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JOB TENURE AND THE SPREAD OF 401(K)S

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Introduction

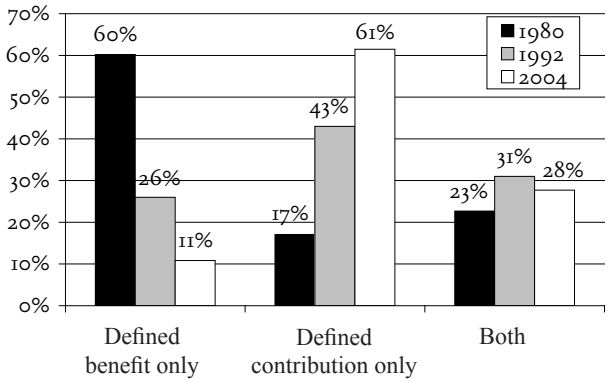
Commentators constantly cite an increase in labor mobility as a major reason for the shift in the private sector from defined benefit to defined contribution plans. But while most casual observers accept such a phenomenon, economists have been hard pressed to find any significant change over time. Only in recent years have the data indicated that mobility might have increased for some groups. This pattern suggests that the advent of 401(k) plans led to an increase in mobility rather than an increase in mobility leading to the proliferation of 401(k)s. This *brief* attempts to sort out this "chicken and egg" issue using data from the *Current Population Survey* (CPS) and the *Survey of Income and Program Participation* (SIPP).

Pension Coverage and Mobility

Twenty years ago, most people with pension coverage had a traditional defined benefit plan (see Figure 1). Today, most rely on a defined contribution plan — most often a 401(k). Defined benefit plans and 401(k)s would be expected to have a very different effect on worker mobility. Workers with final earnings defined benefit plans who change jobs, even among firms with identical plans and immediate vesting, receive significantly lower benefits than workers with continuous coverage under a single plan (See Figure 2).

An example might help clarify. Consider a worker who is covered by a defined benefit plan that pays 1.5 percent of final earnings for each year of service. This worker, who starts working for the company at age 30 and retires at age 62 earning $55,000, would be entitled to an annual benefit at age 62 of $26,200 per year (1.5 percent x 32 years x $55,000). However, if that worker switched jobs at age 45, when he was earning $35,000, even to a firm with an identical plan, he would have a combined benefit of only $20,900. From his first employer, he would receive

Figure 1. Private Sector Workers with Pension Coverage, by Pension Type, 1980, 1992, and 2004



Note: Although these calculations adjust for double-counting, some overestimation of coverage may remain.
Sources: U.S. Department of Labor (2004) and authors' calculations from U.S. Department of Labor (2001-2006).

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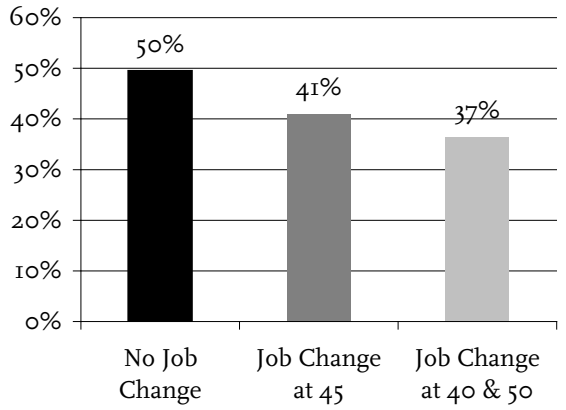
$7,875 (1.5 percent x 15 years x $35,000), and from his second employer $14,025 (1.5 percent x 17 years x $55,000).

Defined contribution plans generally — and 401(k) plans in particular — should not deter mobility in any way. Benefits accrue smoothly over the worker's lifetime so, once vested, workers do not forfeit any benefits when they change employers, and therefore 401(k) plans. Thus, commentators often suggest that increased mobility of U.S. workers is one factor that explains the shift in coverage to 401(k)s.

Figure 2. Impact of Mobility on Defined Benefit Replacement Rates



Note: Authors' estimates for a typical worker that began participating at age 30 and is retiring at age 62, covered by a defined benefit plan with a 1.5 percent formula. The wage profile follows SSA estimates of economy-wide wage and composite factors for each age.
Source: Munnell and Sundén (2004).

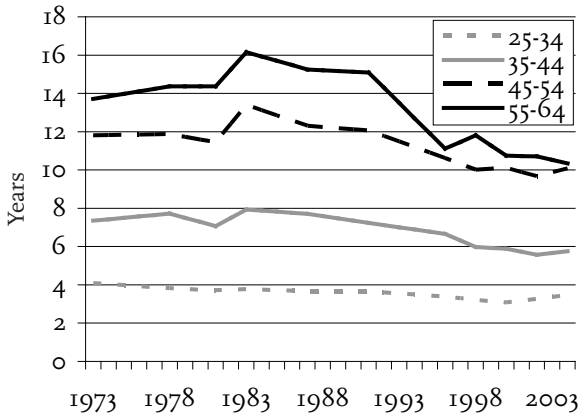
Shift in Pension Coverage and Tenure

In the 1990s, research in the area of job stability was chaotic. Some researchers reported virtually no change in job stability over the 1970s and 1980s; others reported some declines. In 2000, the Russell Sage Foundation published a volume aimed at updating earlier results through the mid 1990s and reconciling findings across data sets and across periods. But despite everyone's best efforts, the results were inconclusive.[1] Almost every study in the volume found some increase in turnover or some decline in average tenure for some group, during some years between 1970 and 1995. But the editor cautioned that it would be "premature to infer long-term trends towards declines in long-term employment relationships." As recently as 2005, studies produced very different results. Friedberg and Owyang (2005), using data from the Federal Reserve's *Survey of Consumer Finances,* conclude that current and remaining job tenure fell over the period 1983-2001. On the other hand, a recent paper (Stevens 2005) aptly titled "The More Things Change, the More They Stay the Same" comes to the opposite conclusion.

Early researchers were focused on the general question of downsizing, rather than on the specific issue of the mobility of older workers who would likely be most affected by the shift in pension coverage. The question addressed here is which of the following two statements best describes the sequence of events. First, a significant increase in mobility occurred throughout the workforce, making 401(k)s a much more attractive vehicle — the chicken, then the egg. Alternatively, as much of the earlier literature suggests, virtually nothing happened in the 1970s and 1980s, and mobility increased only after the spread of 401(k) plans — the egg, then the chicken.

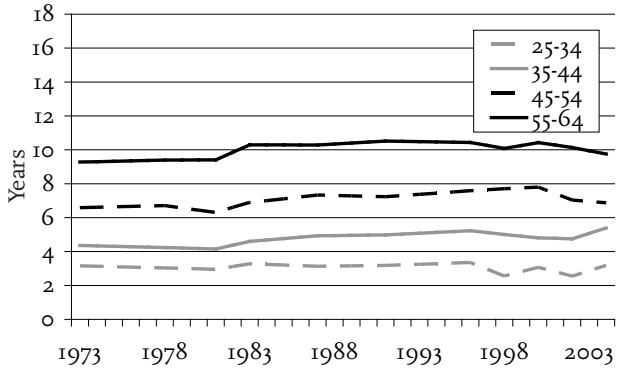
The first step in sorting out what happened is to look at trends in median tenure by age over the period using the tenure supplements to the *Current Population Survey* (CPS). The results shown in Figures 3A and 3B are striking in two respects. First, before 1990 the median years of tenure for both males and females are virtually flat for every age group. These data confirm much of the earlier work on mobility that showed very little change during the 1970s and 1980s. Second, beginning in 1990, after a decade of

Figure 3A. Median Years of Tenure by Age, Employed Males, CPS, 1973-2004



Source: Authors' calculations from U.S. Bureau of the Census (1974-2005).

Figure 3b. Median Years of Tenure by Age, Employed Females, CPS, 1973-2004

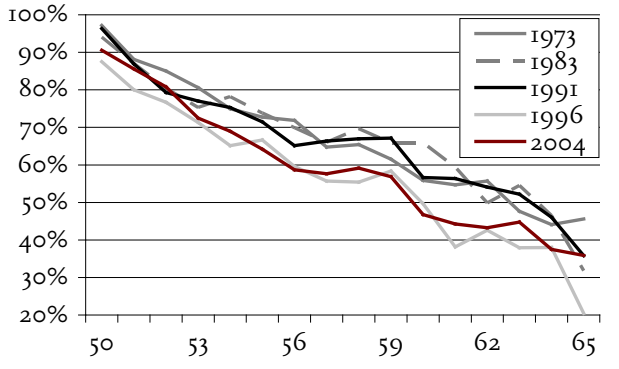


Source: Authors' calculations from U.S. Bureau of the Census (1974-2005).

401(k) plans, the median tenure for men at older ages starts to decline.[2] If the shift in pension coverage were to have an effect, this is where one would expect to find it.[3]

The CPS tenure data can be used to look at the tenure of older workers in a slightly different way. Specifically, for each survey it is possible to identify those working full time at age 55, 60, etc., who are still with the same employer they worked for at age 50. Under a defined benefit plan, workers would suffer a substantial loss of benefits by moving in their fifties, whereas no such loss occurs under a 401(k) plan. Mechanically, this exercise involves simply asking, say, the 55-year-old full-time worker how long he has been with his current employer. If the response is five years or more, the worker is classified as working with his age-50 employer. Those working with the same employer are then divided by total workers to get the proportion of the workforce with what used to be thought of as the typical pattern of employment.

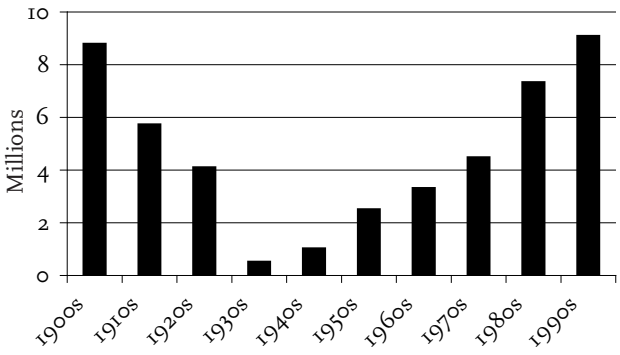
Figure 4. Full-Time Male Workers with Age-50 Employer As a Percentage of All Workers, by Age, 1973-2004



Source: Authors' calculations from U.S. Bureau of the Census (1974-2005).

The results for men, which are shown in Figure 4, mirror the tenure information presented above. In each of the early surveys, at age 60, approximately 60 percent of male workers were working for the same employer as they were when they were age 50. After the early 1990s, the picture changes noticeably for men; at age 60 less than 45 percent of male workers are working full time with their age-50 employer.[4] In short, male workers in their fifties appear to be shifting jobs more in a 401(k) world than they did when covered by defined benefit plans.

Figure 5. Number of U.S. Immigrants, by Decade, 1901-2000



Source: U.S. Bureau of the Census (2005).

Retention Rates

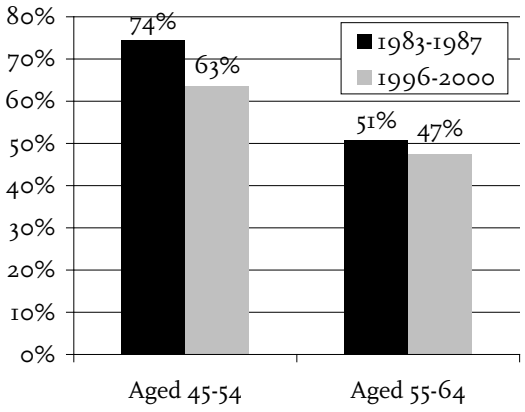
The weakness of median tenure data is that they are susceptible to changes in arrival rates — that is, the number of workers beginning new jobs. For example, the surge of married women and baby boomers onto the job market in the 1970s and 1980s would have been expected to reduce median tenure.[5] Similarly, the contention that tenure declined sharply after the early 1990s could be affected by new arrivals of immigrants (see Figure 5).

A way around the problem of new arrivals is to look at the retention rate, which is the probability that a worker will have an additional, say, 4 years of tenure 4 years in the future.[6] An example will help clarify the calculation. In 1983, of workers aged 35-39, say, 100 had tenure of between 5 and 10 years; in 1987,

of workers aged 39-43 — that is, the same cohort of workers — 75 had tenure of between 9 and 14 years. Thus, the four-year retention rate for this group is 75 percent.

The results show that the retention rates for older male workers were significantly lower in 1996-2000 than in 1983-1987 (see Figure 6). Therefore, the retention rates and median tenure data tell the same story — older workers became more mobile in the 1990s as coverage under defined benefit plans declined.

Figure 6. Estimated Four-Year Retention Rates for Older Male Workers by Age Group, CPS, 1983-2000



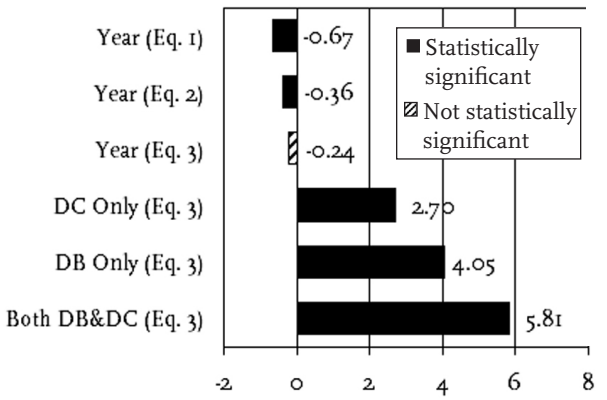
Source: Authors' calculations from U.S. Bureau of the Census (1984-2001).

Relationship between Tenure and Pension Type

The final exercise uses 1998 and 2003 SIPP data to estimate the relationship between pension coverage and tenure for older workers (aged 45-64). The analysis proceeds in three steps. The first is to regress each worker's years of tenure against a year dummy. The second step is to introduce a host of control variables that might explain the decline in tenure between 1998 and 2003, such as age, gender, education, nature of the firm, nature of the job, union coverage, etc. The third step is to re-estimate the second equation replacing the pension coverage dummy with a variable for coverage under a defined benefit plan only, a defined contribution plan only, or both. The hypothesis is that the decline in tenure is associated with a continued shift from defined benefit to defined contribution plans, so that once this information is introduced into the equation the year dummy no longer has explanatory power.

The results are consistent with this hypothesis. (A description of the variables and the equation results are presented in Appendix Tables A1 and A2.) Figure 7 reports the coefficient of the year variable for each of the three equations and the coefficients of the variables representing type of pension coverage. The coefficients of the year variable decline in size and statistical significance as more detailed pension variables are added to the second and third equation. The coefficients of the pension coverage variables show that people with pensions of any sort have longer tenure than those without and the increase in tenure varies by type of plan. Coverage under a defined benefit plan raises tenure by 4.0 years compared to no pension coverage; under both a defined benefit and defined contribution plan by 5.8 years; and under a defined contribution plan only by 2.7 years.[7] Thus, for those with pension coverage the shift in coverage from a defined benefit plan to a defined contribution plan implies a reduction in average tenure of 1.3 to 3.1 years, suggesting that the reduction in tenure between 1998 and 2003 and the shift in coverage from defined benefit to defined contribution plans are related.

Figure 7. Coefficient of 'Year' and Pension Type in Equation Explaining Tenure, SIPP, 1998 and 2003



Source: Authors' calculations from U.S. Bureau of the Census (1998 and 2003).

Conclusion

Two conclusions emerge from the preceding analysis. First, the labor economists who study mobility in the 1970s and 1980s appear to be correct. Even though the structure of personnel and production systems was changing in the late 1970s and early 1980s, tenure and retention rates were steady during this period. Commentators should delete increased mobility from their list of reasons for the shift to 401(k) plans. Second, after the widespread adoption of 401(k) plans, mobility and tenure patterns changed. And the change occurred among the group that would have been most constrained from moving under a defined benefit regime — namely, older workers with long tenure. It is impossible to prove that the shift in coverage caused the increased mobility, but it appears that the egg came first, then the chicken.

Endnotes

1 Neumark (2000).

2 Due to the limitations of the SIPP, data are available only since 1986. But for the period for which the CPS and SIPP data overlap, the story is virtually identical. Beginning around 1990, the median tenure for older male workers declines markedly. For males at younger ages and for females, median tenure remains virtually unchanged.

3 The tenure data for women are a little harder to interpret. Two factors are at play — particularly before 1990. On the one hand, the labor force participation rate for married women rose from 40.5 percent in 1970 to 49.8 percent in 1980 and 58.4 percent in 1990. All else equal, this influx would be expected to reduce tenure. On the other hand, women who had previously worked were becoming more serious about their careers, which would be expected to increase median tenure. Before 1990, these two forces appear to have balanced out. The question is why median tenure for older women did not decline after 1990 when the tenure for men started to fall. Several factors may be at play. First, a somewhat smaller portion of older women than men were covered by a defined benefit plan and therefore did not experience the relief in terms of mobility offered by the shift to 401(k) plans. Second, the labor force participation rate of married women stabilized about that time, suggesting that an influx of new workers was no longer exerting downward pressure on tenure. On the other hand, women's increased commitment and career success may have extended tenure. This increasing commitment to career may have offset any increase in mobility enabled by the shift from defined benefit to 401(k) plans. At a minimum, it would be hard to argue that declining tenure among women led to the shift to 401(k) plans.

4 As in the data on median tenure, the picture for women remains unchanged.

5 The fact that median tenure showed no decline suggests that it may even have risen in the absence of the new workers. Therefore, for the story presented in this brief — namely, no reduction in tenure before the early 1990s — the potential bias due to new arrivals is not a problem.

6 The notion of using retention rates dates back to Hall (1982). He estimated expected job tenure from a single (1978) tenure supplement. This approach, however, requires the strong assumptions that the employment survival function is stable over time and that the overall arrival rate is constant (Ureta 1992). Neither assumption applies to the analysis in this paper, since women, baby boomers, and immigrants swelled the labor force and the basic hypothesis is that pensions changed the pattern of employment. Therefore, the more modest approach of estimating retention rates used by Diebold, Neumark, and Polsky (1997) and Neumark, Polsky, and Hansen (2000) by linking together a sequence of tenure supplements is the more reasonable approach.

7 These coefficients are very similar to those obtained by Friedberg and Owyang (2005) using the 1983, 1989, 1992, 1995, 1998 and 2001 *Surveys of Consumer Finances*.

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APPENDIX

Appendix

Table A1. Descriptive Data from the SIPP for Workers Aged 45-64, 1998 and 2003

Characteristic	Percent of population	
	1998	2003
Participation in a pension	60.7	62.5
Participation by type:		
DB only	35.2	25.6
DC only	43.2	57.8
Both	21.6	16.7
Median tenure	9.8	7.8
With pension	12.8	12.6
Without pension	4.9	3.9
Mean tenure	12.1	11.4
With pension	14.5	13.8
Without pension	8.4	7.5

Source: Authors' calculations from U.S. Bureau of the Census (1998 and 2003).

Table A2. OLS Results for Tenure, SIPP, 1998 and 2003

Variable	Equation (1)		Equation (2)		Equation (3)	
	Coefficient	(t-stat)	Coefficient	(t-stat)	Coefficient	(t-stat)
Year	-.665	(-4.53)	-.361	(-2.25)	-.241	(-1.51)
Pension participation			3.588	(22.65)		
DB only					4.048	(19.75)
DC only					2.702	(15.31)
Both DB & DC					5.813	(24.37)
Age 50-54			1.538	(9.47)	1.514	(9.37)
Age 55-59			2.517	(13.72)	2.532	(13.87)
Age 60-64			3.876	(17.02)	3.910	(17.25)
Female			-.728	(-5.05)	-.724	(-5.05)
Married			.875	(5.85)	.882	(5.94)
Nonwhite			-.077	(-0.47)	.016	(0.10)
College			-.694	(-4.32)	-0.717	(-4.48)
Metro			-.372	(-2.24)	-.408	(-2.47)
Public sector worker			1.936	(10.74)	1.788	(9.88)
Private sector — goods			1.882	(10.84)	1.848	(10.69)
Large firm			.775	(4.81)	.649	(4.04)
Union			3.450	(19.34)	3.227	(18.03)
High paid			2.522	(15.41)	2.518	(15.46)
Earnings			.0003	(13.40)	.0003	(12.80)
Unemployment rate in state			-.348	(-4.73)	-.348	(-4.75)
Constant	12.077	(116.66)	5.418	(12.96)	5.509	(13.24)
R^2:	.001		.177		.186	
Observations	18,833		18,833		18,833	

Note: Age dummies take on value of 1 if an individual lies within the specified age category. Female, Married, Nonwhite, College, and Metro are dummy variables set equal to 1 when the person has the characteristic or lives in a metro area. The work-related variables relate to the person's primary employment and take on a value of 1 if a person works in the public sector, works in the private goods sector, works for a firm with over 100 employees, is a member of a union, has some or all of his health insurance paid for by the employer, and participates in a pension plan, respectively. "Earnings" is a continuous variable representing a person's monthly income from his primary job. The state unemployment rate comes from the Bureau of Labor Statistics. The 'year' dummy takes on a value of 1 for 2003.
Source: Authors' calculations from U.S. Bureau of the Census (1998 and 2003).

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