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Social Security investment accounts: lessons from participant-directed 401(k) data

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Abstract

Newly available 401(k) participant investment data may have implications for individual Social Security account (IA) proposals. We found that women with wages between $25,000 and $50,000 have a significantly greater probability of investing a small percentage of their 401(k) in equities than their male counterparts, but those with salaries over $75,000 have a smaller probability. Hence, women's less aggressive investment behavior may be primarily due to younger cohorts and may not apply above a threshold wage. However, overall, 28.4% of men and 33.8% of women are conservative investors, suggesting the possible risk low IA accumulations under some proposals.

1. Introduction and background

Obtaining private market returns though Social Security individual accounts (IAs) is a relatively novel and popular idea (Bowman, 1999; Upston, 1998). This type of reform

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proposal is the alternative to the traditional, unpopular program fixes of tax increases and benefit cuts that will inevitably need to be part of a comprehensive approach to long-term Social Security policy. However, the idea raises concerns over the extent to which benefits would vary across participants. While most research thus far has focused on the effect of market volatility on Social Security benefits across workers participating in IA plans (e.g., Ball 1998), the objective of this analysis is to ascertain the extent to which individual investment behavior would be a source of benefit variation. The extent of such variation, relative to current law, is likely to be a consideration used by policymakers and the public in assessing predicted outcomes under IA plans and for the possible design and/or redesign of the plans based on those expectations.

To demonstrate the varying degrees to which final Social Security benefits would depend on individual investment decisions under proposed policies, this article first describes five individual account (IA) proposals that were introduced in 1999. Then, a review is provided of previous studies that estimate 401(k) participant investment behavior. In the third section of this article, we describe how newly available data on 401(k) participant investment behavior can be used to identify groups that tend to be overly conservative investors in their 401(k) plans, and we present our findings. Finally, the implications of these results are discussed in terms of the IA plans profiled.

2. Specific proposals for individual Social Security Investment Accounts

2.1. Kolbe-Stenholm plan (1999 version)

The Kolbe-Stenholm proposal (Table 1) would maintain OASDI taxes at their current-law rate (12.4% in 2000 and beyond) and divert 2 percentage points of this 12.4% into IAs. Voluntary contributions of up to $2,000 per year could be added, and low-income workers would be provided a matching contribution on a sliding scale based on income. Investment choices would be limited and designed to resemble those available to federal workers who participate in the Thrift Savings Plan (TSP). TSP participants are currently limited to investment in equity index funds, Treasury bonds, and debt index funds, and a small-cap and an international fund are scheduled to be added.

In order to “make room” for the diversion of 2% of taxable payroll to individual accounts, Kolbe and Stenholm would significantly reduce the current-law defined benefit. In order to protect workers to some extent from down-side investment risk, this plan proposes a sliding scale minimum defined benefit Social Security payment equal to 60 to 100% of the poverty level for retired workers with between 20 and 40 years of covered employment. For workers who want to retire with Social Security benefits above the poverty level, individual account investment behavior would be extremely important to total Social Security benefits under the Kolbe-Stenholm plan.

2.2. Nick Smith's plan (1999)

Like the Kolbe-Stenholm plan, Rep. Nick Smith's most recent plan (Table 1) is the quintessential "carve-out" plan, whereby a percentage of Social Security payroll taxes would be redirected to individual accounts, and Social Security's defined benefit would be reduced so that it could be financed with the resulting (lower) payroll tax rate. Under Nick Smith's 1999 plan, the payroll tax "carve-out" would begin at 2.6 percentage points from 2001–2036. Investment selection would be modeled on the TSP for smaller account balances. After account assets had grown to a sufficient (to-be-determined) size, they could be transferred into an IRA type of vehicle that would allow for broader investment selections.

At time of benefit claim, the participant's Social Security defined benefit would be reduced by the amount of his or her hypothetical account balance—not actual account balance. The hypothetical account balance would be calculated using a rate based on long-term U.S. bonds held by the public, plus 0.7 percentage points. Under the Smith plan, participants' Social Security benefits—which would be reduced from current-law levels—would be further reduced by the amount of benefits that could be provided by a life annuity from the hypothetical account balance. Through the combination of the IA and the defined benefit, participants could receive more than the scaled-down Social Security defined benefit (i.e., the benefit before the hypothetical annuity is subtracted) if their actual IA returns are greater than the return used to compute their hypothetical annuity. On the other hand, they would receive less than the scaled-back defined benefit if their IA investments earned less than the returns used to compute the hypothetical annuity.

As a result, the number of individuals who might only invest in long-term bonds and not earn on their assets the additional 0.7% used to compute their hypothetical annuity for purposes of reducing their defined benefit from Social Security is of interest. In addition, the number of people who would earn returns substantially higher than the long-term bond rate plus 0.7% is a behavioral assumption of particular interest in assessing the distributional outcome under this plan.

2.3. Moynihan-Kerrey plan (1999)

This plan permits a worker to elect individual account contributions equal to 1% of taxable payroll, which his or her employer would be required to match (for a total of 2% of taxable payroll beyond the payroll tax specified to finance the plan's reduced Social Security defined benefit) (Table 1). A wide range of investments would be available to workers who directed their contributions to an IRA or any other type of voluntary investment account, as determined by the Secretary of Treasury. Other workers could elect to contribute to a Voluntary Investment Fund that would provide investment options similar to those offered to federal workers under their Thrift Savings Plan. The individual accounts would be exclusively supplemental to the Social Security defined benefit in the sense that participation is voluntary. On the other hand, these accounts could be considered to be a partial replacement for Social Security benefits, since current-law Social Security benefits would be reduced under the Moynihan-Kerrey Plan based on an individual's cohort and other characteristics. Either

Table 1 Selected individual account policy options proposed in 1999

Plan	Supplements or replaces a portion of Social Security?	Funding source	Investment choice	Social Security benefit offset based on account balance?	Minimum benefit guarantee beyond Social Security defined benefit?
Reps. Jim Kolbe (R., AZ) and Charles Stenholm (D., TX) (May 1999 Proposal)	Replaces	Mandatory 2 percentage points of Social Security payroll tax with scaled matching contributions for low-income workers on voluntary[a] contributions	Limited choices, such as those available to federal workers[b]	No	Yes, between 60 and 100 percent of poverty level, depending on years of work
Rep. Nick Smith (R., MI)[c]	Replaces	Mandatory individual account contributions equal to 2.6 percent of taxable payroll from 2001-36[d]	Limited choices, such as those available to federal workers until accounts become large enough to transfer into an IRA vehicle with broader investment choices	Yes, defined benefit is reduced by the amount of account contributions, accumulated hypothetically at a rate based on long-term U.S. bonds held by the public plus 0.7 percentage points. Participants can receive additional benefits if individual account returns exceed those used to compute the hypothetical balance.	Not applicable, since defined benefit paid to individual depends on hypothetical individual account balance
Sens. Daniel Patrick Moynihan (D-NY) and Bob Kerrey (D-Neb)[e]	Arguably either	Voluntary individual account contributions equal to 2 percent of taxable payroll (1 percent each from employers and employee)	Establishes a voluntary investment fund with investments like those offered to federal workers but also IRA-type accounts	No	No

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Table 1 *(continued)*

Plan	Supplements or replaces a portion of social security?	Funding source	Investment choice	Social Security benefit offset based on account balance?	Minimum benefit guarantee beyond Social Security defined benefit?
Rep. John Kasich (R-OH)	Replacement	Irrevocable option to participate in individual plan; government would contribute between 1 and 3.5 percent of taxable payroll (depending on earnings) to individual account	Investments choices like those offered to of federal workers	Yes, in exchange for participating in individual account plan, participants must agree to a scaled back defined benefit	No
Reps. Bill Archer (R., TX) and E. Clay Shaw (R., FL)[f]	Replaces	Mandatory 2 percentage points of Social Security payroll tax	All assets would be invested in a qualified mutual fund maintained with a portfolio allocation of 60 percent stock index funds and 40 percent corporate bonds	Yes, participants are guaranteed at least the current-law Social Security benefit and can receive additional benefits if individual account balances exceed the amount needed to fund current-law Social Security benefit	Not applicable, since defined benefit paid to individual depends on individual account balance; total benefit cannot be lower than current-law Social Security benefit

[a] Additional $2,000 per year could be contributed by the individual on a voluntary basis.

[b] Federal workers who participate in the Federal Thrift Savings Plan are currently limited to investment in equity index, Treasury bond, and debt index funds.

[c] Update of the Social Security Solvency Act of 1995.

[d] Amount of account contributions beyond 2036 depends on the amount of OASDI income that would not be needed to in order to maintain solvency of the defined benefit plan on a pay-as-you go basis with a trust fund ratio of about 50 percent of annual cost.

[e] Social Security Solvency Act of 1999 (S. 21).

[f] The Social Security Guarantee Plan.

way, individual investment behavior could significantly affect retirees' well being under this reform option.

2.4. Kasich plan (1999)

The Kasich plan gives workers an irrevocable option to participate in an IA system, whereby the government would contribute to their personal accounts (Table 1). The amount that the government would contribute would be between 1 and 3.5% of the individual's taxable payroll, with higher percentages going to lower-earning workers. Workers would be provided the same type of investment options that are available to federal workers under the TSP. In exchange for accepting government contributions to their account, the individual would agree to accept a Social Security defined benefit that would be reduced by the number of years for which account contributions were made. Obviously, the extent to which individual investment behavior can produce returns that offset or exceed the worker's reduced defined benefit is crucial to predicting outcomes under the Kasich plan.

2.5. The social security guarantee plan (1999)

This plan takes a novel approach to individual accounts (Table 1). In a sense, the Archer-Shaw plan is a new type of hybrid between defined benefit and defined contribution plans. While Archer-Shaw includes individual accounts and allows participants to benefit from up-side investment risk, the Social Security program eventually recaptures the entire account balance and protects workers from downside investment risk, inflation risk, and longevity risk.

Although individuals would manage their own accounts, such management would be limited to the choice of one's qualified mutual fund provider. For purposes of Social Security accounts, these providers would be required to offer only investments with a portfolio allocation of 60% indexed equities and 40% corporate bonds. At retirement or disability, the Social Security Administration would use a formula to determine whether a participant's account balance was adequate to provide a benefit equal to that available under the current-law Social Security program.

If the result of this formula shows that the account to be inadequate, then Social Security's defined benefit program would cover the difference, and Social Security would pay benefits in the form of a life annuity, just as under current law. Alternatively, if the result of the formula was a higher benefit than the beneficiary would be entitled to under current-law, then Social Security pays the beneficiary a life annuity greater than the current-law benefit. Either way, the entire balance of the individual account is gradually transferred to the Social Security trust funds, and for about half of all participants who will live beyond their life expectancy, Social Security's defined benefit program would pay benefits entirely after the exhaustion of their individual account assets. Because individual account investment behavior is so constrained under Archer-Shaw, this plan's outcome depends least on individual asset allocation when compared to other plans described above.

3. 401(k) participant behavior

3.1. Relevance and applicability to IAs

Due to their preeminence in the defined contribution plan world, 401(k) plans are the closest existing model to IAs in terms of how large numbers of workers would invest their account balances. However, it should be noted that the populations covered by 401(k) plans differ substantially in terms of income and other demographic variables from the 96% of the U.S. workforce that is covered by Social Security (VanDerhei, 1999a). In addition, to the extent that 401(k) behavior is influenced by the existence of a totally defined benefit Social Security promise, current 401(k) investment behavior may differ from IA investment behavior.

In 1981, the IRS issued preliminary regulations that set the stage for the proliferation of 401(k) plans, which accounted for over three-quarters of the net increase in all private pension plans from 1980–1995. By 1995 (the most recent data available), 401(k) plan contributions accounted for more than half of all new defined benefit and defined contribution retirement plan contributions (U.S. Department of Labor, 1999). As a result, more and more individuals have a direct stake in the equities market, as evidenced by the number of households that own mutual fund shares. Mutual funds are one gauge of how 401(k) plans have brought individuals into the market, since 35% of mutual fund assets are held in retirement plans (Investment Company Institute, 1999).

3.2. Previous research on 401(k) investment behavior

Despite the importance of 401(k) asset allocation behavior as the closet available model by which to estimate possible IA behavior, previous 401(k) studies unfortunately have provided limited information. As a result, analysts generally have estimated the outcomes of various IA plans by assuming: that all individuals invest identically; that individuals will invest in a range of hypothetical portfolios (e.g., all bonds, all equities, or mixed); or that the experience of a limited sample applies to all workers. The database used for this analysis bypasses several limitations inherent in earlier studies of 401(k) investment behavior and thereby precludes the need to use such simplifying assumptions to estimate the outcomes of various IA plans.

Much of the previous research in this field examined aggregate 401(k) plan data (Buck Consultants, 1997; Hewitt Associates, 1997; Profit Sharing/401(k) Council of America, 1997; KPMG, 1998; William M. Mercer, 1997; and Cerulli Associates, Inc., 1998). Although this allowed analysts to aggregate plan data to determine overall asset allocation behavior, it did not allow any examination of the impact of demographic characteristics. Still other researchers have used surveys of 401(k) participants to analyze participant activity and decision-making in 401(k) plans. One of the more frequently used is the Survey of Consumer Finances (SCF), a stratified random sample of U.S. households, administered by the Federal Reserve Board. Although the survey has the advantage of providing information on asset holdings outside the participant's 401(k) plan, it only asks the respondents to indicate plan asset allocations as "mostly in stock," "mostly in bonds," or "split between." Any analysis

of this data therefore must either restrict itself to these three categories or utilize ad-hoc assumptions with respect to the actual distributions. Similar problems exist with the National Longitudinal Survey of Mature Women (Papke 1998).

At least three research projects have used 401(k) administrative records; unfortunately they have all utilized relatively small samples. Goodfellow and Schieber (1997) investigated the investment elections of 36,000 participants in twenty-four 401(k) plans. The total number of participants in the plans analyzed in their study ranged from around 150 to 6,000. In addition, Yakoboski and VanDerhei (1996) analyzed the asset allocation decisions of 401(k) plan participants working for three large employers (AT&T, IBM Corporation, and New York Life Insurance Company) with a total of 180,000 employees. Finally, Hewitt Associates has developed an index to track the investment activity of 401(k) participants. This index is based upon 1.4 million 401(k) participants with approximately $62 billion in collective assets. Currently, this index reflects experience of large corporations and does not provide any analysis of employee demographics.

Two other micro level defined contribution databases have been analyzed but constitute different types of plans. Hinz, McCarthy, and Turner (1997) investigate asset allocations among Federal Thrift Savings Plan participants, and Ameriks, King and Warshawsky (1997) perform a similar analysis on the TIAA-CREF population.

3.3. The EBRI/ICI database

In comparison to previous studies, the database created by the Employee Benefit Research Institute (EBRI) and the Investment Company Institute (ICI) for 1996 contains 6.6 million active participants, who hold nearly $250 billion worth of assets in 27,762 401(k) plans of all sizes. Measured against the universe of 401(k) plans, the 1996 database accounts for 9% of all plans, 18% of all participants, and 31% of all assets. The distribution of participants, plans, and assets in the EBRI/ICI database for 1996 is similar to that reported for the universe of plans by Cerulli Associates, Inc. (1998). For each of five plan size classifications, the share of the database's assets falling within those categories is very close to the share found in the universe for that size category. Similarly, the share of the database's participants and plans within these size categories is approximately the same as that in the universe (VanDerhei et al., 1999b).

4. Analysis of participant-directed asset allocation

Much research has focused on the effects of market volatility risk in distributing Social Security benefits across workers participating in IA plans (e. g., Ball 1998). The objective of this analysis is to ascertain the extent to which individual investment behavior is a potential source of variation in Social Security benefits between IA participants. The extent of such variation in benefit distribution across beneficiaries, relative to current law, is likely to have implications for assessing outcomes under IA plans and for possibly (re)designing IA plans based on those expected outcomes. However, it is important to note that just because beneficiaries under one IA proposal may experience more disparate benefits than under

current-law does not mean that one proposal is necessarily inferior to another. For example, a plan could theoretically produce more disparate benefits across beneficiaries than current-law but also provide higher benefits to all, or be more desirable on other grounds. It is indisputable, though, that the extent to which benefit distribution will differ from current law Social Security benefits is *one* important concern when comparing the desirability of different IA plans.

For purposes of this analysis, investment options have been grouped into three broad asset classes:

1. *Diversified equity funds* consist of pooled accounts primarily investing in stocks. These funds include mutual funds, bank collective trusts, life insurance separate accounts, and other pooled investments. In addition, 60% of any monies invested in balanced funds were added to this category.
2. *Fixed income funds* included bond funds and 40% of any balanced funds in addition to money funds, guaranteed investment contracts (GICs) and other stable value funds (synthetic GICs providing benefit payments at book value or similar instruments).
3. *Company stock* which is equity in the participant's employer.

Because VanDerhei et al. (1999b) emphasize that overall 401(k) asset allocation is largely a function of the investment menus provided to workers (e.g., the existence of company stock as an optional and/or required investment for employee and employer contributions), we limit our study to a subset of participants completely free of any potential company stock contamination. We chose a sample of approximately 122,000 participants with age, salary, gender and complete information on year-end 1996 asset allocations. None of these participants were exposed to a company stock investment as either an optional or a required contribution.

Similar to earlier studies by Bajtelsmit and VanDerhei (1997) and Hinz, McCarthy and Turner (1997), we begin by estimating the effect of gender, age and salary on asset allocations for the total account balance. Given the nonlinearity of the impact of age and salary found in Yakoboski and VanDerhei (1996), Bajtelsmit and VanDerhei (1997), and Goodfellow and Schieber (1997), we chose to segment the age category into ten year increments (20–30, 30–40, 40–50, 50–60 and over 60) and salary into $25,000 increments (less than $25,000, $25,000-$50,000, $50,000-$75,000, $75,000-$100,000, and over $100,000). We also chose to analyze the impact of gender by including both a dummy variable for females as well as an interaction term with each of the age and salary categories.

Table 2 shows double-censored Tobit regression results when the dependent variable is defined as the percentage of equity in the total account balance. The model consists of a gender variable (FEMALE), four salary dummy variables, four age dummy variables and separate interaction terms between gender and the salary and age dummy variables.

The salary variables (SAL2550, SAL5075, SAL75100, and SAL100P) bracket the participant's salary in $25,000 increments with the last variable including all participants earning in excess of $100,000. The age variables (AGE3040, AGE4050, AGE5060, AGE60P) divide the participants into ten year age brackets with the last variable including all participants over age 60. The various interaction terms (e.g., ISAL2550) represent dummy

Table 2
Estimates of the effect of gender, age and salary on equity allocation for 401 (k) total account balances

Variable	Estimate	Std Err	Pr > Chi
INTERCPT	0.44567686	0.006469	0.0001
SAL2550	0.14827351	0.0066276	0.0001
SAL5075	0.09016767	0.007006	0.0001
SAL75100	0.1228902	0.008916	0.0001
SAL100P	0.2406459	0.010615	0.0001
AGE3040	0.04015406	0.007449	0.0001
AGE4050	−0.0456495	0.007371	0.0001
AGE5060	−0.1040694	0.008217	0.0001
AGE60P	−0.2480606	0.014716	0.0001
ISAL2550	−0.1509172	0.0086698	0.0001
ISAL5075	−0.0574428	0.010559	0.0001
ISL75100	0.01385501	0.016792	0.4093
ISAL100P	0.03445817	0.024106	0.1529
IAGE3040	−0.0294692	0.01073	0.0060
IAGE4050	−0.0013867	0.010614	0.8961
IAGE5060	0.03041728	0.0123	0.0134
IAGE60P	−0.017036	0.022798	0.4549
Female	−0.0305001	0.009192	0.0009

variables that are equal to one if the participant is a female and the respective salary or age variable is equal to one.

Each of the coefficients for salary are positive and significant, indicating that persons earning more than $25,000 tend to invest in equities to a greater extent than those earning less than $25,000. However, the coefficients are not monotonically increasing but follow a “U” shape with the minimum (but still positive) value for those earning between $50,000 and $75,000.

Each of the age coefficients are also significant: However, as expected, the coefficients for those over 40 are all negative (indicating a smaller propensity to invest in equities than those in their twenties). After a small positive coefficient for participants in their thirties, the coefficients become increasingly negative for older age cohorts.

The coefficient for the female dummy variable is negative (indicating that women have a smaller propensity to invest in equities) and statistically significant. In addition many of the interaction terms between gender and salary or age are also significant, suggesting that the relationship between these variables and equity allocation differs by gender. The interaction terms between gender and $25,000 and $75,000 salaries are negative and statistically significant while the interaction terms for women at salaries above $75,000 are insignificant. This suggests that some of the gender differences in asset allocation reported earlier (Sunden, 1998; Papke, 1998) may be due primarily to lower-earning females and that, above a threshold wage, the distinctions may no longer be material.

Two of the interaction terms for age and gender categories are statistically significant. The coefficient for those between age 30 and 40 is negative while the coefficient for females ages 50 to 60 is positive. This suggests that women may be more risk averse in their asset allocation decisions while young and that this discrepancy lessens and even reverses later in life.

Table 3
Probit estimates for the probability that a 401 (k) participant will hold less than 20 percent of the total account balance in equities

Variable	Parameter Estimate	Standard Error	Pr > Chi-Square
INTERCPT	−0.5168	0.0136	0.0001
SAL2550	−0.2003	0.0134	0.0001
SAL5075	−0.0199	0.0145	0.1706
SAL75100	−0.1316	0.0188	0.0001
SAL100P	−0.4162	0.0239	0.0001
AGE3040	−0.0881	0.0160	0.0001
AGE4050	0.0513	0.0156	0.0010
AGE5060	0.1803	0.0172	0.0001
AGE60P	0.4484	0.0294	0.0001
ISAL2550	0.2691	0.0182	0.0001
ISAL5075	0.0202	0.0218	0.3531
ISL75100	−0.0797	0.0359	0.0265
ISAL100P	−0.1982	0.0581	0.0006
IAGE3040	0.0620	0.0226	0.0061
IAGE4050	0.0246	0.0222	0.2671
IAGE5060	−0.0336	0.0254	0.1867
IAGE60P	0.0666	0.0450	0.1389
FEMALE	0.0363	0.0192	0.0581

However, some prediction of groups that will be expected to generate less-than-average investment income based on their under aggressive investment behavior is perhaps of more relevance to the current public policy debate. Bajtelsmit (1996) demonstrates the potential for very diverse outcomes for persons of similar demographics given varying investment behavior. Table 3 provides estimates from a probit model for the sample described above that predicts whether a participant will hold a very small percentage of their total account balance in equities. Admittedly, there is no clear-cut threshold as to what should be considered a small percentage, but we chose 20% as a cutoff value. Overall, we find that 28.4% of all males, and 33.8% of all females fall into this category of conservative investors. The variable definitions are the same as in Table 2.

The results in Table 3 generally follow those in Table 2 as expected. All the noninteractive age terms are statistically significant as are all but one of the salary terms. The salary categories follow the same "U" shaped curve as before and after an initial negative coefficient for participants in their thirties (which suggests they are less likely to invest a "small" percentage of their assets in equities than participants in their twenties), the coefficients are all positive and monotonically increasing with age.

The female dummy variable is statistically significant at the ten percentage level, as are as all but one of the gender-salary interaction terms. The women with wages between $25,000 and $50,000 experience a significantly greater probability of investing a small percentage of their 401(k) assets in equities, while those with salaries over $75,000 have a significantly smaller probability of investing a small percentage of their 401(k) assets in equities than their male counterparts.

Only one of the age-gender interaction terms is significant. Females between 30 and 40

Table 4
Estimated probabilities that a 401 (k) participant will hold less than 20 percent of the total account balance in equities, by age, salary and gender

MALE	20–29	30–39	40–49	50–59	60+
<$25,000	30.3%	27.3%	32.1%	36.8%	47.3%
$25,000–$50,000	23.7%	21.0%	25.3%	29.6%	39.4%
$50,000–$75,000	29.6%	26.6%	31.4%	36.1%	46.5%
$75,000–$100,000	25.8%	23.1%	27.5%	32.0%	42.1%
>$100,000	17.5%	15.4%	18.9%	22.6%	31.4%
FEMALE	20–29	30–39	40–49	50–59	60+
<$25,000	31.5%	30.6%	34.3%	36.9%	51.4%
$25,000–$50,000	34.0%	33.1%	36.9%	39.6%	54.1%
$50,000–$75,000	31.6%	30.6%	34.3%	36.9%	51.4%
$75,000–$100,000	24.5%	23.6%	26.9%	29.3%	43.0%
>$100,000	13.7%	13.1%	15.4%	17.2%	28.1%

have a significantly higher probability of small equity investments than do males; however there is no significant difference after age 40. This suggests that the less aggressive 401(k) investment behavior observed for women may be primarily due to younger female cohorts. The overall impact of the estimated model in Table 3 is summarized in Table 4. The estimated probabilities for each age and salary category are displayed by gender.

5. Social Security implications/discussion

Our results suggest that differences which other researchers have found between men's and women's 401(k) investments may not apply above a threshold wage. Assuming this applies to Social Security accounts, the bad news for advocates is that despite recent progress in closing the gap between men's and women's earnings, women's labor force participation rates continue to be lower than men's at every age. Also, despite the fact that a larger percentage of women are entering the workforce than ever, women's earnings are still substantially lower than those of men. Women who worked full-time, year-round in 1955 earned about 64% of what their male counterparts earned. Not much has changed since then; women who work full-time, year-round today earn about 70% of what their male counterparts earn—an increase of just 6 percentage points (9%) in over 40 years. This means that the gap between men's and women's Social Security benefits that exists under today's program due to work history differences could widen under an IA system due to differences in investment behavior.

Of the five proposals profiled above, only the Archer-Shaw plan would protect certain groups of workers (such as lower-earning women) that were shown above to be most likely to invest overly conservatively, and this plan would be most apt to distribute Social Security benefits across workers in the same pattern as current-law. The Kolbe-Stenholm proposal would mitigate the extent to which some persons within a cohort would receive different Social Security benefits based on different investment choices by including a minimum

benefit guarantee of up to the poverty level. In contrast, by providing investment choices like those available to federal workers and by not providing a minimum benefit guarantee, the Kasich, Moynihan-Kerrey, and Smith plans would likely result in greater differences in individual Social Security benefits between men and women than exist under current law.

Our results also suggest some good news for those who advocate recent IA proposals. First, our results suggest that average investment disparities will lessen—or even disappear—as the gap between women's and men's incomes continues to narrow. Second, the identification of those most at risk for very conservative investments, such as lower-earning, younger women, may help policymakers target them for special Social Security account investment education or special Social Security benefit protections (such as the minimum benefit guarantees) suited to their needs. Such targets may be desirable, because: (1) those most at risk from overly conservative investing in 401(k)s are those who will probably need retirement income supplementation from Social Security the most, and (2) this analysis has shown that young females are even more conservative in their investment of 401(k) assets than overall gender differences would suggest, and it is precisely younger age groups, of course, whose contributions would have the longest period of time to accumulate investment income (barring any loan or withdrawal behavior).

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