United States General Accounting Office

GAO

Report to Congressional Committees

August 1990

PRIVATE PENSIONS

Impact of New Vesting Rules Similar for Women and Men

GAO/HRD-90-101

GAO

United States
General Accounting Office
Washington, D.C. 20548

Human Resources Division

B-239063

August 21, 1990

The Honorable Lloyd Bentsen
Chairman, Joint Committee on Taxation
Congress of the United States

The Honorable Lloyd Bentsen
Chairman, Committee on Finance
United States Senate

The Honorable Edward M. Kennedy
Chairman, Committee on Labor and Human Resources
United States Senate

The Honorable Dan Rostenkowski
Chairman, Committee on Ways and Means
House of Representatives

The Honorable Augustus F. Hawkins
Chairman, Committee on Education and Labor
House of Representatives

For workers who change jobs, vesting in pension benefits can add to retirement income. Vesting—gaining the nonforfeitable right or entitlement to employer-provided pension benefits—is largely dependent on years of employment with the company sponsoring the pension plan.[1] Federal rules limit how long a participant in a qualified plan must wait to vest in pension benefits.[2] The Tax Reform Act of 1986 (TRA) cut the maximum allowable vesting period in half for most workers in qualified private pension plans. TRA targeted plans that were not "top-heavy." Top-heavy plans are those in which over 60 percent of the benefits or contributions go to company owners or other key employees.[3]

[1]A worker is always fully vested in any benefits derived from his or her own contributions to the plan. This report only deals with participants' vesting in employer-provided benefits.

[2]Employer-sponsored plans that qualify for preferential tax treatment must comply with a variety of federal rules, including vesting rules, designed to improve the equity and security of benefits.

[3]Top-heavy plans must vest workers more quickly than those under TRA and observe other special rules. Generally, the smaller the plan, the more likely it is top-heavy.

Prior vesting rules do not meet the needs of many workers who change jobs frequently and so do not vest in their pension plans, the Joint Committee on Taxation stated in describing the need for TRA. Women comprise one group singled out as being disadvantaged by these rules; they tend to be more mobile employees who are less likely to vest in pension benefits. TRA's more rapid vesting would enhance the retirement income security of shorter-tenured workers, the Committee concluded, by entitling them to some pension benefits. Under the old rules, these workers, some of whom changed jobs voluntarily or lost jobs due to layoffs or plant closings, probably would not have been entitled to pension benefits. Longer-tenured workers would be entitled to pension benefits at retirement under either set of rules.

This report estimates the impact of TRA vesting rules on participants in plans not considered top-heavy. We prepared it pursuant to a requirement in the Retirement Equity Act of 1984 (REA) that we study the effect of federal pension rules, including vesting rules, on women.[4] To do so, we examined a sample of pension plans and compared

- the proportion of women and men vested under the old and the new rules and
- the change in vested benefits due to TRA for women and men.

In addition, to gauge the impact that further reductions in vesting standards might have, we estimated the effect on both women and men of applying rules for shorter vesting than under TRA.

Results in Brief

The vesting changes in the Tax Reform Act of 1986 will improve the vesting status of shorter-tenured workers with a similar effect on women and men. Judging by our sample, about three-fourths of all pension participants in 1986 would have been vested in their pension benefits had the TRA rules been in effect then. In comparison, about half the participants were vested under the rules then in effect. In defined benefit plans, which contained most participants in our analysis, about 4 in 10 participants would be affected by TRA.[5] Among participants not vested under TRA, an estimated 1 in 3 would be vested if plans were

[4]See Related GAO Products for other reports prepared under the REA requirement.

[5]In a defined benefit plan, the employer promises a specific retirement benefit that is generally based on a worker's years of service, earnings, or both. The employer is responsible for funding the plan sufficiently to pay promised benefits.

required to use the faster top-heavy rules instead of the TRA rules. (See app. I.)

If the defined benefit participants with increased vested benefits under TRA (4 in 10 in our analysis) left their plans tomorrow, they would be entitled to additional vested benefits equal to an average of 5 percent of their compensation. The median annual gain in the dollar value of vested benefits for those affected by TRA is about $1,240 (in 1990 dollars).

Background

Vesting standards first were established for all qualified private pension plans by the Employee Retirement Income Security Act of 1974 (ERISA). These standards limit the waiting periods for participants to vest in employer-provided pension benefits. Plans may use any vesting method, as long as the waiting period does not exceed ERISA's standards. Two common methods are "cliff" and "graded."

- Under cliff vesting, a participant does not secure the right to future benefits until employed a specified number of years, at which time the participant becomes fully vested. For a cliff schedule, ERISA required that participants not be made to wait more than 10 years to move from nonvested to fully vested status. About 20 percent of the plans we analyzed used the cliff method. They tended to be defined benefit plans sponsored by employers with 100 or more employees (large employers) that contained over 800 participants on average.
- Under graded vesting, a participant gains partial vesting rights after a specified length of service and the percentage periodically increases until the participant is fully vested. ERISA's standard for a graded schedule required that, at a minimum, a participant be partially vested after 5 years of service and his or her vesting rights increase by a fixed percentage each year until full vesting is reached after 15 years. About 70 percent of the plans in our analysis used the graded method of vesting. Most were defined contribution plans sponsored by employers with less than 100 employees (small employers) that contained fewer than 20 participants on average.[6]

TRA provisions accelerated vesting for many pension plans, effective in 1989. Specifically, TRA reduced the maximum years workers must wait

[6]In a defined contribution plan, a formula specifies the rate at which the employer makes contributions to each participant's account. The retirement benefit will depend on the amount of contributions and the investment experience of the account.

for full vesting from 10 to 5 for cliff vesting.[7] For graded vesting, TRA lowered the 5- to 15-year standard to 3-to-7 years.

Nine of 10 plans sponsored by large employers will need to provide more rapid vesting to comply with TRA, compared with about half the plans sponsored by small employers. The remainder would not have to change because they already used shorter time limits for vesting than TRA requires.

Scope and Methodology

To estimate the effect of TRA vesting changes on participants in private pension plans that were not top-heavy, we used nationally representative data already gathered in response to REA. These data were from surveys of two samples of private pension plans operating in 1984 and 1985. (See app. II.) The plan and participant data covered the most recently completed plan year for which information was available, usually ending in 1986, before TRA became effective.

Our estimates of the effect of the TRA vesting changes on the proportion of women and men vested are representative of approximately 6.1 million participants in about 25,100 pension plans (see app. II).[8] We used participant tenure data and plan vesting schedules to simulate the TRA vesting changes for women and men separately.[9] We also simulated vesting changes assuming that the faster vesting rules that apply to top-heavy plans—3-year cliff vesting and 2- to 6-year graded vesting—applied to this universe of plans.

Our estimates about the effect of TRA on the dollar value of vested benefits were limited to defined benefit plans in our universe.[10] These plans comprised about 30 percent of our universe but contained about 60 percent of the participants, an estimated 3.8 million people.

Where we have reported differences between women and men or types of plans, these differences are significant at the 95-percent confidence

[7]Multiemployer plans satisfy TRA's vesting requirements if employees covered by collective bargaining agreements are fully vested after 10 years.

[8]Of the 25,100 plans represented, small employers sponsored about 15,700 with about 270,000 participants, and large employers sponsored about 9,400 with about 5.8 million participants.

[9]Evaluating whether women's and men's tenure and mobility patterns would be affected differently by TRA was outside the scope of our work.

[10]We did not have the information required for these calculations for participants in defined contribution plans.

level. This means that there is less than a 5-percent chance that we would have identified differences from our sample that do not exist in the universe (see app. III).

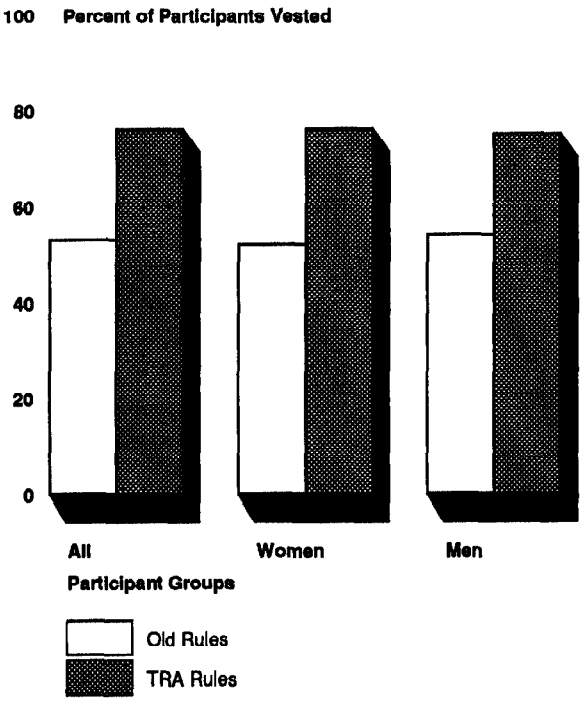
We were unsure if any employer-sponsors would change their plans' vesting methods (that is, from graded to cliff or cliff to graded). Hence, we assumed that plans would use the same method after TRA as before. This assumption was reasonable because employer-sponsors' choice of particular vesting methods under the old rules was based on considerations specific to the plan and company. These include workforce demographics, administrative burden, and plan costs. We had no reason to expect the sponsors' rationale to change under TRA. But to the extent that companies change methods to comply with TRA, actual vesting changes might differ from our estimates.

More Participants Vested Under TRA Rules

More participants (an estimated 76 percent) will be vested in their pension benefits under TRA than under the old rules (53 percent). TRA's effect will be similar for women and men (see fig. 1). This is because similar proportions of women and men were in the range of service where they were not vested under the old rules but were vested under the TRA rules, for example, from 5 to 9 years of service in a 10-year cliff vesting plan.[11] If the plans are required to use the faster vesting schedules that apply to top-heavy plans, about 85 percent of participants will be vested (see app. I).

[11]Women and men in our sample had similar average years of tenure --the mean tenure for both was 8, the median, 6.

Figure 1: Impact of TRA on Vesting Same for Women and Men



N=6.1 million participants in total.

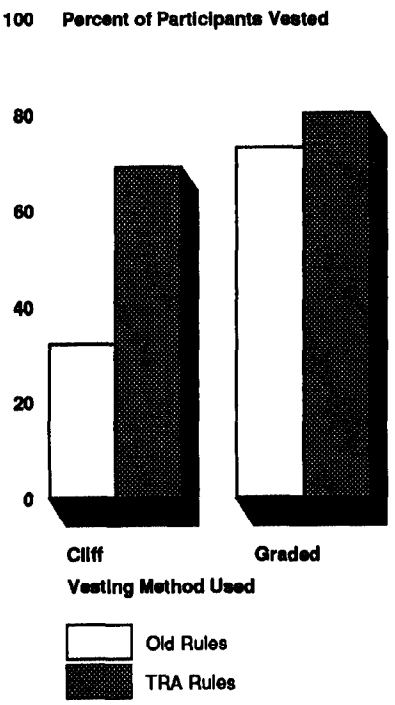
N=2.9 million women.

N=3.2 million men.

TRA will have a greater impact on participants in plans using the "all-or-nothing" cliff vesting method than on those in plans using graded vesting (see fig. 2). Under the old rules, many participants in cliff plans did not work long enough to become vested but would be fully vested (100 percent) under TRA.[12] Participants in graded plans are more likely to be at least partially vested under the old rules. The TRA rules tend to increase these participants' level of vesting incrementally rather than from 0- to 100-percent. In either case, participants who were fully vested under the old rules would remain fully vested under TRA.

[12]Almost 90 percent of cliff vesting plans used 10 years as the waiting period under the old rules.

Figure 2: Impact of TRA on Vesting Greater in Plans Using Cliff Method



N=3.1 million participants in cliff vesting plans.

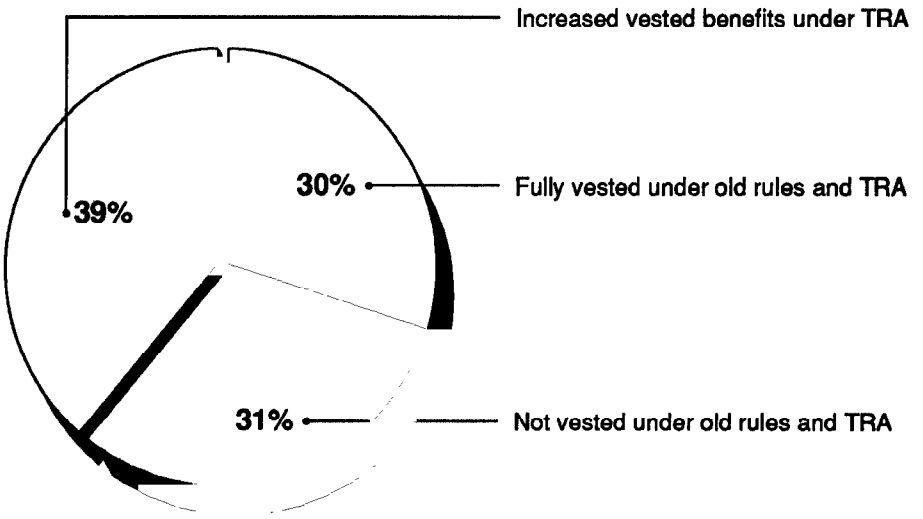
N=2.7 million participants in graded vesting plans.

Vested Benefit Increases Under TRA Large for Some, Nonexistent for Many

For 4 in 10 participants in defined benefit plans, TRA will increase the value of vested benefits (see fig. 3). If these participants left their plans tomorrow, they would be entitled to more benefits every year in retirement than they were entitled to under the old rules. For 1 in 10 participants, the increase would be over $2,208.[13] Increases would range from $2 to $76,217. The median gain would be $1,242 or 5 percent of compensation (see table 1).

[13]Plans usually reported dollar benefit data for the plan year ending in 1986. We adjusted these data for inflation to represent 1990 dollars, using the Consumer Price Index.

Figure 3: TRA Will Increase Vested Benefits for 4 in 10 Participants in Defined Benefit Plans



3.8 million participants in defined benefit plans.

Table 1: Impact of TRA on Dollars of Vested Benefits

Type of plan	No. of participants (in millions)	Median increase: Annual amount (1990 dollars)	Median increase: Percent of compensation
All	1.5	$1,242	5.4
Women	0.8	980	5.1
Men	0.7	1,987	5.9
Cliff vesting	1.2	1,546	5.9
Women	0.6	1,118	5.6
Men	0.6	2,263	7.0
Graded vesting	0.3	223	1.0
Women	0.16	160	1.1
Men	0.16	297	1.0

The stream of additional benefits that participants would receive in retirement (each year from normal retirement age until death) as a result of TRA can be expressed as a present value. This "present value" represents the value to participants in 1990 of the stream of additional benefits in retirement. It is the amount that, if invested today at a given rate of compound interest, would generate annual benefits during retirement equal to the additional vested benefits under TRA (see app. II).

The gain in annual benefits under TRA for women is about half that for men, though the gain is a similar percentage of compensation. The present value of the increase for women is less than half that for men and is a smaller percentage of compensation.[14] Under the TRA rules, men would receive about $2,000 more annually in retirement on average, based on our analysis. The present value of this increase in benefits during retirement is $3,011, or about 9.6 percent of compensation. Women would receive about $1,000 more annually in retirement as a result of TRA. The present value of this increase is about $1,169, or 6.1 percent of compensation.

The difference in present values for women and men is greater than the difference in the annual increase in vested benefits because women in our analysis are younger than men and women usually start receiving retirement benefits later than men. If the stream of benefits in retirement for men and women were the same, the present value for women still would be less than for men because of these differences in ages and retirement times.

Participants in plans with cliff vesting schedules, where the participant is either not vested or is fully vested, will have substantially larger increases in vested benefits than participants under graded schedules (see table 1). This is true for both dollar increases and increases relative to compensation.

For employers, the effect of increased vesting under TRA on annual pension plan costs probably will be relatively small. It will vary with the type of plan and its actuarial profile. An employer who experiences little turnover in employees will have few additional pension costs because plan participants eventually would have the same amounts vested under the old rules. Conversely, an employer with a higher turnover rate could have added costs, but only to the extent that the new rules add to the amount of vested benefits terminated employees would have under the old rules. The additional cost of 5-year cliff vesting (TRA's standard) was estimated by the Employee Benefit Research Institute (EBRI) at 2 to 7 percent of private pension plan contributions to the system as a whole.[15]

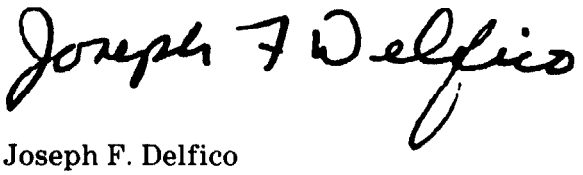
[14]See app. III for sampling errors associated with these estimates.

[15]EBRI, "Pension Vesting Standards: ERISA and Beyond," Issue Brief, Feb. 1986.

The effect on the federal treasury in terms of additional tax expenditures for qualified pension plans due to increased vested benefits probably will be small also. The Joint Committee on Taxation estimated in 1987 that the TRA vesting changes would have a "negligible effect" on tax receipts because of their effect on employers' costs and employees' tax-deferred income.[15] These are the main sources of the revenue forgone through the preferential tax treatment granted qualified pension plans. Nothing in our analysis leads us to expect otherwise.

We did not obtain written comments on this report because we were not reviewing specific agency functions or programs. However, we discussed the contents of the report with representatives of the Department of Labor and the Internal Revenue Service and incorporated their comments where appropriate.

Copies of this report are being sent to other interested congressional committees, the Secretary of Labor, and the Commissioner of the Internal Revenue Service, and will be available to others upon request. If you have questions about information in the report, please call me at (202) 275-6193. Other major contributors are listed in appendix IV.



Joseph F. Delfico
Director, Income Security Issues

[15]Staff of the Joint Committee on Taxation, General Explanation of the Tax Reform Act of 1986, 99th Cong., 2nd Sess., 1987.

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Abbreviations

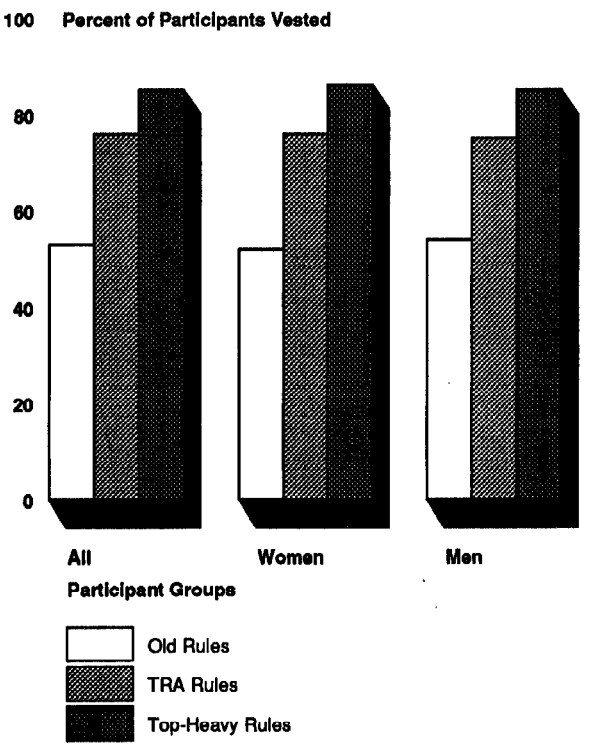
EBRI	Employee Benefit Research Institute
ERISA	Employee Retirement Income Security Act of 1974
REA	Retirement Equity Act of 1984
TRA	Tax Reform Act of 1986

Top-Heavy Rules Result in Some Additional Increases in Vesting

We applied the top-heavy standards to gauge the impact that these faster vesting standards might have compared to the TRA rules. This appendix contains the results of the top-heavy vesting simulation.

Some participants who were not vested under the TRA rules would be vested under the standards that apply to top-heavy plans. Under the top-heavy rules, 85 percent of participants would be vested compared with 76 percent under TRA (see fig. I.1). The top-heavy rules would improve vesting for about the same proportion of men and women, as was the case with the TRA rules.

Figure I.1: Top-Heavy Rules Improve Vesting of Some Participants



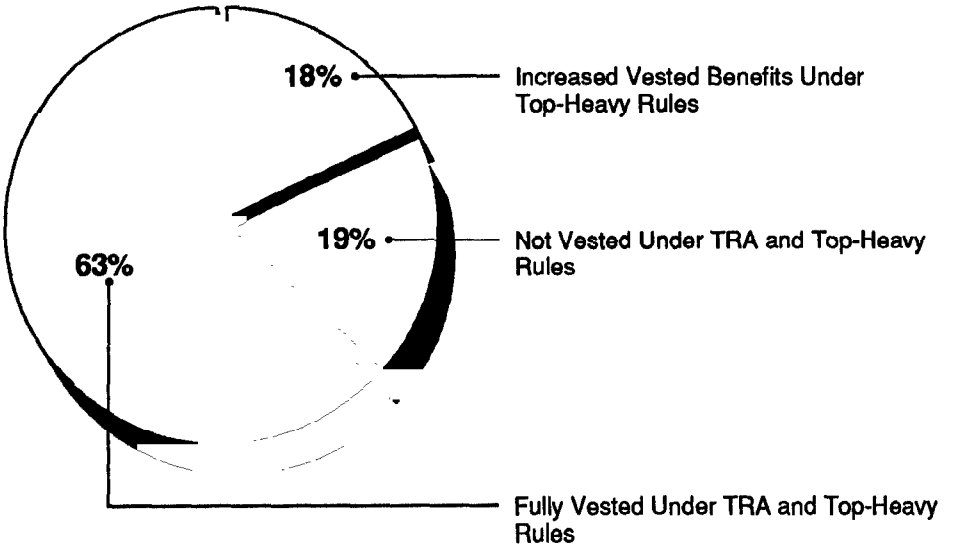
N=6.1 million participants in total.

N=2.9 million women.

N=3.2 million men.

Most participants in defined benefit plans would be fully vested under the TRA rules and would remain so under the top-heavy rules (see fig. I.2). An estimated 18 percent of participants in defined benefit plans will have increased vested benefits under the top-heavy rules.

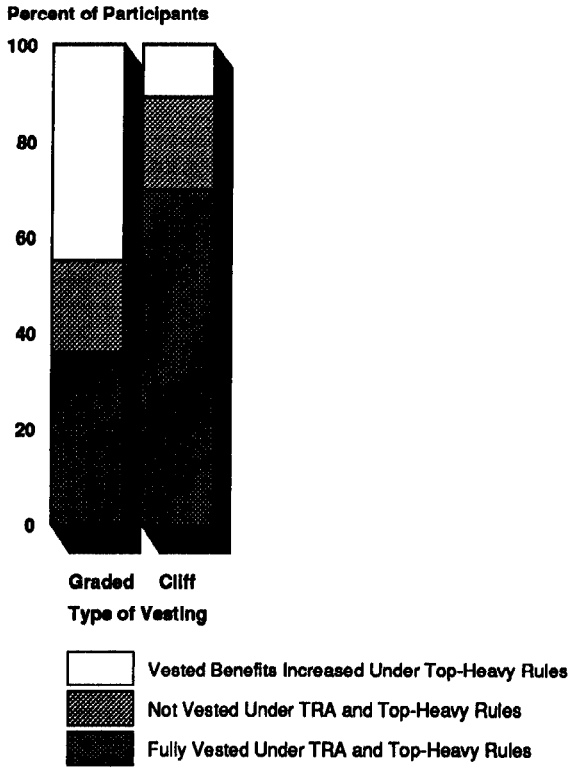
Figure I.2: Many Participants Not Affected by Top-Heavy Vesting Rules



N=3.8 million participants in defined benefit plans.

The effect of the top-heavy rules would be similar for women and men, but participants in graded vesting plans would be more likely to be vested under the top-heavy rules but not the TRA rules (see fig. I.3). This is because participants in graded vesting plans tend to have shorter tenure than participants in cliff vesting plans. In fact, participants in defined benefit plans with graded vesting had an average tenure of about 6 years, compared to almost 9 years for participants in defined benefit plans with cliff vesting.

Figure I.3: Impact of Top-Heavy Rules on Vesting Greater in Defined Benefit Plans Using Graded Method



N=0.7 million participants in defined benefit plans with graded vesting.

N=3.1 million participants in defined benefit plans with cliff vesting.

Among the almost 20 percent of participants who would have increased vested benefits using the top-heavy rules, the median annual increase for women and men is similar, both in terms of the dollar amount and as a percent of compensation. The median increase for women is an estimated $306, about 2 percent of compensation. The present value of this increase is $341, or 1.8 percent of compensation. The median increase for men is about $290, or 1 percent of compensation. The present value of this increase is about $344, or 1.3 percent of compensation.

Further Details on GAO's Scope and Methodology

We analyzed the effects of TRA vesting rule changes using data we had already gathered in response to a requirement in the Retirement Equity Act of 1984 that we study the effect of federal pension rules on women. This appendix provides details about our samples of plans and our methodology.

From ERISA reports for employee benefit plans filed for the plan year beginning during 1984,[1] we drew two samples of private pension plans operating in both 1984 and 1985. One sample contained plans sponsored by employers with fewer than 100 employees (small employers); the other contained plans sponsored by employers with 100 or more employees (large employers). The reports maintained by IRS were the most up-to-date information available on pension plans operating in 1984 and 1985 at the time we drew our samples. The reports did not, however, include plans that began operating in 1985. Consequently, both samples include only plans that started before 1985.

Plans Sponsored by Small Employers

We estimated that about 202,300 plans sponsored by small employers met our sampling criteria (see table II.1). The plans met all of the following criteria:

1. They were ongoing plans of the four most prevalent types—fixed benefit and unit benefit defined benefit plans, and profit-sharing and money purchase defined contribution plans.[2]

2. They were in one of the five industry groups with the most of these types of plans: wholesale trade; retail trade; finance, insurance, and real estate; legal, medical, and health services; and other services.

3. They were sponsored by a single employer with fewer than 100 employees.

[1]Form 5500 for plans with 100 or more participants and Form 5500-C for plans with fewer than 100 participants.

[2]A fixed benefit plan provides a retirement benefit that is not related to the years of service of the plan participant. An example is a specified percentage of compensation, such as 50 percent of the participant's final pay. A unit benefit plan uses a formula that provides an explicit unit of benefit for each recognized year of service with the employer; for example, 1 percent of compensation per year of service. In contrast, rather than fixing benefits by a formula, profit-sharing and money purchase plans fix the amount of the employer's contribution to each participant's account. In a profit-sharing plan, the total employer contribution is a function of profits and the amount contributed to each participant is generally in proportion to the participant's share of total compensation paid to all participants. In a money purchase plan, the employer is committed to periodic contributions according to a specific formula, usually a percentage of salary.

4. They had more than one participant.

5. They were not Keogh plans for self-employed individuals.

Table II.1: GAO's Universe and Sample of Plans Sponsored by Small Employers

Type of plan/ industry group	Original universe	Original sample	Eligible[a] sample	Adjusted universe	Response rate (percent)	Population estimate
Fixed benefit plans						
Wholesale trade	3,855	31	20	2,487	85	2,114
Retail trade	3,356	17	10	1,974	80	1,579
Finance, insurance, and real estate	4,416	25	10	1,766	60	1,060
Legal, medical, and health services	17,641	119	78	11,566	59	6,821
Other services	11,054	71	39	6,072	54	3,270
Unit benefit plans						
Wholesale trade	478	34	27	380	78	296
Retail trade	430	28	24	369	71	261
Finance, insurance, and real estate	984	53	39	724	72	520
Legal, medical, and health services	1,659	82	51	1,032	61	627
Other services	936	56	34	568	65	368
Profit-sharing plans						
Wholesale trade	10,942	33	23	7,626	61	4,642
Retail trade	11,254	20	15	8,441	80	6,753
Finance, insurance, and real estate	9,902	21	9	4,244	78	3,301
Legal, medical, and health services	44,633	94	61	28,964	70	20,417
Other services	25,605	81	37	11,696	41	4,742
Money purchase plans						
Wholesale trade	3,431	16	11	2,359	64	1,501
Retail trade	3,254	15	10	2,169	100	2,169
Finance, insurance, and real estate	4,881	24	12	2,441	67	1,627
Legal, medical, and health services	31,698	153	98	20,303	65	13,112
Other services	11,885	50	22	5,229	55	2,852
Totals	**202,299**	**1,023**	**630**	**120,410**	**65[b]**	**78,031[c]**

[a]Originally sampled plans were ineligible if they were (1) Keogh plans for self-employed persons, (2) plans with only one participant, (3) sponsored by employers with 100 or more employees, or (4) terminated during the 1984 plan year.

[b]The response rate is weighted to represent industry and plan types in proportion to their representation in the universe.

[c]Population estimate has total precision of ± 5,471 plans (± 7 percent).

Our original stratified sample included a total of 1,023 plans selected from each of the four plan types. Within each plan type, we allocated the sample across selected industry groups generally in proportion to each group's representation in the universe. We determined the final sample size of 630 and adjusted our universe estimates after we identified 393 cases in the original sample that did not meet our sampling criteria. The adjusted universe included an estimated 120,440 plans (± 7,400).

Among these 630 sampled plans, 65 percent (407) responded across all the sampled plan types and industries. We compared respondents and nonrespondents on several characteristics—plan size, top-heavy status, integration with social security, vesting method, industry, and plan type—and found some significant differences. For example, defined contribution plans that did not respond tended to be smaller than those that did respond. Because of these differences, our estimates apply only to that proportion of the adjusted universe that responded to our survey. As indicated in the final column of table I.1, our respondents represent an estimated 78,000 plans (± 5,500). These plans contained an estimated 700,000 participants (± 100,000).

In our sample, only small employers' plans that were not top-heavy plans were eligible for inclusion in our analysis of the effects of TRA. About one-fourth of the plans (18,900 ± 3,600) in our universe of small employers' plans were not top-heavy.

Plans Sponsored by Large Employers

We estimated that 19,600 plans sponsored by large employers met our sampling criteria (see table II.2). These were ongoing plans in one of the three most prevalent plan types—fixed benefit, unit benefit, or profit-sharing—in one of six industry groups containing most of these types of plans. The six were nondurable manufacturing; durable manufacturing; wholesale trade; retail trade; finance, insurance, and real estate; and legal, medical, and health services. In addition, sampled plans were sponsored by a single employer or a controlled group (in which all the business entities are under common control) with 100 or more employees and contained more than one participant.

Table II.2: GAO's Universe and Sample of Plans Sponsored by Large Employers

Type of plan/ industry group	Original universe	Original sample	Eligible[a] sample	Adjusted universe	Response rate (percent)	Population estimate
Fixed benefit plans						
Nondurable manufacturing	526	4	4	526	25	132
Durable manufacturing	587	10	8	470	50	235
Wholesale trade	187	3	1	62	0	0
Retail trade	151	2	1	76	0	0
Finance, insurance, and real estate	295	4	4	295	50	148
Legal, medical, and health services	235	4	3	176	33	59
Unit benefit plans						
Nondurable manufacturing	2,796	31	29	2,616	83	2,165
Durable manufacturing	4,251	50	39	3,316	46	1,530
Wholesale trade	429	5	4	343	50	172
Retail trade	426	5	3	256	100	256
Finance, insurance, and real estate	1,169	13	11	989	73	719
Legal, medical, and health services	1,278	15	14	1,193	79	937
Profit-sharing plans						
Nondurable manufacturing	1,735	28	25	1,549	76	1,177
Durable manufacturing	2,244	29	25	1,934	64	1,238
Wholesale trade	824	11	11	824	45	375
Retail trade	992	14	13	921	69	638
Finance, insurance, and real estate	1,056	14	12	905	67	603
Legal, medical, and health services	372	6	4	248	50	124
Totals	**19,553**	**248**	**211**	**16,699**	**63[b]**	**10,507[c]**

[a]Originally sampled plans were ineligible if they were (1) sponsored by employers with less than 100 employees or (2) terminated during the 1984 plan year.

[b]The response rate is weighted to represent industry and plan types in proportion to their representation in the universe.

[c]Population estimate has total precision of ± 1,019 plans (± 9.7 percent).

The original sample included 248 plans allocated across the selected plan types and industry groups generally in proportion to each plan type's and group's representation in the universe. We determined the final sample size of 211 plans and adjusted the universe estimates after identifying 37 cases in the original sample that did not meet our sampling criteria. The adjusted universe included an estimated 16,700 plans (± 800).

Among these 211 sampled plans, 63 percent responded across all the included plan types and industry groups. We compared respondents and nonrespondents on several characteristics—plan size, age of the plan, integration with social security, industry, and plan type. We found one significant difference. As with the sample of plans sponsored by small employers, defined contribution plans that did not respond tended to be smaller than those that did. Consequently, the estimates in this report apply only to that proportion of the adjusted universe that responded to our survey. As indicated in the final column of table II.2, our respondents represent an estimated 10,500 plans (± 1,000). These plans include an estimated 6.2 million participants (± 1.9 million).

None of the sampled plans sponsored by large employers was top-heavy. Consequently, all these large employers' plans were eligible for our analysis of the effects of TRA vesting changes.

Scope of GAO's Analysis of TRA's Vesting Changes

Combining plans sponsored by small employers and plans sponsored by large employers, our analysis of the effect of TRA's vesting changes represents an estimated 6.1 million participants in about 25,100 plans. Our analysis of TRA's effect on dollars of vested benefits focused on the estimated 3.8 million participants in defined benefit plans. We excluded participants in defined contribution plans because we did not know the account balances for participants who were not vested. Consequently, we could not determine the dollar changes under the new rules for these participants.

Calculating the Present Value of the Dollar Change in Vested Benefits

The estimated changes in the value of vested benefits under TRA and the top-heavy simulation are expressed as present values. Present values are sums of money that, if invested now at a given rate of compound interest, will accumulate to specified amounts at specified future dates. To convert the additional vested benefits under TRA to present values we chose a 7-percent interest rate.[3] Using Department of Labor data on retirement ages, we assumed benefit payments would begin at age 61 for men and 63 for women.[4]

[3]We performed a sensitivity analysis using alternative interest rate assumptions. A one-percent change in the rate changed the present value by about 6 percent, though the choice of interest rates did not affect the comparisons discussed in the report.

[4]Department of Labor, Office of Pension and Welfare Benefit Programs, Findings from the Survey of Private Pension Plan Benefit Amounts, 1985.

We also made certain life expectancy assumptions for men and women. At age 34, the median age of men with increased vested benefits under TRA in our analysis, men had a life expectancy of 41 years. At age 31, the median age for women with increased vested benefits under TRA in our analysis, women had a life expectancy of 49 years.[5] For the subset of participants with increased vested benefits in our top-heavy simulation, men had a median age of 31 and a life expectancy of 43 years; women had a median age of 30 and a life expectancy of 50 years. Were alternate assumptions of interest rates, life expectancies, or benefit commencement used, a different present value would result.

[5]Data for 1986 reported in Department of Commerce, Bureau of the Census, Statistical Abstract of the United States, 1989, based on data from U.S. National Center for Health Statistics, Vital Statistics of the United States.

Sampling Errors for Estimates

Because our estimates about participants are based on a sample of pension plans and their participants rather than the universe of plan participants, each reported estimate has a sampling error associated with it. The size of the error reflects the precision of the estimate—the smaller the error, the more precise the estimate. We calculated sampling errors for estimates in this report at the 95-percent confidence level. This means that the chances are 19 out of 20 that the actual number or percentage being estimated falls within the range of our estimate, plus or minus the sampling error. For example, if we have estimated that 30 percent of a group has a characteristic and the sampling error is 6 percentage points, there is a 95-percent chance that the actual percentage is between 24 and 36.

Tables III.1, III.2, and III.3 include sampling errors for participant estimates in figures 1, 2, and 3, respectively. Sampling errors for the estimates from the top-heavy rules simulation appear in tables III.1 and III.4. Sampling errors for the change in dollars of vested benefits under TRA are included in table III.5.

Table III.1: Sampling Errors for Figure 1 and Figure I.1

	No. of participants (in millions)	Estimate	Sampling error
All participants	6.1		
Old rules		53	10
TRA rules		76	7
Top-heavy rules		85	5
Women	2.9		
Old rules		52	11
TRA rules		76	10
Top-heavy rules		86	6
Men	3.2		
Old rules		54	6
TRA rules		75	6
Top-heavy rules		85	5

Figures are percentages of participants vested.

Table III.2: Sampling Errors for Figure 2

	No. of participants (in millions)	Estimate	Sampling error
Cliff vesting plans	3.1		
Old rules		32	2
TRA rules		69	3
Graded vesting plans	2.7		
Old rules		73	6
TRA rules		80	5

Figures are percentages of participants vested.

Table III.3: Sampling Errors for Figure 3

	Estimate	Sampling error
Fully vested under old rules and TRA	30	5
Not vested under old rules and TRA	31	5
Increased vested benefits under TRA	39	5

Figures are percentages of participants vested. Total participants, 3.8 million.

Table III.4: Sampling Errors for Figures I.2 and I.3

	No. of participants (in millions)	Estimate	Sampling error
All plans	3.8		
Fully vested under TRA and top-heavy rules		63	7
Not vested under TRA and top-heavy rules		19	4
Increased vested benefits under top-heavy rules		18	4
Cliff vesting plans	3.1		
Fully vested under TRA and top-heavy rules		70	4
Not vested under TRA and top-heavy rules		19	3
Increased vested benefits under top-heavy rules		11	2
Graded vesting plans	0.7		
Fully vested under TRA and top-heavy rules		36	8
Not vested under TRA and top-heavy rules		19	5
Increased vested benefits under top-heavy rules		45	6

Figures are percentages of participants vested.

Table III.5: Sampling Errors for Table 1

	No. of participants (in millions)	Estimate (1986 dollars[a])	Sampling error
All plans	1.5	$1,080	$372
Women	0.7	852	227
Men	0.8	1,728	470
Cliff vesting plans	1.2	1,344	282
Women	0.6	972	195
Men	0.6	1,968	280
Graded vesting plans	0.3	194	170
Women	0.16	139	161
Men	0.16	258	289

[a]Dollars in body of report are adjusted to 1990 dollars.

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401(k) Plans: Participation and Deferral Rates by Plan Features and Other Information (GAO/PEMD-88-20FS, Apr. 29, 1988).

401(k) Plans: Incidence, Provisions and Benefits (GAO/PEMD-88-15BR, Mar. 29, 1988).

Pension Plans: Vesting Status of Participants in Selected Small Plans (GAO/HRD-88-31, Oct. 30, 1987).

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