aversion. There could be economic explanations. For instance, women typically have lower incomes and less total wealth. Or, there could be differences in financial experience between men and women. If women have less experience dealing with financial matters than men, they will not be as comfortable taking financial risk. Lastly, there may be psychological reasons for the gender difference in risk aversion. For example, Barber and Odean (2001) postulate that on average, women are less confident than men in investing. They examine the trades in 38,000 brokerage accounts and find evidence consistent with their hypothesis. Specifically, women investors hold less risky stocks and trade less than men investors. Overall, the evidence seems to suggest that women may have a slightly higher level of risk aversion, on average, as compared to men, when it comes to investments in defined contribution retirement plans. What makes these findings puzzling to us is that women have

a higher life expectancy than men. Therefore, women need to acquire more wealth in order to maintain the same standard of living longer.

While our sample has some limitations, it also has some advantages. The undergraduate students surveyed are mostly of traditional college student age and at public universities. Therefore, it is not likely that there are large differences between the men and women in their income, wealth, and financial experience. Likewise, the scenario stated that each person was to assume he/she was starting the job at a salary of \$36,000. Thus, there were no differences in the income levels assumed when making the contribution decision. The differences in choices concerning contribution levels by men and women could be psychological in nature, but we cannot test whether the root cause is cultural or biological.

The participants who already had a retirement account chose to contribute at a significantly higher level than those participants who did not have a retirement account. One reason for this could be that people with retirement accounts, having already demonstrated an interest in such retirement saving, may have a more favorable attitude toward saving for retirement. Bajtelsmit and Jianakoplos (2001) find that households with defined contribution pension plans with investment choice were more likely to hold stock outside of their pensions than households without defined contribution plans. They find that having a defined benefit pension plan had no statistically significant impact on stock ownership. They suggest that the investment allocation decision-making involved in defined contribution plans makes these participants more informed and familiar with investment decisions and leads to stock ownership outside the retirement plan. A similar familiarity effect may explain why participants in the current study who had retirement accounts indicated that they would contribute at significantly higher levels than those without retirement accounts.

CONCLUSIONS

The results of this experimental study, while of course subject to the usual caveats applied to experimental research, indicate that the contribution level decisions were strongly influenced by the information presented to the participant. Participant's decisions about how much to contribute to a retirement account was partially determined by the levels they were informed that similar others contribute to their retirement accounts and by expert advice to contribute at a given level. Hence, both descriptive and injunctive social norms had strong effects on contribution decisions. We had two additional findings. First, participants had a strong tendency to anchor their contribution levels on multiples of five percent. Second, the amounts that men indicated they would contribute were significantly higher than the amounts that women indicated they would contribute. This study adds to the growing evidence of the important influence that non-economic factors have on individual retirement savings behavior.

There are some important limitations to this study. The extent to which these results can be generalized to employees is not clear. The use of students as participants in a simulated 401(k) contribution task creates potential bias. It is clearly easier for students to contribute more in an experiment because there is no real cost associated with it. In contrast to this, actual contribution decisions to contribute more result in reduced current consumption opportunities. This study really needs a form of replication with employees making decisions about their real money. There are several ethical considerations and particular cautions that

would be required of such research. Although it can be argued that most of the study participants lack real-world employment experience and they may not be able to "relate" to retirement plan decisions, we suggest that they do constitute an adequate and useful sample. Many of these participants were graduating within months of this study and as such, were seeking full-time employment. These are people entering the workforce. Plan sponsors must serve and inform a broad spectrum of employees, not the least of which are new hires. Indeed, one way to address national concerns about the current condition of retirement plans and recipients may be to apply social norm management techniques as individuals begin their careers.

Another limitation of this study is that while controlling for the effects of a few variables of interest, we also miss potential interactions with numerous other considerations that influence retirement savings behavior. For example, from previous research we know that plan characteristics and demographic information (such as financial situation) influence retirement savings behavior. The complexity of the many variables that influence such behavior is not well modeled in laboratory studies. This limitation of controlled experiments is often considered the cost associated with the ability to strictly control for the variables of interest.

Future research should be directed at examining the effects of social norms on existing employees' behavior. Will social norm information influence a current employee to participate and/or contribute at a moderate to high level? Another avenue for future research is to address issues surrounding the formation and development of normative perceptions regarding retirement savings? Only around half of all American workers are currently participating in any kind of employer-sponsored pension plan and more than 50 million American workers have no retirement savings at all (Summers, 2000). Would information about what others are doing to save for retirement and information about what everyone ought to be doing have any effect on those not currently saving for retirement? Furthermore, a direction for future research might be to study whether and how social norm influences vary across age and work tenure. Perhaps retirement plan education programs and plan characteristics need to be tailored to the age and/or workforce experience of employees because such factors influence how susceptible an individual is to different social norm stimuli. Another avenue for future research is to investigate what motivates the gender difference that was found. As women enter the workforce in record numbers and, in certain fields, on par with males, it is important to understand what drives economic differentials, especially those that can be controlled by the individuals themselves.

The number of people participating in defined contribution retirement plans is likely to continue to increase. As this occurs, there will be a continuing interest in improving our understanding of individual retirement investment decision-making.

REFERENCES

- Akerlof, G. (1982). Labor contracts as partial gift exchange. *Quarterly Journal of Economics*, 97, 543-69.
- Akerlof, G., & Yellen, J. L. (1990). The fair wage-effort hypothesis and unemployment. *Quarterly Journal of Economics*, 105, 255-83.

- Andrews, E. S. (1992). The growth and distribution of 401(k) plans. In J. Turner & D. Beller (Eds.), *Trends in Pensions* (pp. 149-176). Washington, DC: U.S. Department of Labor, Pension, and Welfare Benefits Administration.
- Asch, S. E. (1956). Studies of independence and conformity: A minority of one against a unanimous majority. *Psychological Monographs: General and Applied*, 70, 1-70.
- Barber, B., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *Quarterly Journal of Economics*, 116, 261-292.
- Bailey, J. J., Nofsinger, J., & O'Neill, M. (2003). A review of major influences on employee retirement investment decisions. *Journal of Financial Services Research*, 23, 149-65.
- Bajtelsmit, V. L. & Bernasek, A. (1996). Why do women invest differently than men? *Financial Counseling and Planning*, 7, 1-10
- Bajtelsmit, V. L., Bernasek, A., & Jianakoplos, N. A. (1999). Gender differences in defined contribution pension decisions. *Financial Services Review*, 8, 1-10.
- Bajtelsmit, V. L. & Jianakoplos, N. A. (2000). Women and pensions: A decade of progress. *EBRI Issue Brief*, No. 227. Washington, D.C.: Employee Benefits Research Institute, November.
- Bajtelsmit, V. L. & Jianakoplos, N. A. (2001). Household stock investing: Inside versus outside the retirement plan. *Benefits Quarterly*, 17(2), 49-60.
- Bassett, W. F., Fleming, M. J., & Rodrigues, A. P. (1998). How workers use 401(k) plans: The participation, contribution, and withdrawal decisions. *National Tax Journal*, 51, 263-289.
- Benartzi, S. (2001). Excessive extrapolation and the allocation of 401(k) accounts to company stock. *The Journal of Finance*, 56, 1747- 1764.
- Benartzi, S., & Thaler, R. H. (2001). Naïve diversification strategies in defined contribution saving plans. *American Economic Review*, 91, 79-98.
- Benartzi, S., & Thaler, R. H. (2002). How much is investor autonomy worth? *The Journal of Finance*, 57, 1593-1616.
- Carlson, A. E. (2001). Recycling norms. *California Law Review*, 89, 1231-1301.
- Carter, C. A., & Kahnweiler, W. M. (2000). The efficacy of the social norms approach to substance abuse prevention applied to fraternity men. *Journal of American College Health*, 49(2), 66-73.
- Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology*, 58, 1015-1026.
- Cialdini, R. B., Kallgren, C. A., & Reno, R. R. (1991). A focus theory of normative conduct. *Advances in Experimental Social Psychology*, 24, 201-234.
- Clark, R. L., & Pitts, M. M. (1999). Faculty choice of a pension plan: Defined benefit versus defined contribution. *Industrial Relations*, 38, 18-45.
- Crandall, C. S., Eshleman, A., & O'Brien, L. (2002). Social norms and the expression and suppression of prejudice: The struggle for internalization. *Journal of Personality and Social Psychology*, 82, 359-79.
- Duflo, E., & Saez, E. (2002). Participation and investment decisions in a retirement plan: The influence of colleagues' choices. *Journal of Public Economics*, 85, 121-48.
- Duflo, E., & Saez, E. (2003). The role of information and social interactions in retirement plan decisions: Evidence from a randomized experiment. *Quarterly Journal of Economics*, 118, 815-842.

- Dulebohn, J. H., Murray, B., & Sun, M. (2000). Selection among employer-sponsored pension plans: The role of individual differences. *Personnel Psychology*, *53*, 405-432.
- Fehr, E., Kirchler, E., Weichbold, A., & Gächter, S. (1998). When social norms overpower competition: Gift exchange in experimental labor markets. *Journal of Labor Economics*, *16*, 324-52.
- Finlay, K. A., Trafimow, D., & Moroi, E. (1999). The importance of subjective norms on intentions to perform health behaviors. *Journal of Applied Social Psychology*, *29*, 381-403.
- Gunderson, M., & Luchak, A. (2001). Employee preferences for pension plan features. *Journal of Labor Research*, *22*, 795-808.
- Haines, M., & Spear, S. F. (1996). Changing the perception of the norm: A strategy to decrease binge drinking among college students. *Journal of American College Health*, *45*, 134-140.
- Hansen, F. (1999, February). 401(k) – How good is yours? *Management Review*, *55*.
- Hinz, R., McCarthy, D., and Turner, J. (1997). Risk Aversion and Retirement Income Adequacy. In M. S. Gordon, O. Mitchell, & M. M. Twinney (Eds.), *Positioning pensions for the Twenty-first century* (pp. 91-103). Philadelphia: Pension Research Council and University of Pennsylvania Press.
- Hoffman, E., McCabe, K., & Smith, V. (1996). Social distance and other-regarding behavior in dictator games. *American Economic Review*, *86*, 653-60.
- Holden, S., & VanDerhei, J. (2001a). 401(k) plan asset allocation, account balances, and loan activity in 2000. *ICI Perspective*, *7*(5), 1-27.
- Holden, S., & VanDerhei, J. (2001b). Contribution behavior of 401(k) plan participants. *ICI Perspective*, *7*(4), 1-19.
- Kahneman, D., Knetsch, J., & Thaler, R. (1986). Fairness as a constraint on profit seeking: Entitlements in the market. *American Economic Review*, *76*, 728-41.
- Kallgren, C. A., Reno, R. R., & Cialdini, R. B. (2000). A focus theory of normative conduct: When norms do and do not affect behavior. *Personality and Social Psychology Bulletin*, *26*, 1002-1012.
- Ledyard, J. (1995). Public goods experiments. In J. Kagel & A. E. Roth (Eds.), *Handbook of Experimental Economics* (pp. 111-194). Princeton, NJ: Princeton University Press.
- Madrian, B. C., & Shea, D. (2000). *Peer effects and savings behavior in employer-sponsored savings plans*. Working Paper, University of Chicago.
- Madrian, B. C., & Shea, D. (2001). The power of suggestion: Inertia in 401(k) participation and savings behavior. *Quarterly Journal of Economics*, *116*, 1149-1187.
- McAdams, R. H. (1997). The origin, development, and regulation of norms. *Michigan Law Review*, *96*, 338-433.
- Prentice, D. A., & Miller, D. T. (1993). Pluralistic ignorance and alcohol use on campus: Some consequences of misperceiving the social norm. *Journal of Personality and Social Psychology*, *64*, 243-256.
- Reno, R. R., Cialdini, R. B., & Kallgren, C. A. (1993). The transsituational influence of social norms. *Journal of Personality and Social Psychology*, *64*, 104-112.
- Roth, A. (1995). Bargaining experiments. In J. Kagel & A. E. Roth (Eds.), *Handbook of experimental economics* (pp. 253-348). Princeton, NJ: Princeton University Press.
- Samuelson, P., & Zeckhauser, R. (1988). Status quo bias in decision making. *Journal of Risk and Uncertainty*, *1*, 7-59.

- Summers, L. H. (2000). *Helping America to Save More. Remarks by Treasury Secretary Lawrence H. Summers*. Treasury News Press Release LS-524, April 4.
- Sutton, R. I. (1991). Maintaining norms about expressed emotions: The case of bill collectors. *Administrative Science Quarterly*, 36, 245-268.

APPENDIX A
STIMULUS MATERIALS

Benefits Exercise

Across the United States, most college students who graduate and begin their first career job choose to contribute some of their salary to their retirement accounts. Most choose to contribute between 2% and 5% [7% and 10%] of their salary because they figure they won't miss it since they haven't had it (i.e., they haven't been used to making the money they now will make) and they also reason that dollars invested early grow to a great amount by retirement age.

What would you do? Assume you are graduating in May and that you have been offered a job with a company. The company is completing some paper work for you and needs to know if you will be contributing to your 401(k) plan and how much you wish to contribute (the company does not contribute). Your new job is paying you a yearly salary of \$36,000. [*nothing else mentioned, or...*] The company benefits advisor recommends contributing the maximum amount (15%) because the money is invested on a tax-deferred basis.

What percent of your monthly pay do you want to go into your retirement account?

_____ (from 0% to 15%)

Your major: _____

Your age: _____

Your gender: Male Female

Are you married? Yes No

Do you have children? Yes No

Do you currently have a retirement account? Yes No

Thank You