CAN SIMPLE INFORMATIONAL NUDGES INCREASE EMPLOYEE PARTICIPATION IN 401(k) PLANS?

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Voluntary supplemental retirement savings programs offer many benefits for workers, including substantial tax advantages and, in most instances, employer matching contributions. Thus, it is surprising that so many workers do not participate or do not take full advantage of an employer match. To better understand employee saving decisions, we surveyed all newly hired employees during a six month time period. We find that employees do not fully understand the advantages of participating in a tax deferred retirement savings plan. Using detailed administrative data, we analyze 401(k) participation choices of workers hired in 2008 through 2010 at Branch, Banking, and Trust (BB&T), a large national employer. We then report results from a controlled experiment whereby non-participating employees were randomly assigned to receive a detailed flyer containing information about the 401(k) plan and the value of compounding. Younger workers receiving a flyer were significantly more likely to initiate participation than their peers in the control group, while the oldest workers receiving a flyer were actually less likely to initiate participation relative to the control group. These findings highlight the potential effectiveness of informational "nudges" for non-participants. They also suggest emphasizing compounding may discourage older workers from participating, even though they may benefit from taking advantage of an employer match.

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The importance of saving for retirement is widely acknowledged, yet employers often find that many workers do not enroll in the optional retirement saving plans they offer. In a survey of all newly hired workers between December 2010 and May 2011, employees at Branch, Banking, and Trust (BB&T), a large national employer gave a variety of reasons for non- and limited participation in the 401(k) plan, including paying off credit card debt and not having enough room in one's budget to save money for retirement. Using a set of financial knowledge questions, we find many survey respondents that were not currently participating in the 401(k) plan are not aware of the full range of benefits associated with saving. These benefits include the employer match, investment growth, and the tax advantages of retirement saving.

If employees fail to save because they face budget constraints or for other reasons perceive that greater retirement saving is not in their own best interest at the present time, it may be difficult to increase participation and increasing retirement saving might actually lower lifetime utility. However, if the relatively low rate of participation for employees is attributed to inertia or lack of knowledge, a low cost intervention may be an effective tool. We show that by providing information which acts as a "nudge," employers can increase participation in their 401(k) plan.

We test the responses of workers to a simple informative nudge provided by their employer; we developed a controlled, randomized intervention for workers hired in 2008 through 2010 that were not participating in the BB&T 401(k) plan as of February 2011. The company sent informative flyers to two treatment groups while the third was the control group and did not receive any additional information. The flyers contained a message encouraging employees to take advantage of the employer match using the common catchphrase, "Don't Leave Money on the Table." In addition, the flyers highlighted the long term value of small but continuous contributions to the savings plan that were matched by the employer and one version included a statement regarding the average participation rate at the company. We find young employees, those ages 18-24 and 35-44, who received the nudge had a significantly larger increase in participation rates compared to workers of a similar age that did not receive the flyer.

This analysis begins with background information on optional (supplemental) retirement savings plans and a description of BB&T and its retirement benefits. We provide an overview of the company's orientation policies and descriptive statistics, including current participation and contribution amounts, for employees hired between 2008 and 2010. Next, we provide the results from a short survey made available to all newly hired workers at BB&T during a six month period. The survey was designed to gather information about the savings behavior and financial knowledge of workers at this firm. We then discuss the nature of the controlled experiment, the randomizing of non-participants, the information provided in the nudge, and the process of sending the nudge to employees. Finally, we present an empirical assessment of the impact of the nudge on participation rates of the employees receiving the informational flyer compared to the control group of employees.

I. Background

In large firms, newly hired employees are usually required to participate in a formal orientation program and are given considerable information concerning their employee benefits. Although many large corporations still provide their employees with defined benefit pension plans in which all full-time workers are covered by the plan, these types of plans are becoming less common. As of 2007, 63 percent of all workers had a defined contribution-401(k) plan as their only form of employer sponsored retirement savings (Munnell et al., 2009). In most cases, workers have to actively enroll in these defined contribution plans and decide what percent of their salary they wish contribute to the plan each pay period.[1] Typically, employers encourage their employees to participate in the 401(k) plan with an employer match that provides an immediate return to the employee's contribution.

In the private sector, companies usually select a financial service company to manage and administer the 401(k) plan. The plan provider often has the direct responsibility of providing workers with information on the plan and the value of using a supplemental retirement saving plan for accumulating retirement wealth. There are several advantages to the employee of saving for retirement through an employer 401(k) plan including pre-tax contributions, deferred taxation on the returns to plan assets, and the employer match.

Despite these advantages of contributing to the supplemental retirement saving plan, many newly hired workers decline to participate in company-provided 401(k) plans. Lack of participation may stem from inadequate information about the characteristics of the plan, inadequate financial literacy to understand the value of the plan, other financial considerations such as the need to pay off other debts, saving for other priorities, or the perception that they are already accumulating sufficient assets for retirement. If non-participation is due to inadequate information or a lack of financial literacy that prevents workers from understanding the long term value of early and frequent contributions in the accumulation of retirement wealth, a simple informational nudge might increase participation rates. To assess the effectiveness of an informational nudge, one first must understand characteristics of the 401(k) plan and its relationship to other company retirement policies, which employees are already contributing to the plan, and which employees have initially declined to participate in the 401(k) plan and why.

[1] Since the passage of the Pension Protection Act in 2006, many companies have begun automatically enrolling new hires in their 401(k) plans at a default level of contribution. BB&T has not adopted an automatic enrollment policy.

Both plan design and employee characteristics affect the participation rate at any given company. The two key plan design components concerning employee 401(k) retirement saving plans are the existence of an employer match and the allowance for withdrawals. On the employee side, the most critical determinant of participation is planning horizon. Employees who plan ahead for a period of five or more years are significantly more likely to participate than their more myopic coworkers (Munnell et al., 2001).

Automatic enrollment has been heralded as a cure for the low levels of participation (Madrian and Shea, 2001, Munnell et al., 2009), but interventions may also be an effective approach. Low cost informational interventions have been found to be effective in health studies. Briss et al., (2000) reviews the role of interventions designed to increase vaccination coverage and finds positive effects both clinical settings. Liebman and Luttmer (2011) conducted a field experiment to determine if a low cost intervention which provided information about social security provisions could affect retirement plans. They find that the intervention increased female labor force participation by 4 percentage points one year later, relative to the control group mean of 74 percent, providing support for the idea that informational interventions can be an effective tool to improve individual decision making.

Other studies have focused on the role of peer effects and social interactions. Duflo and Saez (2002) find that the choice to enroll in an employer sponsored retirement savings account is affected by the enrollment status of other employees within the same department. In a randomized experiment conducted at a large university, people who were exposed to employees that received more information about their 401(k) plan were more likely to participate. It was not necessary that these employees actually receive the informational intervention, just being exposed to those that did increased enrollment, highlighting the importance of social network effects (Duflo and Saez, 2003).

Non-experimental work has found that individuals imitate their peers within a variety of contexts. Beshears et al. (2011) evaluates the effect of social norms marketing (providing information about peer behavior) on retirement plan enrollment. They find that the likelihood of enrollment was negatively correlated with the magnitude of communicated peer information (i.e. peer participation was provided by age range, some age ranges had higher levels of plan participation than others). Those individuals who received the intervention and were in subgroups with relatively higher peer participation rates were less likely to initiate participate than those with relatively lower peer participation rates. The findings show that although effective in some contexts, peer effect interventions may have some weaknesses.

II. BB&T: The Company and Its Retirement Plans[2]

BB&T is a publically traded banking, insurance, and investments company and is the tenth largest financial service corporation in the United States. The company was founded in 1872 and is headquartered in Winston-Salem, North Carolina. BB&T has 31,000 employees in 12 states and in Washington D.C.[3] At BB&T, all newly hired employees participate in a company orientation program. The orientation occurs during the first two weeks of employment and includes discussion of the defined benefit and 401(k) plans.

BB&T provides employees with access to Pro Nvest, a company that has partnered with BB&T to provide retirement planning services and education. The 401(k) participant guide, discussed during the orientation, provides the employee with information about investing. The

[2] For a comprehensive discussion of the BB&T data examined in this paper, please see Clark and Morrill (2010) "Evaluating Workplace Education for New Hires."

[3] Data are from the 2010 BB&T Annual Report, accessed October 12, 2011.

guide includes formulas for calculating how much is needed for retirement, explanations of the importance of considering inflation when planning for retirement, and illustrations of compounding power. There is an extensive discussion of the tax advantages of the company sponsored retirement plan and examples demonstrating the advantage of pre-tax retirement savings. Employees are also encouraged to participate in the 401(k) plans during annual reviews.[4]

BB&T offers a traditional final average pay defined benefit plan to its full-time employees. In addition, employees are offered the option of participating in the company's 401(k) plan. Employees are eligible to participate on the first day of employment; contributions to the plan can be made the first day of the calendar month following employment. To be eligible for the matching contribution portion of the plan, the employee must be at least 21 years of age and must complete 1,000 hours of service within the 12 months following his hire date. BB&T offers a 100 percent match on the first 6 percent of compensation contributed to the plan.[5] BB&T allows employees to contribute to up to 50 percent of their pay to the plan. Employees may enroll in the plan by using BB&T's PlanTrac website or may enroll over the phone. Changes can be made on a daily basis and contribution rates can be changed at any time. Participants may invest in the Plan's core funds or in a self-directed brokerage account (available through TD Ameritrade). The plan allows for both loans and hardship withdraws.

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[4] Annual reviews for officers occur in February; for non-officers all reviews occur at the employee's one year anniversary.

[5] The match on the first 4 percent is referred to as the basic match contribution while the remaining 2 percent is called the supplemental match. The supplemental match is subject to vesting requirements which state that it may be forfeited if the employee engages in misconduct including embezzlement, theft, or larceny or engages in direct competition with the firm, unless the employee has three years of continuous employment with the firm or has reached age 65.

III. Participation and Contribution Behavior of Newly Hired Workers

BB&T hired 7,862 employees hired between January 1, 2008 and December 31, 2010. The company provided detailed, de-identified administrative data including gender, date of birth, date of hire, date of participation, date of first contribution, date of termination, job grade, compensation, deferral percentage, and contribution amounts as of February 28, 2011. Table 1 provides summary statistics of these newly hired employees. Of workers hired during this period, 47.7 percent were participating in the voluntary 401(k) retirement savings plan. Participation was higher among men, older workers, and those earning the highest salaries. Note that the majority of low salary workers are part-time employees (such as bank tellers), but are still eligible to participate in the 401(k) plan.

[Table 1]

By comparing participation rates by year of hire in Table 1, we see that participation rates are positively correlated with tenure[6]. Note that the employer match does not begin until 12 months after hire date, so that most workers hired in 2010 were not yet eligible to receive matching employer contributions. It is therefore not surprising that the participation rate among 2010 new hires that were not yet match eligible (33.5 percent) is markedly lower than for those hired in 2008 (62.6 percent), 2009 (51.5 percent), and the first two months of 2010 (52.7 percent). However, other work (Mitchell et al. 2007) has found that the existence of a match provides only a small incentive to participate. It may be that workers delay participation to coincide with the employer match, but would have contributed at an earlier time in the absence of the incentive. The last column of Table 1 presents the average contribution rates for those who have chosen to contribute to the plan.

[6] To some extent, the difference in participation rate by hire year may also reflect a pattern that those that enrolled in the 401(k) plan are less likely to leave the company; attrition over time could result in higher participation rates among those employed at an earlier date.

Figure 1 illustrates the contribution rate for new hires enrolled in the 401(k) plan as of February 28, 2011. Of the 3,595 workers that were actively contributing to a 401(k) plan, 45 percent were contributing at the 6 percent level, exactly the amount needed to receive the full employer match. Over 20 percent of those enrolled contributed amounts above the six percent level.

[Figure 1]

Many workers who do participate in the 401(k) plan do so quickly. Of the 2,574 employees hired in 2008, approximately forty percent of the 1,612 contributing 2008 hires had enrolled within the first three months of their employment. In results not shown, the participation rate increases steadily at about one to two percent per month, with a small increase in the rate once employees become eligible for the employer match[7].

Using the administrative data on all 7,862 workers hired between 2008 and 2010 and still employed as of February 28, 2011, we estimate the probability that an employee is contributing to the 401(k) plan. The results are presented in column 1 of Table 2. First, we see that workers hired earlier have higher participation rates relative to the more recent hires. Consistent with the differences in means presented in Table 1, the regression results reported in Table 2 show that among the workers hired in 2010, those that are match eligible (i.e. those that were hired in January and February of 2010) were 14.8 percentage points more likely to be participating relative to those that were not yet match eligible. We find that women are significantly less likely to be participating. Relative to workers hired between ages 25 and 44, workers age 45 and above were significantly more likely to be participating. Similarly, higher earning workers were more likely to be participating, with workers earning more than $60,000 per year having a 17.3

[7] A more detailed analysis of the contribution rates for these workers is presented in Clark and Morrill (2010) "Evaluating Workplace Education for New Hires."

percentage point higher participation rate relative to those earning between $30,000 and $60,000 per year. These results are consistent with findings in related literature (Holden and VanDerhei, 2001; Madrian and Shea, 2001).

[Table 2]

In column 2 of Table 2, we present estimates from a regression on the percent of salary contributed by employees hired between 2008 and 2010, limited to active participants only. Among the sample of participants, we see no statistically significant difference in deferral amount between workers who are not yet match-eligible and those hired in the first part of 2010 or those hired in 2008 or 2009. We do see that women contribute significantly less than men. We also find that workers age 45 and above contribute over 2 percent more of salary relative to workers age 25 to 44. And, finally, employees with greater annual incomes contribute a larger percentage of their salary to the 401(k) plan[8].

IV. Attitudes and Knowledge of Newly Hired Workers

In order to better understand why workers are making key retirement saving choices, we developed a short survey that BB&T sent to all workers hired between December 2010 and May 2011. The survey included a section aimed at assessing the respondents' overall financial literacy, as well as their knowledge of the employers' voluntary retirement savings plans. Employees were asked about the timing and amount of the employer match incentive and reasons for non- or limited participation in the plan. The survey also included an evaluation component where newly hired workers are asked their opinions about the information the

[8] While we find that income and contribution percentage are positively correlated, Holden and VanDerhei (2001) find in their analysis of the 1999 contribution behavior of 1.7 million 401(k) participants that salary and deferral percentage of positively correlated for up to an annual earning amount of $80,000 after which point the correlation become negative. They note that many of the plans included in their analysis allow for a maximum contribution of $10,000 which may be driving this result. BB&T, on the other hand, allows employees to contribute up to 50 percent of salary so we do not expect to see a similar trend here.

employer provided on their retirement savings plan and the influence of this information on their decision to participate. Central to our evaluation of the nudge is a better understanding of why employees had not yet chosen to contribute to the plan.

The surveys were conducted between March 2011 and August 2011 and were sent to all newly hired employees at BB&T. Surveys were sent to employees approximately 60 to 90 days after hire, ensuring that all survey recipients would have had sufficient time to enroll in their company's 401(k) plan prior to responding. The surveys were available online to employees at the first of every month and the link to the survey remained open for the duration of that month. New links were sent each month, for a total of six months. Surveys were sent to 1,947 new hires and 356 individuals completed and returned the surveys for a response rate of 18.3 percent.[9]

The survey had three specific objectives:

1. Learn more about employee attitudes regarding the information they were provided concerning the 401(k) plan,
2. Learn more about the budgetary constraints that affected the participation and contribution rates of new hires,
3. Learn more about the financial literacy of new hires.

The survey responses provide interesting insights into each of these issues. Table 3 includes responses to select questions regarding sources of information, broken out by those that report they are already participating in the 401(k) and those that have not yet chosen to participate. The baseline information provided by BB&T seemed adequate to most new

[9] The surveys cover workers hired between December 2010 and May 2011, for which we do not have administrative data. Future work will compare the demographic characteristics of survey respondents to the characteristics of all workers hired at the employers in 2008 through 2010, to the extent possible given the limited information in the administrative datasets.

employees with two thirds of respondents indicating that "the information I received was very comprehensive." Still over one quarter of the new hires indicated that they "would have benefited from more information." Interestingly, over half of the respondents indicated that "the information I received did not influence my participation decision" for both participants and non-participants (the difference between participants and non-participants was not statistically significant).

When asked about what sources of information did influence their participation decision, over half of the respondents indicated that family and relatives influenced their participation decision while just over one third stated that the company benefits office and other employer resources influenced their decision to enroll in the 401(k) plan. The reliance on employer resources highlights the potential impact of the human resource/benefits department on employee retirement saving behavior and decision making. Non-participants were significantly more likely to rely on family and relatives compared with participants. Participants were over twice as likely to report relying on newspapers, books, and magazines relative to non-participants.

[Table 3]

The survey included a question that asked non-participants why they were not currently contributing and listed a series of possible reasons where the respondent could select all that applied. Current participants were asked a similarly designed question on whether any factors currently limit their participation level. Responses to these questions are reported in Table 4. The employer match emerges as an important factor in the decision to participate in 401(k) plan and the level of contributions among participants. Note that none of the survey participants were currently eligible for the matching contributions, which begin after 12 months of employment.

[Table 4]

Among those who were not yet contributing to the 401(k) plan, 54 percent indicate that they planned to start contributing when they met the eligibility conditions for the employer match. One quarter of all non-participants stated that "my salary covers my monthly living expenses with no extra room for retirement savings." Interestingly, 14 percent reported that they were paying off other loans or debt and 11 percent were paying off credit card debt. These responses suggest that not all employees would benefit from being automatically enrolled in a 401(k) plan, but rather that for some employees their non-participation results from an evaluation of their own financial portfolio.

In the second panel of Table 4 we see that, among new hires who were already contributing to the retirement saving plan, 26 percent indicated that they would increase their contributions when they were eligible for the match. On the other hand, 26 percent stated that they had insufficient income to increase their contributions. Nineteen percent responded that they were constrained by the need to pay off student loans and mortgages and thirteen percent were constrained by the need to pay off credit card debt.

The survey also included five questions to measure the basic financial literacy of the newly hired employees. The questions, shown in Appendix A, focused on the individual's knowledge concerning the importance of compounding interest rates, the effect of inflation on real income, the importance of investment diversification, tax advantages associated with investing in the 401(k) plan, and the value of the employer match. Table 5 shows the proportion of new hires by enrollment status who answered these questions correctly. Participants had an average correct score of 3.8 on the five questions while non-participants had a statistically significantly lower score of 3.4. A significantly higher proportion of participants answered the questions on inflation, investment diversification, and tax advantages correctly compared to non-participants, demonstrating the importance of financial literacy on retirement saving.

[Table 5]

The responses to the financial literacy questions indicate that the tax advantages of 401(k) plan participation are not well understood. Fewer than half of all respondents (44 percent of participants and 34 percent of non-participants) were able to correctly identify the net effect of a 401(k) contribution on after-tax take home pay (see Appendix A, Question 4). These results indicate that greater financial knowledge and improvements in financial literacy may increase 401(k) plan participation.

V. Nudging Non-participants: A Randomized, Controlled Experiment

The importance of saving for retirement is widely acknowledged, but many employees fail to participate in their employer's retirement saving plan. We saw in Section III that only 48 percent of workers hired in 2008 through 2010 were participating in the 401(k) plan as of February 28, 2011. Although the participation rate is higher for those that are eligible for matching contributions, almost 40 percent of workers hired in 2008 were not participating. In Section IV, we observed that employees gave a variety of reasons for non- and limited participation in the 401(k) plan including paying off credit card debt and not having enough room in one's budget to save money for retirement. Moreover, many non-participants failed to understand the full range of benefits associated with saving.

If employees fail to contribute to the 401(k) plan because they face budget constraints or for other reasons perceive that greater retirement saving is not in their own best interest at the present time, it may be difficult to increase participation and increasing retirement saving might actually lower lifetime utility. A plan that automatically enrolls newly hired workers may well increase participation, but might result in some workers participating at a rate that is not optimal for their personal portfolio (Madrian and Shea, 2001). However, if the relatively low rate of participation for employees is attributed to inertia or lack of knowledge, a low cost intervention may be an effective tool. By providing information and a “nudge,” employers can increase participation in their 401(k) plan.

We designed a field experiment to test whether additional employer-provided financial education could be effective in increasing 401(k) plan participation. All employees hired during 2008 through 2010 who were not participating in the plan as of February 28, 2011 were randomly assigned to three groups. The first two groups received a flyer that included a brief example of investment growth over time and instructions on how to sign up for the company’s 401(k) retirement savings plan. For Group 1, a statement about the company-wide participation rate was added to test for peer effects. The third group was the control group and did not receive any additional information. The interventions were designed to highlight the benefits of saving, in particular, the potential for investment growth over time. Although tax advantages are also important, they were not addressed in the intervention in the interest of simplicity. A copy of the flyer sent to group one is included as Appendix B. It should be noted that the flyer itself was adapted from material emphasizing the value of compounding that BB&T already provided to newly hired workers during orientation, with some small modifications including the addition of an emphasis on employer matching contributions[10].

In results not shown, the group means for age, gender, year of hire, and salary were evaluated to confirm that the randomization was done appropriately and each group is representative of the entire sample of non-participants (see Clark et al. 2011). The intervention

[10] The examples showing the savings from reduced consumption on certain items and the impact of investing these funds in the 401(k) plan were taken from the retirement plan’s handbook. For consistency, the flyer made the same assumptions concerning the investment period and rate of return.

was designed to isolate the effect of information on retirement saving behavior. Nearly 4,000 workers participated in the experiment, allowing for the exploration of heterogeneity in responses by demographic characteristics. The recipients were unaware that their behavior was being observed, and because the researchers observe the outcome of interest in administrative data, there is no reporting bias.

The flyers were distributed to employees at BB&T in mid-April 2011. BB&T provided an administrative dataset which contained information on plan participation as of February 28, 2011 (see Section II for more details on the data provided). The researchers extracted the sample of workers that were not participating in the 401(k) plan as of this date, a total sample size of 4,111. The sample was divided into three separate groups (roughly 1,370 workers each), one control group that received no information intervention and two others that received different versions of the flyer. The flyer was distributed by the employer through company email for the majority of the sample; those employees who did not have an email address received the material via inter-office mail.[11] The researchers received an updated data file mid-June, allowing those employees receiving the intervention approximately two months to respond to the information they received. Employees terminated during the study period were excluded from the analysis.[12]

Table 6 presents statistics on the percent participating as of June 16, 2011. Because the sample includes only those that were not participating as of February 2011, the percent participating in June is an indication of the percent of workers that initiated participation during our study period. Although the average participation rate of employees in the treatment group is

[11] Delivery method was not randomly assigned and the differences in the means of those that received the flyer by email and those that received it by hardcopy were significant. Employees receiving the hardcopy version were, on average, lower paid, younger, and more likely to be female.
[12] In results not shown, termination was not correlated with receipt of intervention material.

0.9 percentage points (15.3 percent) higher than the control group, the difference is not statistically significant. However, when the sample is disaggregated by demographic characteristics, we see that the intervention did affect employee behavior.

[Table 6]

Interestingly, the largest effect of the intervention can be seen when comparing employees in different age groups. Results indicate that the young, those 18 – 24 years old, were 4.4 percentage points more likely to join the 401(k) plan if receiving an intervention relative to the control. For this group, those receiving the intervention were over twice as likely to initiate participation in the plan relative to the control group. A similarly large and statistically significant difference was observed for workers ages 35-44. On the other hand, for the age group 45 years and older, those receiving the intervention were a statistically significant 4.5 percentage points *less* likely to initiate participation relative to the control group. As the intervention highlighted the importance of saving early by demonstrating investment growth over time, it is possible that this older group of workers were actually discouraged from participating in their employer 401(k) plan.

Table 7 presents the results from a logit analysis on participation and Table 8 shows the predicated probability of beginning participation for both the control and treatment groups. The sample includes all 3,731 workers that were not participating as of February 2011. The dependent variable is the choice to initiate participation by June 2011. The columns of Table 7 present the estimated marginal effects of the explanatory variables for the different age groups. We see that that intervention significantly increased participation for workers ages 18-24 and ages 35-44, while it significantly decreased the likelihood to initiate participation among those workers ages 45 and older. The regressions also include controls for salary, gender, match eligibility, and date of hire. The impact of the treatment is shown clearly by comparing the predicted probability of beginning to contribute to the 401(k) for those receiving the flyer compared to those that did not.

[Table 7]

[Table 8]

Results from this study indicate that a low cost intervention can be effective in increasing 401(k) participation among some groups. The effectiveness varied by employee age and salary level. These results warrant further exploration, but suggest the need for group targeting when developing the intervention. Note that the design of the study allowed only two months between the intervention date and the outcome evaluation. It is possible that some groups respond more slowly and a follow-up study allowing for more time to enroll would find larger effects.

VI. **Conclusions**

Results from a survey of newly hired workers confirmed the importance of the employer match in participation and contribution decisions. The findings from the financial literacy section of the survey highlight the role of financial education in retirement savings. The results point out that not all benefits of participating in an employer sponsored 401(k) plan are well understood. Through activities designed to increase the employee's financial literacy, increases in participation may be achieved.

In an effort to increase the 401(k) plan participation rate of newly hired workers at BB&T, we designed and implemented a low cost informational intervention. Controlling for salary, gender, year of hire, and match eligibility, the intervention had a statistically significant effect of meaningful magnitude on the probability of plan participation. The direction of the effect was dependent on age with young workers exhibiting an increase in the likelihood of initiating plan participation while older workers exhibited a significant decrease in the likelihood of initiating participation. This provides evidence that low cost educational information can be an effective tool used to alter employee retirement saving behavior. However, the results highlight the importance of audience targeting. Informational material which emphasizes the benefit of retirement saving through long term growth may be a successful when geared toward younger workers with a long saving horizon, but may not be effective for those at the end of their career or those with a more limited saving horizon.

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Table 1: Participation Rates Prior to Intervention for Employees Hired in 2008, 2009, and 2010

	Percent of Sample	Percent of Group Participating in 401(k) Plan	Average Contribution Rate Among Contributors
	(1)	(2)	(4)
Total	100%	47.7%	6.5
Female	66.4	42.1	5.8
Male	33.6	58.8	7.6
Age: <25	26.1	38.0	5.5
25-34	32.4	48.7	5.8
35-44	20.7	49.6	6.5
45+	20.8	56.5	8.4
Salary: <29,999	42.4	29.1	5.0
30,000-59,999	33.8	54.3	5.8
60,000+	23.8	71.4	8.4
Hired in 2008	32.7	62.6	6.4
Hired in 2009	20.2	51.5	6.4
Hired in 2010 Match Eligible	5.4	52.7	6.4
Hired in 2010 Not Yet Match Eligible	41.7	33.5	6.7

Notes: The sample is 7,862 workers who were hired between 2008 and 2010 and were still actively employed as of February 28, 2011. All statistics are as of February 28, 2011.

Table 2: Regression Analysis of Participation Choice and Contribution Rate

	Participation	Contribution Rate Participants Only
	(1)	(2)
Hired in 2008	0.266*** [0.011]	0.071 [0.189]
Hired in 2009	0.175*** [0.013]	-0.006 [0.221]
Match-eligible 2010 hire†	0.143*** [0.023]	-0.478 [0.361]
Female	-0.035*** [0.012]	-0.790*** [0.178]
Age when Hired:		
Age 18-24	-0.005 [0.013]	0.257 [0.211]
Age 45 and above	0.035*** [0.013]	2.081*** [0.191]
Salary (in thousands):		
Less than 30	-0.198*** [0.011]	-0.579*** [0.204]
60+	0.167*** [0.014]	2.093*** [0.201]
Constant		5.803*** [0.225]
Observations	7,862	3,595

†All 2008 and 2009 employees are match eligible, while only those 2010 new hires with a year of employment as of the date of data collection were match eligible.

Notes: Column (1): Coefficients are marginal effects from a logit model. Column (2): Coefficients are from an OLS regression. Standard errors are in parentheses. *** indicates statistically significant at the 1% level, ** indicates statistically significant at the 5% level, and * indicates statistically significant at the 10% level. The mean participation rate is 47.7 percent and the mean contribution rate is 6.5 percent of salary for the sample of participants.

Table 3: Respondents' Evaluation of Employer-Provided Financial Education

All Respondent, N = 336 Participants, N = 218/Non-Participants, N=118	Participants	Non-Participants	Difference
Q: How would you rate the info you received?			
The information I received was very comprehensive.	66.5%	63.6%	2.9
I would have benefited from more information.	28.0%	24.6%	3.4
I received information regarding my employer's 401(k) plan but did not read it.	2.8%	7.6%	-4.8*
I did not receive any information regarding my employer's 401(k) plan.	2.3%	3.4%	-1.1
Blank: Participants, N = 1/Non-Participants, N=1	0.5%	0.8%	-0.3
Q: Did the information you received influence your participation decision?			
Yes, the information I received influenced my decision to participate.	43.1%	30.5%	12.6**
Yes, the information I received influenced my decision to NOT participate.	0.5%	6.8%	-6.3***
No, the information did not influence my participation decision.	56.4%	61.9%	-5.5
Blank: Participants, N = 0/Non-Participants, N=1	0.0%	0.8%	-0.8
Q: What sources of information influenced your participation decision?[1]			
Family and relatives	50.1%	60.2%	-10.1*
Colleagues and friends	23.9%	17.8%	6.1
Benefit office, website, other employer resources	38.1%	31.4%	6.7
Internet	9.6%	5.9%	3.7
Newspapers, books, magazines	20.6%	8.5%	12.1***
Financial advisor	22.5%	16.1%	6.4

[1]Respondents could select more than one response.

Notes: The total sample is 336 survey respondents who were hired between December 2010 and May 2011, with 218 participants and 118 non-participants. The mean values for participants versus non-participants were tested to determine if they are statistically significantly different. *** indicates statistically significant at the 1% level, ** indicates statistically significant at the 5% level, and * indicates statistically significant at the 10% level.

Table 4: Reasons for Non- or Limited Participation in 401(k) Plans

Q: If you are <u>not</u> currently contributing to the 401(k) plan, why are you not currently contributing to the plan? [1] (N = 118)	
I was not aware my employer provided this saving option.	0.8%
I plan to start once I am eligible for the employer 401(k) match.	54.2%
I am concerned about the volatility of the stock market.	3.4%
Taking into account social security, employer pensions and spouse's retirement benefits, I expect that I will have sufficient retirement income.	0.9%
Instead of saving for retirement, I am paying off credit card debt.	11.0%
Instead of saving more for retirement, I am paying of student loans, mortgages, or other debt.	14.4%
I am primarily concerned with saving for a large purchase such as a car or a home.	8.5%
I plan to start saving more in the future when I am closer to retirement.	1.7%
My salary covers my monthly living expenses with no extra room for retirement savings.	25.4%
I am unsure of whom to contact with questions or how to learn more about the 401(k).	4.2%
The enrollment procedures were unclear or cumbersome.	5.9%
Other (write-in)	13.6%
Q: If you are contributing to the 401(k) retirement plan, what factors limit the amount you contribute to the 401(k) plan?[1] (N = 218)	
I plan to increase my contribution amount once I am eligible for the employer 401(k) match.	26.2%
I am concerned about the volatility of the stock market.	6.0%
Taking into account SS, pensions, and spouse's retirement, I expect that I will have sufficient retirement income with the amount I am currently contributing.	8.7%
Instead of saving more for retirement, I am paying off credit card debt.	13.3%
Instead of saving more for retirement, I am paying of student loans, mortgages, or other debt.	18.8%
I am primarily concerned with saving for a large purchase such as a car or a home.	9.6%
I plan to start saving more in the future when I am closer to retirement.	7.3%
My salary covers my monthly living expenses with little extra room for retirement savings.	26.1%
Other (write-in)	16.5%

[1]Respondents could select more than one response.

Notes: The total sample is 336 survey respondents who were hired between December 2010 and May 2011, with 218 participants and 118 non-participants.

Table 5: Financial Knowledge by Participation Status

Financial Literacy Questions[1]	Full Sample	Participants	Non-Participants	Difference
Interest Rates	84.2%	85.3%	82.2%	3.1
Inflation	73.8%	79.8%	62.7%	17.1***
Investment	79.8%	84.0%	72.0%	12.0**
401(k) Tax Advantage	40.7%	44.5%	33.9%	10.6*
401(k) Employer Match	61.0%	60.6%	61.9%	-1.3
Knowledge Score out of 5 (N = 315)	3.6	3.8	3.4	0.42***

Notes: Sample size is 336 survey respondents who were hired between December 2010 and May 2011. Survey respondents were asked five knowledge questions in order to obtain baseline information concerning their general financial knowledge. The instructions state that if the respondent does not know the correct answer, he should provide his best guess. The percentages in each column show the percent correctly answering each type of question, with missing or blank responses classified as "incorrect". See Appendix A for specific wording for each of the knowledge questions. The Knowledge Score was only calculated for those who left no more than two responses blank, so that row has N = 315. The mean values for participants versus non-participants were tested to determine if they are statistically significantly different. *** indicates statistically significant at the 1% level, ** indicates statistically significant at the 5% level, and * indicates statistically significant at the 10% level.

Table 6: Percent Initiating Participation during the Study Period

Category	Observations	Intervention	Control	Difference
All New Hires	3731	6.8%	5.9%	0.9
Females	2733	6.2%	5.5%	0.7
Males	998	8.4%	7.1%	1.3
Match-eligible	2270	7.5%	6.9%	0.6
Not Match-eligible	1461	5.8%	4.4%	1.4
Age:				
Age 18-24	861	7.7%	3.3%	4.4***
Age 25-34	1315	7.7%	7.4%	0.3
Age 35-44	802	6.3%	3.4%	3.0*
Age 45 and over	753	4.9%	9.4%	-4.5**
Salary (in thousands):				
Less than $29,999	2106	5.6%	5.4%	0.2
$30,000-59,999	1127	8.7%	4.4%	4.3***
$60+	443	8.2%	12.3%	-4.1

Notes: The sample includes all workers hired in 2008, 2009, and 2010 who were not participating in the 401(k) plan as of February 28, 2011 and excludes employees terminated during intervention period. The mean values for the treatment and control group were tested to determine if they are statistically significantly different. *** indicates statistically significant at the 1% level, ** indicates statistically significant at the 5% level, and * indicates statistically significant at the 10% level. Age refers to worker's age as of April 2011.

Table 7: Participation Initiation Regression Analysis

Dependent Variable: Worker initiated participation between February and June 2011

	Age 18-24	Age 25-34	Age 35-44	Age 45+
Intervention	0.049*** [0.015]	0.006 [0.015]	0.031** [0.015]	-0.045** [0.021]
Salary <$29,999	-0.041 [0.026]	-0.007 [0.016]	-0.026 [0.017]	-0.019 [0.020]
Salary $60,000 and above	0.029 [0.057]	0.020 [0.033]	0.004 [0.021]	0.028 [0.028]
Female	-0.038* [0.022]	0.007 [0.017]	-0.007 [0.020]	0.001 [0.022]
Match-eligible 2010 hire†	0.119*** [0.038]	0.045** [0.023]	0.046* [0.027]	0.059* [0.032]
Hired 2008	0.024 [0.034]	-0.019 [0.018]	-0.050*** [0.014]	-0.007 [0.024]
Hired 2009	0.044 [0.032]	-0.028 [0.019]	0.037 [0.027]	0.010 [0.029]
N	861	1,315	802	753

†All 2008 and 2009 employees are match eligible, while only those 2010 new hires with a year of employment as of the date of data collection were match eligible.

Notes: The sample includes all workers hired in 2008, 2009, and 2010 who were not participating in the 401(k) plan as of February 28, 2011 and excludes employees terminated during intervention period. Coefficients are marginal effects from a logit model of initiating participation with standard errors in brackets. Omitted categories: Salary $30,000-$59,999; Hired in 2010 but not match-eligible. *** indicates statistically significant at the 1% level, ** indicates statistically significant at the 5% level, and * indicates statistically significant at the 10% level. Age refers to worker's age as of April 2011.

Table 8: Predicted Impact of Intervention

Dependent Variable: Worker initiated participation between February and June 2011

	Age 18-24	Age 25-34	Age 35-44	Age 45+
Males				
Treatment	0.133***	0.072***	0.088***	0.039**
	[0.031]	[0.017]	[0.026]	[0.016]
Control	0.028	0.059***	0.047*	0.128***
	[0.021]	[0.021]	[0.027]	[0.047]
N	177	380	193	197
Females				
Treatment	0.047***	0.073***	0.034***	0.046***
	[0.011]	[0.011]	[0.012]	[0.011]
Control	0.022**	0.070***	0.018**	0.072***
	[0.009]	[0.015]	[0.009]	[0.019]
N	657	935	585	556

Notes: The sample includes all workers hired in 2008, 2009, and 2010 who were not participating in the 401(k) plan as of February 28, 2011 and excludes employees terminated during intervention period. Coefficients are predicted probabilities of initiating participation for each level of intervention (treatment and control) with all other values held at their means. Standard errors are in brackets. The covariates in the logit model include the following: Salary less than $30,000, Salary $60,000 and above, Match eligible in 2010, Hired in 2008, and Hired in 2009. Omitted categories: Hired in 2010 but not match-eligible, salary between $30,000 - $59,999, and hired in 2010. All 2008 and 2009 employees are match eligible, while only those 2010 new hires with a year of employment as of the date of data collection were match eligible.*** indicates statistically significant at the 1% level, ** indicates statistically significant at the 5% level, and * indicates statistically significant at the 10% level. Age refers to worker's age as of April 2011.

Figure 1: Contribution Rates of Workers Hired in 2008-2010 in February 2011

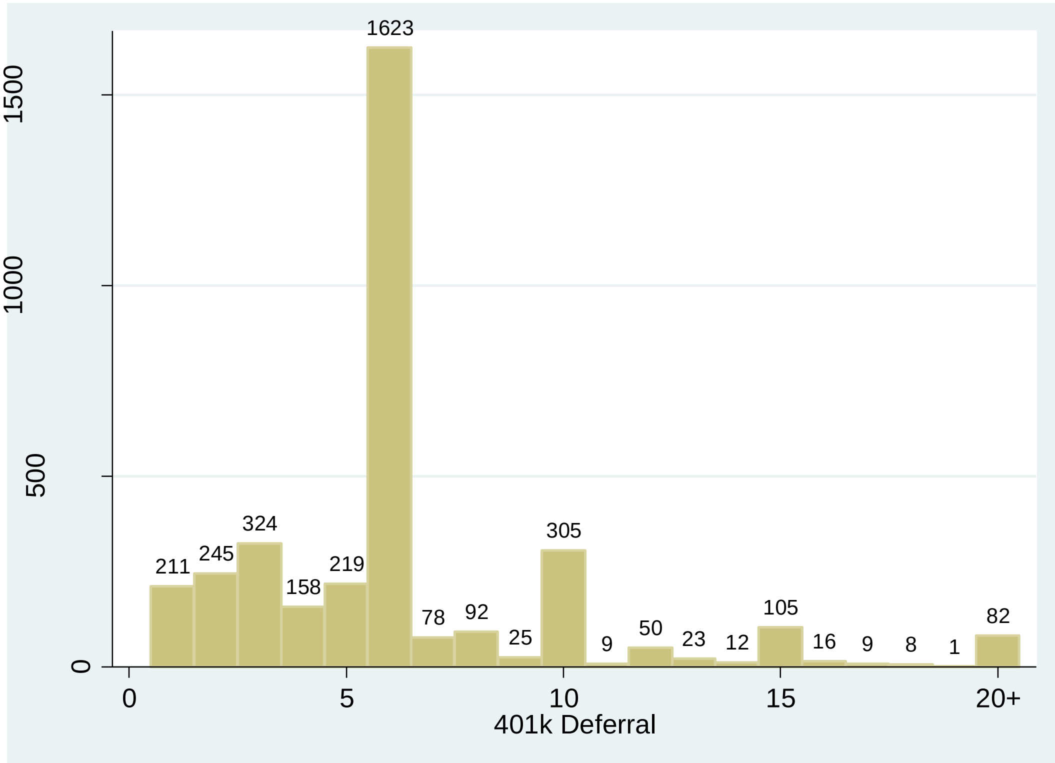
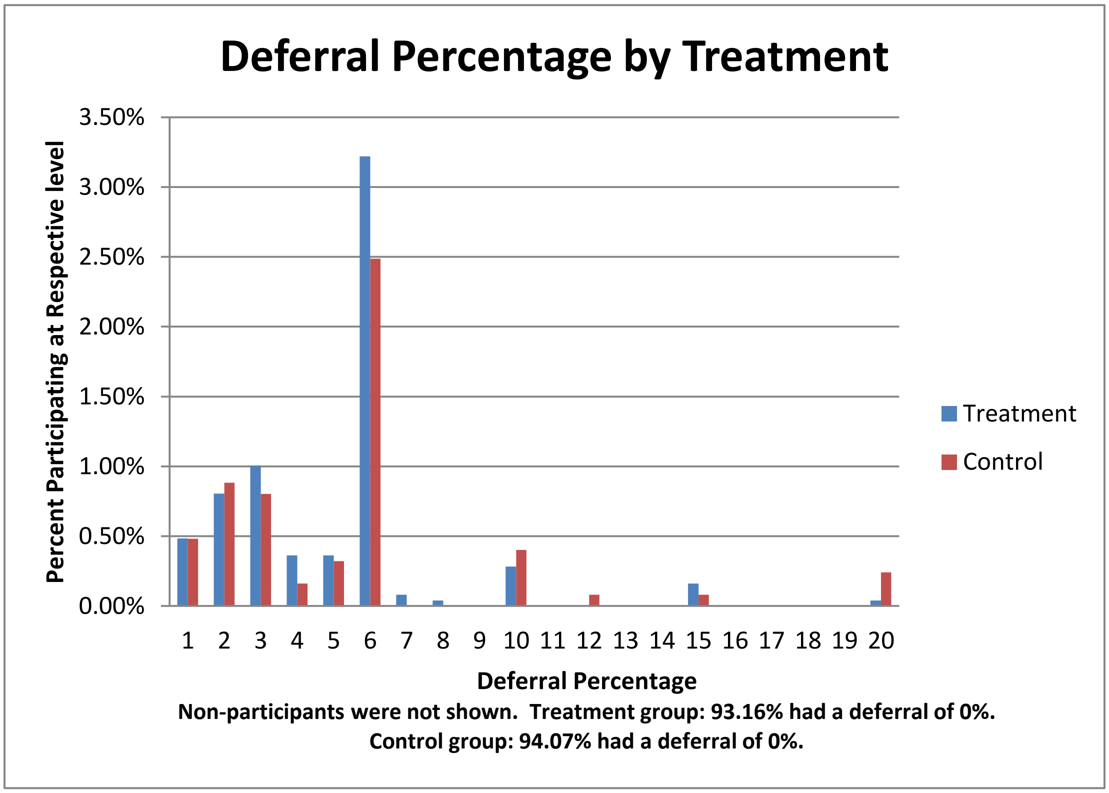


Figure 2: Contribution Rates as of June 2011 for those Initiating Participation during the Study Period



Appendix A: Knowledge Questions

Interest Rate:

Q1: If you have savings in the amount of $100 in the bank and the interest rate is 2%, how much will you have in your savings account after 5 years?

A: **(a) More than $102** (b) $102 (c) Less than $102 (d) Do not know

Inflation:

Q2: If the current interest rate on your bank deposit is 1% per year and the inflation rate is 2% per year, how much do you think you will be able to buy with your money a year from now?

A: (a) A larger amount than you can buy now (b) Exactly the same as you can buy now **(c) A smaller amount than you can buy now** (d) Do not know

Investment:

Q3: Do you think the following statement is true or false? "Buying a single company stock usually provides a safer return than a diversified portfolio."

A: (a) True **(b) False** (c) Do not know

Tax Advantage:

Q4: Assume you are in the 25 percent tax bracket (you pay $0.25 in tax for each dollar earned) and you contribute $100 pretax to the 401(k) plan. Your take home pay (what is in your pay check after all taxes and other payments are taken out) will:

A: (a) Decline by $100 **(b) Decline by $75** (c) Decline by $50 (d) Remain the same (e) Do not know

401(k) Employer Match

Q5: Assume that your employer matches your contribution one dollar for each dollar you contribute to the 401(k) plan. If you contribute $100 to the 401(k) plan, your account balance in the plan, including your contribution, will:

A: (a) Increase by $50 (b) Increase by $100 **(c) Increase by $200** (d) Remain the same (e) Do not know

Appendix B: Flyer Sent to BB&T Non-Participants

Are you leaving money on the table?

Join the 68% of BB&T employees who are already contributing to their 401(k) plan

A LITTLE MONEY SAVED TODAY GOES A LONG WAY IN RETIREMENT

BB&T offers a 100% match on the first 6% of income saved in your 401(k) account, plus you get all the tax savings![1] Even a simple change – such as bringing a bagged lunch to work a few times a month – can make a big difference.

The following examples show how small sacrifices today can have a big impact on your retirement savings.

	Unit Price	Per Year	Amount per year plus 100% Employer Match[2]	Total If Invested in Plan for 40 Years[3]
1 specialty coffee per day	$2.50	$912.50	$1,825.00	$863,158
1 movie per week	$8.50	$443.25	$886.50	$419,248
1 candy bar per day	$0.55	$200.75	$401.50	$189,895

To Enroll: The Learning Center at **eBenefitsNow.com** contains the BB&T Corporation 401(k) Savings Plan Participant Guide. The BB&T Corporation 401(k) Savings Plan Participant Guide provides Plan Highlights, Investment Information, and Enrollment Instructions. You can also enroll by accessing the Plan's website directly at: http://www.bbt.com/plantrac.

[1] Employees are eligible for the employer match after 1 year of service. Contributions to 401(k) plans come from pre-tax income and the interest on 401(k) balances is exempt from taxes.
[2] Assumes 100% employer match.
[3] Assumes 4% annual price inflation, deposits to plan at the end of each month and 8% average annual returns, no taxes apply.