

**WHAT DETERMINES 401(K) PARTICIPATION  
AND CONTRIBUTIONS?**

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## **WHAT DETERMINES 401(K) PARTICIPATION AND CONTRIBUTIONS?**

### **ABSTRACT**

This paper uses the 1998 Survey of Consumer Finances to identify the factors that determine whether an eligible employee elects to participate in a 401(k) plan and the magnitude of the employee's contribution. The conclusion is that the most important factor affecting employees' participation and contribution decisions is their planning horizon. Those with planning periods of less than two years are much less likely to provide for retirement than those who have a more long-term perspective. These results are consistent with other studies suggesting that employee education can have a major impact on retirement saving. On the plan side, the most important determinants are the availability of an employer match and the ability of employees to gain access to their funds before retirement through withdrawal or borrowing. In short, good information about the need for retirement saving and good plan design can significantly increase participation and contributions. The question is whether employers have the incentive to make this effort under the new safe harbor nondiscrimination provisions.

The U.S. retirement income system is often described as a “three-legged stool,” consisting of Social Security, employer-provided supplementary pensions, and individual saving. In fact, the stool is pretty wobbly. Only 49 percent of wage and salary workers in the private sector between the ages 25 and 54 are covered by a pension plan of any sort. And the trend is not encouraging; between 1979 and 1998, the percentage of private sector workers aged 25-54 covered by a pension plan fell from 52 to 49 percent (Woods 1994 and U.S. Bureau of the Census 1998). Moreover, the nature of pension coverage has changed sharply. The defined contribution plan, where benefits depend on contributions and the earnings on those contributions, has to a large extent replaced the defined benefit plan, where benefits are provided as a lifetime annuity based on final average salary and years of service.

Within the defined contribution world, the fastest growing type of plan is the 401(k). The defining characteristics of 401(k) plans are that participation in the plan is voluntary and that the employee as well as the employer can make pre-tax contributions to the plan. These characteristics shift a substantial portion of the burden for providing for retirement to the employee; the employee decides whether or not to participate, how much to contribute, and how to invest the assets. Since pension income is often the fault line that divides the impoverished from those with adequate income in retirement, the participation and contribution decisions are extremely important.

The goal with regard to 401(k) plans is to ensure that those eligible to participate choose to do so, and that those who participate contribute as much as possible. The question is whether policies can alter attributes of either employees or plans to enhance the likelihood of participation and contributions. To that end, this paper looks at the factors that determine whether an eligible employee elects to participate in a 401(k) plan and the magnitude of the employee’s contribution. Some previous studies have examined these issues, but they often used plan data and lacked household variables that theory predicts should affect investment behavior (Andrews 1992, Papke 1995, Papke and Poterba 1995, Bernheim and Garrett 1996, Schieber and Clark 1998, and Bassett, Fleming, and Rodrigues 1998). This paper adds to the literature by examining

participation and contribution decisions using the Federal Reserve's 1998 Survey of Consumer Finances, which includes a rich set of demographic and financial information on households.

Part I describes how 401(k) plans work. Part II briefly summarizes the existing literature. Part III presents our empirical results. The conclusion that emerges from this work is that the most important factor affecting employees' participation and contribution decisions is their planning horizon. Those with planning periods of four years or less are much less likely to provide for retirement than those who have a more long-term perspective. To the extent that employees' planning horizon can be affected by information about needs in retirement, these results are consistent with other studies suggesting that employee education can have a major impact on retirement saving (Bernheim and Garrett 1995 and Clark and Schieber 1998). On the plan side, the most important determinants are the availability of an employer match and the ability of employees to gain access to their funds before retirement through borrowing. In short, good information about the need for retirement saving and good plan design can significantly increase participation and contributions.

## I. How 401(k) Plans Work

The Revenue Act of 1978 first authorized employers to offer 401(k) plans, and clarifying regulations in 1981 significantly increased their popularity.<sup>1</sup> A 401(k) plan is a profit sharing or stock bonus plan that contains a cash-or-deferred arrangement (CODA). The most prevalent CODA is a salary reduction agreement. With a salary reduction agreement, eligible employees may elect to reduce their compensation and have their employer contribute the difference to a plan. Employers often match the employee's contribution. A typical match is 50 cents for each dollar contributed by the employee, with the match ending when employee contributions equal 6 percent of compensation.<sup>2</sup>

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<sup>1</sup> Internal Revenue Service regulations adopted in 1981 allow the use of salary reduction arrangements as a source of 401(k) plan contributions.

<sup>2</sup> The tendency to limit the proportion on which the match is based (the employee's "basic contribution") to 6 percent reflects the IRS requirement that employers with basic rates higher than 6 percent prove that they

Beyond 6 percent, plans often permit employees to make unmatched pre-tax contributions up to the legislated limit.

Both employee and employer contributions to 401(k) plans are tax-deferred. That is, no income taxes are levied on the original contribution and the earnings on those contributions until the funds are withdrawn from the plan.<sup>3</sup> Because the saving is tax-favored, the Internal Revenue Code (IRC) limits the amount that employees and employers can contribute to 401(k) plans. Tax-deferred 401(k) elective employee contributions cannot exceed an indexed amount of \$10,500 in 2000. Some plans allow after-tax contributions beyond the legislated limit for tax-deferred elective contributions. Total contributions (employee pre-tax + employer pre-tax + employee post-tax) are limited to the lower of \$30,000 in 2000 or 25 percent of the participant's compensation.<sup>4</sup>

Because of the favorable tax treatment, the IRC also restricts access to funds contributed to 401(k) plans. Before age 59 ½, the employee can generally withdraw money without penalty only upon disability or death; otherwise, the employee must pay a 10 percent penalty in addition to income taxes. After 59 ½, the employee may withdraw funds without penalty. Participants do have limited access to their funds without penalty through borrowing provisions, that allow individuals to borrow the lesser of 50 percent of their holdings or \$50,000.

In addition to contribution and access limits, 401(k) regulations include nondiscrimination provisions that are aimed at preventing higher-paid workers from benefiting unduly. In particular, the provisions limit the ratio of elective contributions made by the highly compensated relative to those made by the non-highly compensated.<sup>5</sup> Over and above the nondiscrimination provisions applicable to all ERISA plans, 401(k) plans have to satisfy an actual deferral percentage (ADP) test. These tests sometimes

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are not discriminatory (McGill et al. 1996, p.279). The notion is that low and middle-income workers would be hard pressed to contribute more than 6 percent of their earnings to a pension.

<sup>3</sup> Not all taxes are deferred, however. As a result of the 1983 Social Security Amendments, payroll taxes are levied on employee contributions to 401(k) plans.

<sup>4</sup> For the purpose of this calculation, compensation cannot exceed a specified limit, currently \$170,000 in 2000.

lead to an *ex post* adjustment in the match rate for some participants, if at the end of the year higher-income workers have contributed disproportionately to the plan.<sup>6</sup> Recently, the introduction of so-called “safe harbor” provisions, whereby the presence of an employer match allows the plan to qualify automatically even if no non-highly compensated employees take up the offer, has weakened protections under 401(k) plans for low and moderate earners (Langbein and Wolk 1995).<sup>7</sup>

401(k) plans have grown enormously for a number of reasons. They are less costly to operate than defined benefit plans. They do not require employer contributions. They are fully funded by definition, eliminating the work associated with funding requirements and PBGC insurance.<sup>8</sup> They are easily portable so employees can take benefits with them, eliminating the need for employers to keep track of pensions for departed employees. Given their popularity and growth, one would have thought that the introduction of 401(k) plans should have boosted pension plan coverage. But overall pension coverage has actually slipped. The question is why. The evidence is mixed as to whether growth in 401(k) plans is attributable to terminating defined benefit plans. Some studies find very little growth due to terminations (Kruse 1995 and Papke, Petersen, and Poterba 1996), while others find significantly more (Papke 1996). An alternative explanation is that all new growth in pensions occurred through 401(k) plans, and

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<sup>5</sup> Highly compensated include 5-percent owners and those with salaries over \$85,000 in 2000.

<sup>6</sup> Under the ADP test elective contributions are not discriminatory if the 401(k) plan satisfies one of two criteria. 1) The average actual deferral percentage for the high-paid is not more than 125 percent of that for the low-paid employees. That is, if the average deferral percentage for the low paid is 10 percent and that for the high paid does not exceed 12.5 percent, the plan passes the first test. 2) The average actual deferral percentage for the high-paid is not more than 2 times the average deferral for the low paid and the difference between the percentages is not more than 2 percent. That is, if the average deferral percentage is 2 percent for the low-paid and 4 percent for the high paid, the plan satisfies the second test.

<sup>7</sup> The incentives in this safe harbor provision are very different from those originally adopted under section 401(k) where the permitted level of contributions for the highly compensated depended upon the average contribution by the non-highly compensated. As originally adopted, the employer had an incentive to educate moderate and low earners as to the virtues of savings for retirement, or if that failed to make involuntary contributions on their behalf. With the safe harbor, the employer has nothing to gain from educating reluctant savers and encouraging them to participate, since the employer’s costs increase when employees choose to participate.

<sup>8</sup> The PBGC (Pension Benefit Guaranty Corporation) is a federal agency created under ERISA to protect pension benefits in defined benefit plans. If a pension plan is unable to cover vested accrued benefits plans, the PBGC will cover benefits up to a maximum. This insurance is financed through premiums levied on employers and that are dependent on a plan's funding ratio.

because of the voluntary nature of these plans participation did not keep pace with eligibility. For this reason, employee 401(k) participation and contribution decisions are increasingly important determinants of pension coverage and retirement saving. What makes employees participate and contribute? What can policy do about these issues?

## II. Earlier Findings

A handful of studies have explored the factors that affect participation and contributions in 401(k) plans. These studies fall into two groups: those based on the Current Population Survey (CPS) 1988 and 1993 Employee Benefit Supplements and those based on plan data.<sup>9</sup> The advantage of the CPS is that it includes information about both the individual and the plan, whereas plan data often have limited information about individual employees. Both employee and plan characteristics are likely to be important determinants of participation and contribution decisions.

On the individual side, the obvious variables are income, age, education, job tenure, and taste for saving. Income would be an important determinant of participation because low-income workers face lower tax rates and therefore benefit less from the tax-deferred nature of 401(k) plans than high income employees. Low-income workers are also more likely to be liquidity constrained and need money for purposes other than retirement saving. Finally, low-income workers face higher replacement rates from Social Security and therefore have less need for additional retirement income. The relationship between income and contributions, given participation, is more complicated since employee contributions are limited to a fixed dollar amount, as discussed above.

In addition to income, age would be important because it reflects employees' stage in the life cycle and their interest in retirement saving. Education would likely

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<sup>9</sup> The CPS is conducted monthly by Bureau of the Census and is the source of official government statistics on employment and unemployment. The Employee Benefit Supplement was conducted every four or five years as an addition to a particular month's CPS to provide detailed information on retirement, disability, and health insurance benefits. The Census Bureau matches the supplement responses with labor force data from the April and May CPS and with income data from the March CPS. Weights are also included to make the sample representative of the U.S. population.

enhance employees' understanding of both the advantages of 401(k) plans and the need to accumulate funds for retirement. Job tenure relates to the vesting of employer match payments and employees' knowledge about the plan. Finally, some people simply like to save more than others, so any variable that captures a taste for saving would also be positively related to both participation and contributions.

On the plan side, the presence of an employer match in the 401(k) plan would be expected to encourage both participation and contributions, because it produces a large initial return on the employees' contribution that supplements the advantages of tax deferral. Given some match, the relationship between the size of the match and employee contributions depends on whether the income or substitution effect dominates. Another important plan characteristic is the possibility for employees to have access to their funds before retirement without penalty. In addition to the plan characteristics themselves, employer efforts to communicate the importance of retirement saving would also be expected to increase participation and contributions. Finally, the presence of another pension plan would probably discourage participation and coverage.

#### Studies Based on the CPS and Other Surveys of Individuals

Andrews (1992) uses the May 1988 CPS to estimate three equations, explaining the probability of an employee being covered by a 401(k) plan, the probability of a covered employee participating in the plan, and the percentage contribution. She relies on workplace characteristics to explain coverage, and finds that the probability of coverage increases with firm size, unionization, wage level etc.. But coverage is only part of the story; in 1988 roughly 43 percent of workers offered 401(k) plans did not participate. To explain participation, she uses both individual and plan characteristics and finds that participation rises with age, income, education, tenure, and the presence of an employer match. In terms of contribution levels, age, family income, and participation in an IRA were important, but contributions were negatively related to the presence of an employer match.

The Employee Benefits Research Institute (EBRI 1994) compares the May 1988 CPS and the April 1993 CPS. By 1993, the percentage of workers offered 401(k) plans who did not participate had dropped from 43 percent to 35 percent. Between 1988 and 1993, the proportion of workers employed by firms with 401(k) plans increased from 27 percent to 37 percent, and participation rose from 15 to 24 percent. Looking at sponsorship and participation rates by age, earnings, sex, and hours worked revealed that participation rates in plans with an employer match was slightly higher (78 percent) than participation rates in plans without an employer match (72 percent). In terms of age, participation rates rise with age to about 50 and then decline. As in the Andrews' study, the contribution rate is lower in plans with an employer match than in plans without.

A Federal Reserve Bank of New York study (Bassett, Fleming, and Rodrigues 1998) also uses the April 1993 CPS to analyze participation in 401(k) plans. They find that participation is positively related to income, age, job tenure, and home ownership. Participation is also sharply higher when the 401(k) plan is the only plan offered by the employer. On the plan side, they find that the presence of a match rate significantly increases participation. The April CPS also has detailed measures of match rates that allow the researchers to test whether participation increases with the level of match, and they find no evidence to support this contention.

Bernheim and Garrett (1996) use a 1994 nationally representative sample by Merrill Lynch of 2000 people aged 30 to 48 to assess the effects of employer-based informational programs on participation and contributions to retirement plans.<sup>10</sup> The authors relate participation rates to standard economic characteristics (age, employee's wage, and education), the presence of another plan, and two measures of employer-provided informational programs – whether the employer offers retirement planning information and whether the employee uses it. They find that the employee's wage has a positive effect, the presence of another plan has a negative effect, and age and education are statistically insignificant. The most important determinant of participation is

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<sup>10</sup> See Bernheim (1998) for a survey of employees' financial sophistication and other evidence regarding the impact of employer-provided education.

employer-provided informational materials; the participation rates for employees who use these materials are 19.5 percentage points higher than for those who do not receive or use such materials. The authors employ a similar model to explain contributions, and again find that the effects of employer-provided information are large and highly significant.

### Studies Based on Plan Data

Papke (1995) uses Form 5500 plan level data for 1986 and 1987 to estimate participation and contribution rates. She relates the participation ratio (the number of active employees divided by the number eligible to participate) to several match-rate indicator variables, where the match rate is approximated by the ratio of employer to employee contributions. She finds that participation is positively related to match rates, but that the marginal effect of moving to a higher match rate category is small. Even these small marginal effects disappear when Papke estimates a fixed-effects model. The implication of this result is that the efforts of the benefits staff and the quality of their communications, rather than match rates, may be affecting participation rates. Finally, Papke uses the same model to examine employee contributions and finds that contributions increase with match rates up to 80 percent, but that the marginal effect of increasing match rates above 10 percent is small, generally insignificant, and often negative. Plans with match rates in excess of 80 percent have lower employee contributions than plans with no match at all.

Using 1986 and 1990 survey data from 43 firms, Papke and Poterba (1995) relate the proportion of eligible employees participating in 401(k) plans to the employer's match rate, the availability of an alternative plan, and plan size. They find that participation is higher when employers provide a match and some evidence that participation increases with the level of the match rate. The link between contributions and match rates is much weaker.

Kusko, Poterba, and Wilcox (1998) estimate employee participation and contributions for 12,000 salaried and nonunion hourly workers in a medium-sized

manufacturing firm between 1988 and 1991. During this period, the match rate increased from 25 percent on the first 6 percent to over 100 percent and then disappeared entirely in the final year. The substantial variation in the match rate produced almost no change in the participation rate of employees over the four-year period, and had only a small, albeit significant, effect on contributions. Most participants were bunched at one of three constraints – the maximum plan limit of 10 percent of compensation, the maximum employee contribution that received an employer match (6 percent of compensation), or the IRS 1994 limit of \$7,000 – and rarely changed their contributions to reflect changes in employer match.

Clark and Schieber (1998) use 1994 administrative records for 19 firms, which include information on employee wage levels, age, contribution rates, match rates, and the existence and generosity of a defined benefit plan. They relate participation rates to individual and plan characteristics, to the level of plan communication, and to alternative levels of match rates, since all plans in their sample provide some match. They find that higher match rates increase participation in 401(k) plans, but were unable to test the effect of some match versus no match. They also find that increasing the quality of communication significantly increases participation rates. Higher levels of replacement rates in a defined benefit plan tended to reduce participation, but the impact is small. The authors use the same model to explain the level of contributions given participation and find again that increased match rates and communications have a positive effect.

### The State of the Debate

To date, the story is as follows. The CPS studies confirm that participation and contributions are related positively to income, age, education, and job tenure. The evidence also suggests that participation and contributions are negatively related to the presence and generosity of a defined benefit plan. None of the studies have a comprehensive measure of household wealth or any measure of a taste for saving.

All the studies suggest that employees respond positively to the presence of an employer match. There is no consensus, however, as to whether employees respond to the level of the match rate once a positive match is provided. Kusko, Poterba and Wilcox (1998) find little change in either participation or contributions in response to large changes over time in matching provisions. Bassett, Fleming, Rodriguez (1998) find no evidence that participation rises with the match rate. Papke (1994) shows that participation increases with the level of the match rate, with smaller marginal effects at higher match rates, and that contributions increase markedly as the employer moves from a zero to a positive match rate, with a negative effect at very high match rates. Papke and Poterba (1995) conclude that participation increases with the match rate but find no significant effect on contributions. Clark and Schieber (1998) find a positive effect of the match rate on both participation and contributions, but it is important to remember that their sample contained no firms without a match rate.

### III Empirical Results

This study uses a different and newly released data set, the 1998 Survey of Consumer Finances (SCF), to explore the relationship between individual and plan characteristics and participation and contribution decisions to 401(k) plans. The SCF is a triennial survey sponsored by the Federal Reserve Board in cooperation with Statistics of Income of the Department of the Treasury. The SCF collects detailed information on households' assets, liabilities, and demographic characteristics as well as on pension coverage, participation, and pension plan characteristics such as contribution levels.<sup>11</sup> The advantage of the SCF is that it provides much more information about the individuals than is available in other studies, specifically with regard to attitudes toward saving and to non-pension assets owned by covered workers or by other individuals in the family.

Most information in the SCF is collected at the household level. However, data on pension coverage, employment, and other demographic characteristics are available for both the household head and the spouse/partner. The following analysis uses person-

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<sup>11</sup> Arthur B. Kennickell, Martha Starr-McCluer and Brian J. Surette (2000) describe the SCF in detail.

specific information obtained by splitting married households into two observations. Variables collected at the household level, such as financial wealth, are attributed to both individuals, since each member of a married couple can draw on shared finances.<sup>12</sup> These data permit a detailed analysis of participation and contribution decisions in 401(k) plans based on individual and household characteristics. While the 1998 SCF contains 4,299 households, the sample for the following analysis consists of 1698 non-self employed individuals eligible to participate in a 401(k)-type plan. The means for the variables are shown in Table 1. Those eligible to participate in 401(k) plans in the SCF are a relatively well-off group, with average income of \$65,900 and net worth of \$221,700. Still 28 percent of those eligible choose not to participate in the 401(k) plan offered by their employer.

### The Participation Equation

The first equation is designed to explain the decision to participate in a 401(k) plan given eligibility. The dependent variable has a value of one if a worker participates in the 401(k) plan and zero if the worker elects not to participate. The explanatory variables include those used in earlier studies – age, income, education, and job tenure – plus three new variables – household net worth, the present discounted value of future benefits in the individual’s defined benefit plan, and the individual’s planning horizon. A short planning horizon is likely to be associated with a lower taste for savings and a smaller probability of participating in a pension plan.<sup>13</sup> The net worth variable could also reflect a taste for saving and be positively related to participation, or in the case of workers who are target savers it could have a negative sign. In contrast, earlier work, which shows a negative relationship between participation and the presence of a defined benefit plan, suggests that wealth in the form of a defined benefit pension would discourage participation. That is, workers who anticipate that their defined benefit plan will provide adequate retirement income will be less likely to participate in a second plan.

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<sup>12</sup> This data strategy may result in non-independent observations and may cause regression estimates to be inefficient.

The model is estimated using a multivariate probit; the results are presented in Table 2. The values reported in the table are the change in the probability of participation of a one-unit change in a continuous variable or the shift in a dichotomous variable from zero to one. For example, if job tenure increases by one year from the mean (9 years), the probability of participating increases by 0.6 percentage points. Alternatively, if the employee has a short planning horizon, the probability of participation decreases by 8 percentage points.

Overall, the results confirm earlier findings that age, income, and tenure increase the probability of participating in a 401(k) plan; education is not statistically significant. Translating the impact of income back in dollar terms, the results indicate that if household income rises by \$10,000 from \$65,900 (the mean) to \$75,900, participation would rise by .8 percentage point.<sup>14</sup> The new variables – wealth and time horizon – are also important. In fact, a short planning horizon is the most significant factor in determining participation. As noted above, a short planning horizon decreases the probability of participation by 8.2 percentage points. Net worth has a positive effect on the participation decision, but its effect is relatively small; increasing net worth at the mean by \$10,000 raises participation by 0.1 percentage points. Nevertheless, it supports the notion that workers with a taste for savings are more likely to participate in a pension plan. In contrast, pension wealth reduces the probability of participation, and the impact is greater in magnitude than that of non-pension wealth. For the typical worker with a defined benefit plan, a \$10,000 increase in pension wealth decreases participation by 3 percentage points.

While the SCF provides information on wealth and tastes not available elsewhere, it suffers from lack of information about 401(k) plan characteristics *for those who do not choose to participate in their employer's 401(k) plan*. Thus, it is not possible to include information about the availability and level of employer match and the potential for access to funds in the participation equation. As a result, the equation explains somewhat

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<sup>13</sup> A planning horizon of 4 years or less is considered short in this context.

less of the variation in participation than other studies. The SCF does provide plan information for those who do participate in a 401(k), and therefore the contribution equation can include plan data as well as individual characteristics.

### The Contribution Equation

The contribution equation attempts to explain the percent of income that those who choose to participate contribute to a plan. This equation includes most of the variables described above plus three plan characteristics – the existence of an employer match, the level of match, and the ability of workers to borrow against the plan. Access to funds before retirement would clearly be expected to have a positive effect on the contribution rate.<sup>15</sup> The existence of an employer match should also have a positive effect. As discussed earlier, the evidence to date is mixed regarding the impact of the employer match rate, given an employer match. Theoretically, it could have a positive or negative effect on the employee contribution depending on if the substitution or income effect dominates.

The results of the contribution equation are presented in Table 3, and they are straightforward to interpret since the equation is estimated using ordinary least squares (OLS). Moreover, since the equation includes both plan information as well as individual characteristics, it explains a substantial amount of the variation in contribution rates across employees.

The plan variables are critical to the contribution decision. The presence of an employer match increases the contribution percentage by 8.1 points, the single most important factor. As the mixed results from earlier studies suggest, the level of the employer match does not appear particularly important given the match exists. In fact, the coefficient is negative and statistically significant. The magnitude is small, however; if the match went from 40 percent to 80 percent, the employee contribution rate would

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<sup>14</sup>For households in the bottom quartile of the income distribution a \$10,000 increase in annual household income increases the probability of participating by 1.5 percentage points.

decline by only 0.4 percentage points. The other plan variable – the ability to borrow – increases the contribution rate by about 1 percentage point.

In terms of the non-plan variables, a short planning horizon reduces the contribution rate by roughly 1 percentage point and a taste for saving (as measured by net worth) increases it. Once an employee decides to participate, the wealth in a defined benefit plan does not have a significant impact on the contribution rate. The only somewhat surprising result in the equation is that household income enters with a statistically significant negative coefficient. In fact, this can be explained by the \$10,000 limit on employee contributions in 1998, which almost by construction forces the contribution rate to decline as income rises.

#### IV. Conclusion

The results presented in this paper support earlier findings and add to the debate, particularly by clarifying the relationship between the presence of a match rate and the level of the match rate. On the plan side, the finding that access to funds is also an important determinant of the contribution rate confirms speculation by many economists. The results with regard to planning horizon also reinforce work by Bernheim (1998) and Clark and Schieber (1998) suggesting that employer-provided information can be very important.

In terms of the implications for policy, the results are encouraging. If participation and contribution rates were related solely to income and age, then little could be done to change these decisions. But they appear to be related to planning horizon on the individual side and to the existence of a match rate and access to funds on the plan side. Individuals' horizons can be extended by information about the importance of planning for retirement, and employers can improve the appeal of their plans by providing an employer match. These changes should improve both participation and

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<sup>15</sup> Of course, if employees borrow and fail to repay the loan, they will lose retirement protection.

contributions, thereby enhancing pension coverage and ensuring that more Americans are prepared for retirement.

The question is whether employers have the incentive to provide that information. Under the original nondiscrimination provisions, the permitted level of contributions for the highly compensated depended upon the average contribution by the non-highly compensated. In this setting, employers had a strong incentive to educate moderate and low earners as to the virtues of savings for retirement, or if that failed to make involuntary contributions on their behalf. The incentives in the new safe harbor provision, where the presence of an employer match allows the plan to qualify automatically even if no non-highly compensated employees take up the offer, are very different. The employer has nothing to gain from educating reluctant savers and encouraging them to participate; if anything, the employer's costs increase when these employees choose to participate. The hope has to be that employers will undertake employee education initiatives even without the incentives created by the original nondiscrimination provisions.

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Table 1: Variable Definitions and Weighted Means

<i>Variable</i>	<i>Definition</i>	<i>Weighted Means</i>	
		Eligible for Savings Plan N=1,698	Participate in Savings Plan N=1,232
AGE	Age	40.96	41.43
YRSEDUC	Years of education	13.85	13.95
TENURE	Years with employer	9.33	10.09
HSHORT	=1 if financial planning horizon is four years or less	0.53	0.49
INCOME	Household income / 10,000 (1998 dollars)	6.59	7.14
NETWORTH	Total net worth / 10,000 (1998 dollars)	22.17	25.14
DBAMT	Discounted present value of defined benefit pension / 10,000 (1998 dollars)*	2.59	2.88
EMPCONT	=1 if employer matches	NA	0.88
MATCHRT	Employer match rate	NA	61.56
BORROW	=1 if employer can borrow from plan	NA	0.85
PART	=1 if respondent participates in a tax-deferred savings plan	0.72	1.00
PCTCONT	Percent of income respondent contributes to plan	NA	6.41

\* For those with positive DBAMT value.

Table 2: Probit Estimates on Participation in 401(k) Plans

	<i>dF/dx</i>
AGE	.020** (.006)
AGESQ	-.0003** (.000)
YRSEDUC	-.002 (.005)
TENURE	.006** (.001)
HSHORT	-.082** (.023)
LNINCOME	.050* (.020)
LNNW	.027** (.010)
LNDBAMT	-.078** (.022)
Pseudo R <sup>2</sup>	0.071
Number of Observations	1698

Note: Standard errors are in parentheses

\*\* denotes significance at .99 confidence level

\* denotes significance at .95 confidence level

Table 3: OLS Regression on Percent Contribution

<i>Variable</i>	<i>Coefficients</i>
EMPMATCH	8.088** (.407)
MATCHRT	-.012** (.001)
BORROW	.936* (.366)
YRSEDUC	.041 (.064)
HSHORT	-.898** (.263)
LNINCOME	-.873** (.207)
LNNW	.790** (.110)
LNDBAMT	-.125 (.242)
CONSTANT	-.991 (.940)
R <sup>2</sup>	0.32
Number of Observations	1232

Note: Standard errors are in parentheses

\*\* denotes significance at .99 confidence level

\* denotes significance at .95 confidence level

