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Missing the Match: A Comparison of the Demographic Characteristics of Employees Who Contribute More to Those Who Contribute Less Than the Employer 401k Match

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ABSTRACT

Investing for retirement generally requires an analysis of and selection from a variety of investment options. This study compares the demographic characteristics of employees that chose to contribute more than the 3 percent employer match rate with those who contributed less than the match. To add power to the test, we eliminated the group that contributed the matched amount. This classification system should identify those employee characteristics that lead to substantial differences in the employee's propensity to invest in a defined contribution retirement plan. The data used in this study was from a civilian component of the Department of Defense as of the end of 2005.

A logistic regression model was used to identify the significant differences in the employee's demographic characteristics that indicate differences in their propensity to invest in a defined contribution retirement plan. The characteristics found to have significantly positive correlations were age, older employees saving more than younger; salary, higher paid employees saving more; spouse of veteran status, veteran spouses saving more than non spouses; and the Asian ethnic group, with Asians saving more than other ethnic groups.. The African American ethnic group had a statistically significant negative correlation, saving at a lesser rate than other ethnic groups. Gender, marital status, veteran status, Hispanic, and Native American were not significant variables in determining whether one would contribute more or less than the employer match.

INTRODUCTION

The last three decades have witnessed a significant shift from defined benefit plans to defined contribution plans, as more employees have become actively involved in the process of investing for retirement. Tax deferred 401 (k) plans grew in popularity and have reached the status of one of the most common employer-sponsored retirement benefits. As of 2005, 47 million US workers were active participants in a 401 (k) plan, according to the Investment Company Institute. Also, 17 percent of all retirement assets belonged to 401 (k) plans.

When hired, employees in this study were given the opportunity to join a defined contribution retirement plan. Through the defined contribution plan, employees have the ability to self allocate their contributions within a set of mutual funds administered by the plan provider. The employer matches the first three percent of the employee's contribution and this match vests after one year; all employee contributions vest immediately. The opportunity to join the DC plan is provided quarterly.

The purpose of this paper is to explore individual retirement plan contributions as a measure of a person's propensity to save. Specifically, we compare the attributes of employees who choose to invest more than the employer's match with those who contribute less.

REVIEW OF THE LITERATURE

One possible division in a review of the studies concerning participation in a 401(k) retirement plan is to separate the studies into those that deal with attributes of the "plan" and those that have studied characteristics of the "employees." On the "plan" side, some important considerations are the availability of an employer match, the ability of employees to gain access to their funds before retirement through borrowing (Munnell, Sunden and Taylor, 2001) and automatic enrollment (Utkus, 2004 and Choi, Laibson and Madrian, 2004). In addition, Papke (2003) concluded that plan attributes significantly affect participation. Plans that offer loan provisions and investment choices play a major role in determining employee participation. For example, Papke found that having a choice over investments led to an increase in the savings rate of employees with a 401(k) option of about 8.5 percent. Papke also noted that the ability to make investment choices did not appear to be influenced by sex or marital status and that the amount invested was positively related to higher levels of education.

On the employee characteristic side, a partial list of variables influencing participation and contribution decisions includes age, job tenure, race/ethnicity, income, education, and gender. Age would presumably be an important indicator of the savings stage of an employee's life and their interest in accumulating funds for retirement. Evan and Macpherson (2005) investigated the effect of employer matching and employees' tenure on the participation in retirement plans. Using data from the 1993 Current Population Survey (which was restricted to private sector workers between 21 and 55 years old) they found that employees who participated in 401 (k) plans were less likely to quit, although the tenure effect may be overestimated when consideration is given to mobility intentions that impact saving behavior.

Culture differences between ethnic groups may influence the propensity to save. Some ethnic groups may simply tend to save more than others and any variable that captures the "taste for saving" should be positively related to contribution levels and participation. Springstead and Wilson (2000) used data provided by the Department of Labor, the Employee Research Institute, and the Federal Retirement Thrift Investment Board to determine the characteristics of employees who participated in a voluntary individual account system. The individual retirement account plans under consideration were IRAs, 401 (k)s, and Thrift Savings Plans (TSP). The authors found that the highest participation rate belonged to TSP plans, 79%. The highest race participation rate was attributed to "all other races", followed by whites, with African Americans having the lowest. Participation in all plans increased with earnings and age. Also, low-income employees were more likely than high-income employees to be liquidity constrained; i.e., they needed a greater percentage of their income to meet their living expenses and the tax benefits were less significant than for those with higher incomes.

There has been some evidence that people with higher levels of education tend to save more for retirement than those with less formal education. Bernheim and Garrett (2001) used a novel

household survey to explore the effects of work place financial education on personal and retirement savings behavior. Their findings showed the importance of employer-based financial education that encouraged savings for retirement, especially among low and moderate savers. Consequently, financial education could efficiently impact employee behavior as far as participation and contributions are concerned.

Evidence concerning the contribution level differences among males and females seems to conflict. Several studies have found a higher female participation rate, while others have found the opposite.   Bailey, Nofsinger, and O'Neill (2004) analyzed the impact that descriptive and injunctive social norms have on the employees' decisions to contribute to 401 (k) plans. Their findings showed a strong influence of social norms on contribution decisions. Their data also confirmed the existence of a gender effect with men contributing considerably more than women, as well as a preference of employees for contribution levels that were multiples of five percent.

Huberman, Iyengar, and Jiang (2007) studied a sample of 793,794 employees eligible to participate in a defined contribution pension plan. Contrary to most results from empirical research, they found a higher female participation probability than for males. The study showed an increase of the participation rate as well as contribution level when the employer matched the employees' contributions.

DATA AND METHODOLOGY

The data used in this study are drawn from a civilian component of the Department of Defense at the end of 2005. This agency is a non-appropriated section of the military that manages a variety of recreational, social and community support programs for personnel located on military bases worldwide. The employer operates on a "for profit" basis, offering various programs for service men and women (e.g., social clubs, golf, marinas, child care, sports, and youth activities). The agency operates primarily as a non-appropriated fund and has facilities located on all of the Naval installations worldwide.   The data cover a sample of the approximately 4,000 full-time employees across the continental USA.

TABLE 1: Number and Percent of ethnic group in each allocation

Ethnicity	< 3%		3%		>3%		TOTAL	
	#	%	#	%	#	%	#	%
HISPANIC	27	8.4%	41	7.0%	115	7.8%	183	7.7%
ASIAN	56	17.3%	112	19.2%	458	30.9%	626	26.2%
NATIVE AMERICAN	3	0.9%	2	0.3%	12	0.8%	17	0.7%
AFRICAN AMERICAN	94	29.1%	129	22.1%	189	12.8%	412	17.3%
WHITE	143	44.3%	300	51.4%	708	47.8%	1151	48.2%
TOTAL	323	100%	584	100%	1482	100%	2389	100%

The personal data from 2,389 employees that had selected the 401(k) retirement option was made available from the agency. Approximately 25 percent of employees were contributing at the match rate of three percent. The sample analyzed in this study comprised 323 employees contributing less than three percent and 1,482 employees contributing more than three percent, for a total of 1,805 subjects, as shown in Table 1.

TABLE 2: Average Salary and Percentage of Contribution by Ethnicity

Ethnicity	Average Salary		Percentage of Contribution	
	<3%	>3%	<3%	>3%
HISPANIC	$27,131	$30,194	19.01%	80.99%
ASIAN	$24,331	$27,398	10.89%	89.11%
NATIVE AMERICAN	$25,277	$31,638	20.00%	80.00%
AFRICAN AMERICAN	$25,543	$30,010	33.22%	66.78%
WHITE	$28,767	$40,691	16.80%	83.20%

The defined contribution plan provides participants fourteen different allocation choices. These options include: one money market, one multi-sector bond, four large blend, two domestic hybrid, three large growth, one mid-cap growth, one small growth and one global fund. Two of the large blend and two domestic hybrid funds divide their assets among stocks, bonds, convertibles, and cash. In some cases, the percent allocated to each asset is fixed while others may adjust their positions according to market conditions.

The employees were initially classified into three groups, those contributing less than the three percent level, those contributing an amount equal to the match and those employees contributing a greater amount than the three percent matching level. To enhance the ability to identify differences in the propensity to save, employees contributing three percent, the maximum level of matching contributions, were dropped from sample. Thus, the regressions in this study compared the characteristics only of those contributing less than the match with those contributing more.

Because a 100 percent instant, riskless return could be obtained for all contributions, up to the three percent match (a return that would seemingly surpass most other investments' risk-return opportunity), there is assumed to be some characteristics influencing the propensity to save for retirement for these groups of employees. In order to determine such characteristics, employees who were contributing less than the three percent level were assigned a value of 0 and those above three percent were assigned a value of 1.

The two groups are analyzed for differences in personal demographic characteristics. The independent variables used in the model were marital status, gender, age, veteran status, veteran spouse, gross pay and race/ethnicity, including, Asian, African-American, Hispanic, Native American, and Non-Hispanic White.

The logistic regression equation is specified as:

$$CP = alpha + b1*X1 + b2*X2 + \ldots + bn*Xn$$

The description of the variables used in the regression is presented in Table 3.

TABLE 3: Description of the Variables

CP	Contribution Percent
	    1 Less than 3% contribution
	    0 More than 3% contribution

Alpha	Constant

B 1	Marital Status (Currently)
	    1 Married
	    0 Not Married

B2	Gender
	    1 Male
	    0 Female

B3	Age in years

B4	Veteran Status
	    1 Veteran
	    0 Non-veteran

B5	Veteran Spouse Status (Married to a Veteran)
	    1 Veteran Spouse
	    0 Not a Veteran Spouse

B6	Annual Gross Pay in $ 1,000

B7
 	
B8
 	
B9
 	
B10
	Ethnic Origin
	    1 if Asian
	    0 if Not Asian
	    1 if African American
	    0 if Not African American
	    1 if Hispanic
	    0 if Not Hispanic
	    1 if Native American
	    0 if Not Native American
	(If B7=B8=B9=B10=0, then the participant is Caucasian)

As shown in Table 4, age was a statistically significant variable in contribution selections. The accumulation phase of the life cycle would imply that age and contributions were positively correlated. This finding was consistent with other studies, specifically Springstead and Wilson (2000)

As anticipated, and substantiated by numerous other studies, the level of income was a significant variable in investment selection at the one percent level of confidence. Higher levels of income tend to increase retirement contributions. Perhaps this is an illustration of the old adage, "the rich get richer…." At the lowest levels of income, it is likely that the marginal utility of those dollars today is much more than the value of a distant retirement fund. In other words,

$200 to someone making only $20,000 may be much dearer than $2000 to someone making $40,000. These results are consistent with the works of Andrews (1992), Bassett, Fleming and Rodrigues (1998) and Bernheim and Garrett (1996).

A slight surprise was found in the analysis of marital status. As shown in Table 4, our data fails to demonstrate that married employees were more likely than non-married employees to contribute at the higher level. The test statistic was significant above the 10% level. Although this finding is consistent with Purcel (2005), it is contrary to the findings of Bassett, Fleming and Rodrigues (1998), which indicated greater participation by unmarried employees. Literature that tended to support a finding of increased retirement investment by married versus unmarried employees could be attributed to two incomes as well as increases in risk tolerance, as observed by Jianakoplos, Bajtelsmit and Bernasek (2003).

Gender was not statistically significant. Males and females in this study acted in a similar fashion regarding their choice of retirement contribution levels. This was somewhat surprising because females were expected to save less than males based on previous research (e.g., Springstead and Wilson, 2000). However, females were found to have a higher rate of participation than males in a study by Huberman, Iyengar and Jiang (2007). Future research could explore if these differences were caused by plan characteristics or participant attributes. Perhaps the later research will be consistent in finding that they are caused by a combination of the two.

Veteran status appeared to have no significant influence on the level of contribution. It was anticipated that veteran status would be a significant influence since they would most likely represent more experienced employees. However, the result could be reflective of the perceived safety of the individual's accrued military retirement benefits. No literature was found that reported the impact of veteran status on retirement selections and is somewhat unique to this study.

One might suspect that the willingness of Veteran Spouses (married to a veteran) to contribute to retirement accounts would be similar to that of the veteran. Instead, the contribution rate for Veteran Spouses was found to be positive and significant at the one percent level.

There were 347 Veteran Spouses in the sample of which 340 were contributing more than the three percent match. No literature was found that studied the retirement attributes of spouses of veterans. Clearly, all of the "Veteran Spouses" in our data set were married and marital status has been found to be associated with lower levels of risk aversion because of spousal decision influence and an increase in resource availability (Bajtelsmit, Bernasek and Jianakoplosl, 1999). Our findings here may indicate that veteran spouses, given the apparent stability of their income, rationally use their 401(k) contributions as a tax strategy to maximize their life-cycle wealth. A secondary explanation, given the stability of their life-cycle income, is that they take on more risk in their 401(k) investments than non-veteran spouses.

TABLE 4: Variables in the Equation

		B	Sig.	Exp(B)
Step	Marital Status	.223	.116	1.249
	Gender	.139	.382	1.149
	Age	.388	.000	1.474
	Veteran Status	-.012	.958	.988
	Veteran Spouse	.548	.006	1.729
	Hispanic	.208	.393	1.231
	Asian	.658	.000	1.930
	Native American	-.109	.871	.897
	African American	-.576	.001	.562
	Gross Pay	.053	.000	1.000
	Constant	-1.583	.000	.205

Within the ethnic groups, the variable representing Asian employees was significantly positively correlated with higher levels of contribution. Ironically, this group has the lowest average salary of all of the ethnic groups in our sample (see Table 2). Eighty-nine percent of this group allocated more than three percent of their wages to retirement. The Asian group could be classified a "super saving" ethnic group. No literature was found concerning Asian employee investment preferences. However, Springstead and Wilson (2000) found that the "all other races" category participated in IRA 401(k) plans at a higher rate than White or African American participants.

The other significant race variable with respect to retirement contribution selection was African American. However, as shown in Table 4, this group's contribution level was statistically significant and negatively correlated. The African American group represented 17% of the employees; however, they were 29% of the employees contributing less than 3% of their salary, as shown in the Table 1. These results are consistent with those found by Springstead and

Wilson (2000). This conclusion has also been documented by several other sources as outlined by Daniel Sorid (2007).

CONCLUSIONS

Within ethnic groups, two groups were significantly different in their savings contributions: the Asian and African American. The Asian group had the lowest average salary, yet had the highest savings rate, as shown in Table 2. This group could be classified as "super savers." At the other extreme was the African American, which was significantly below the other racial categories in their allocation percentages. However, one limitation for this study would be the predominance of White and Asian that represented a dominating percentage in the analyzed sample, as demonstrated in Table 1.

As anticipated, age and income were both significantly positively related to higher savings rates. Marital status was not significantly correlated to saving propensity.

Surprisingly, veterans were not significantly different in their saving choices; however, Veteran Spouses were significantly different from the mean. Additional research will obviously be required for a deeper understanding of these findings.

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