Research Summaries



A comparison of pension benefit increases and inflation, 1973–79

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It has been suggested that after retirement, pension benefits remain relatively constant in nominal terms. If there were no postretirement benefit adjustments, the real value of pension benefits would decline in the presence of inflation. The objective of this study has been to examine the actual benefit increase experience of a sample of pension plans to provide the first comprehensive assessment of the change in real benefits in relation to inflation. Our study shows that from 1973 to 1979, most retirees in the sample of plans used received at least one increase in benefits and many received substantial nominal benefit increases. However, real benefits did decline. Postretirement increases amounted to approximately two-fifths of the rise in the Consumer Price Index from 1973 to 1979. Benefit increases tended to be larger for plans with a large number of beneficiaries, for collectively bargained plans, and for individuals who had been retired for a longer period of time.

Method used

The data used in this study came from the Pension Benefit Master File created by the U.S. Department of Labor's Office of Pension and Welfare Benefit Programs. The sources of data in the file are the Arthur Young and Company Survey of Private Pension Benefit Amounts conducted in 1980 for the Labor Department, and social security information from the Summary Earnings Record and a standard summarization of the Master Beneficiary Record, known as the Survey Benefit Summary Record.

The Private Pension Plan Benefit Amounts Survey is a random sample of private pension plans for which the 1975 series 5500 forms¹ were filed with the Department of Labor.

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The Arthur Young survey collected information regarding actual benefit amounts paid to beneficiaries on Dec. 31, 1978, for 671,000 retirees under 446 plans of 371 sponsors. (Sponsors are employers or the joint board of trustees that establish and maintain the plan.) The survey also obtained detailed descriptions of actual changes in benefits between Jan. 1, 1973, and Jan. 1, 1979, for the responding firms.

The master file information reported by employers dealt with individuals receiving benefits in December 1978 and included data on age, year of retirement, years of credited service, sex, race, marital status, social security reported earnings, and the current pension benefit received. In addition, plan characteristics such as union status, type of plan, plan size, and industrial category were also reported. Specific questions were asked concerning any postretirement increases in benefits that were awarded between Jan. 1, 1973 and Jan. 1, 1979. Plan sponsors were asked to indicate the size and method of all increases, the date of the increases, and what type of beneficiaries were eligible for the increases. Only defined benefit plans are included in the present analysis.

To augment these data, the individuals were matched with social security information on the earnings histories of the beneficiaries. By using the social security number and the first six letters of the last name of the recipient/participant, the data in the Arthur Young survey were matched with the Summary Earnings Record and the Survey Benefit Summary Record. Due to limitations in the number of records the Social Security Administration was able to process, only a 50-percent sample of the five largest plans was taken. However, the weights for individuals in these plans were doubled to make up for this. A total of 389,309 records for 426 plans was matched.

Table 1. Percent of persons retired before 1973 awarded postretirement increases in benefits, by plan size, 1973–78

			Number of recipients in plan in 1979											
Year	Ali plans	1-99	100-499	500-999	1,000- 4,999	5,000- 9,999	10,000 and over							
1973	37.4	4.7	5.2	9.5	2.7	7.8	77.0							
1974	48.6	8.1	17.3	42.6	16.4	47.8	74.3							
1975	51.7	10.4	17.4	20.5	3.7	56.2	83.7							
1976	39.6	9.6	9.9	11.1	31.4	27.9	65.8							
1977	53.3	9.1	26.5	49.8	13.3	27.9	89.2							
1978	44.7	9.6	28.4	l 14.3 l	11.0	72.6	57.9							

Table 2. Average pension benefits for persons retired before 1973¹ and benefit changes as a percent of the Consumer Price Index, 1973–79

Year	Mean benefit	Percent of 1973 benefit	Percent (annual increase) ²	Percent change in cm ³	Benefit change as a percent of CPI change
1973	\$2.128	100.0		_	
1974	2.205	103.6	3.6	11.0	32.7
1975	2,296	107.9	4.1	9.1	45.1
1976	2.384	112.0	3.8	5.8	65.5
1977	2,452	115.2	2.9	6.5	44.6
1978	2,563	120.4	4.5	7.7	58.4
1979	2,638	124.0	2.9	11.3	25.7
Change,					
1973-79.	510	24.0	24.0	63.3	37.9

¹The sample comprised 139,316 persons who retired in 1972 or earlier. The observations are weighted by plan weights representing the incidence of similar plans in the pension universe.

Using the detailed description of pension plans obtained from the Arthur Young survey, we estimated annual retirement benefits for individuals from the responding firms for the years 1973 to 1978. As we were primarily concerned with the effect of inflation on initial benefit amounts and on postretirement pension adjustments for this period, we included in our sample only those retirees for whom annual retirement benefits could be constructed. We eliminated from our sample nonretirees and persons who received a lumpsum benefit during the period. Benefit amounts for many recipients could not be calculated because the data were missing or there were severe reporting errors in key variables such as years of service, years of retirement, and age at retirement. Sample averages were substituted for the reported value when only one or two variables were missing or implausible. This produced a working sample of 292 plans and 327,173 recipients.

The analysis of postretirement increases in this study is based on a sample of defined benefit plans with positive sample weights. This sample of 267 plans and 287,547 recipients was divided into two groups, with most plans represented in both groups. The first group (254 plans and 133,698 recipients) consisted of those who retired between 1973 and 1978.² The second group (189 plans and 150,868 recipients) consisted of those who retired before 1973.³ This second group is the only sample referred to hereafter in this report.

A further adjustment in the second group was necessary. Three plans in our sample showed an average percent increase in nominal benefits of more than 190 percent. This unusually large increase is probably attributable to incomplete or inaccurate information about how benefit increases between 1973 and 1979 were calculated. Our deletion of these plans from the second group left 186 plans and 139,316 recipients. This sample was used to construct averages for the estimated benefits from 1973 to 1979.

In constructing annual pension benefits for 1973-79, we

had to examine individuals in each plan carefully to determine if they were eligible to receive an increase. Then using the increase formula in the specific plan, the magnitude of the increase for each individual was calculated. The benefit data for each individual were constructed by assuming that the benefit received on Dec. 31, 1978, was the benefit the individual would receive for all of 1979. The 1978 benefit was equal to the 1979 benefit unless a benefit increase was awarded during 1978. If there was a 1978 increase, then the 1978 benefit was considered equal to the 1979 benefit minus the 1978 increase. This is equivalent to assuming that all benefit increases awarded during a year become effective at the beginning of the following year. Basing the annual increases on data from the Pension Benefit Master File survey, benefits for 1973 to 1979 could be constructed. This procedure understates the benefit increases by delaying all increases until the end of the year. In addition, it results in a sample period of 1973-79. If we had assumed that the Dec. 31, 1978, benefit was the benefit for all of 1978 and increases became effective at the beginning of each year, then the sample period would have been 1972-78. This would have made a substantial difference when comparing benefit changes to changes in the Consumer Price Index because the 1979 increase in consumer prices exceeded the 1972 increase.

Finally, all observations were weighted by plan weights provided by the U.S. Department of Labor. These weights are used to make the master file data representative of the defined benefit pension system.

Postretirement increases

Our investigation shows that during the mid-1970's, the beneficiaries in our sample who had retired before 1973 received sizable postretirement increases. These adjustments raised nominal benefits but were not large enough to prevent declines in the real value of benefits in the presence of the relatively high rates of inflation prevailing at that time. We examined the trend in average benefits by using a sample of persons who retired prior to 1973. Thus, these retirees received benefits in each year for which benefits could be calculated from the survey data. By focusing only on those persons already receiving benefits in 1973, we eliminated the effects of new retirees entering beneficiary

Table 3. Average real benefit for persons who retired before 1973¹

	Year												Average real benefit in 1973 dollars		Percent of 1973 benefit	Average annual change								
1973																					\$2,128	ŀ	100.0	_
1974																					1.987	ĺ	93.4	-6.6
1975																					1.897	I	89.1	- 4.5
1976																					1,861	ı	87.4	1.9
1977																					1,798	ı	84.5	-3.4
1978																	,				1.746	ı	82.0	-2.9
1979																					1,614		75.8	-7.6

¹Nominal values shown in table 2 deflated by the Consumer Price Index.

²The percent increase represents the percentage change in nominal benefits from the preceding year.

 $^{^3}$ The percent change in the Consumer Price Index is the percentage change in the average annual CPI from the preceding year.

Table 4. Average pension benefit for persons retired before 1973, and benefit changes as a percent of the Consumer Price Index, 1972–78

Year	Average benefit	Percent of 1972 benefit	Percent (annual increase) ²	Percent change in the cm ³	Benefit change as a percent of the cpi change
1972	\$2,128 2,205 2,296 2,384 2,452 2,563 2,638	100.0 103.6 107.9 112.0 115.2 120.4 124.0	3.6 4.1 3.8 2.9 4.5 2.9	6.2 11.0 9.1 5.8 6.5 7.7	58.1 37.3 41.7 50.0 69.2 37.7
Change, 1972–78	510	24.0	24.0	55.9	42.9

¹See footnote 1 in table 2.

²See footnote 2 in table 2

³See footnote 3 in table 2

status during the period. As a result, all benefit increases represent changes in postretirement benefits and do not reflect the effect of rising initial benefits.

Incidence of increases. Approximately three-fourths of all pre-1973 retirees received at least one postretirement increase in their pension benefits between 1973 and 1979. Almost one-quarter of all sampled pre-1973 retirees received an increase in every year during the mid-1970's. The following tabulation shows the distribution of retirees by the number of increases received during the period:

Number of increases	Percent of recipients							
0	25.4							
1	10.8							
2	16.9							
3	11.0							
4	6.8							
5	4.6							
6	24.5							

In any given year, one-third to one-half of all retirees in our sample were receiving postretirement benefit increases. Table 1 shows that the proportion of retirees receiving benefit increases varied considerably by plan size. In the smallest plans not more than 10 percent of the retirees received increases in any given year, while more than 50 percent of those in the largest plans were awarded benefit increases in any given year. These data suggest there was a substantial number of increases in pension benefits during the mid-1970's.

Trend in average benefits

Average benefits from 1973 to 1979 for persons retired before 1973 are shown in table 2. The average nominal pension benefit for these individuals rose from \$2,128 in 1973 to \$2,638 in 1979, an increase of 24 percent. The average annual increase during the 1970's ranged from 2.9 percent to 4.5 percent. Thus pension benefits were far from being constant in nominal terms.

Despite this increase, the real value of pension benefits as related to the CPI declined during the mid-1970's. (See table 3.) The CPI (1967 = 100) rose from 133.1 in 1973 to 217.4 in 1979, an increase of 63.3 percent. Thus, when the average real benefit is calculated by deflating the values shown in table 2, real benefits (reported in 1973 dollars) declined throughout the period. The average real benefit in 1973 dollars is \$2,128 in 1973 and drops to \$1,614 in 1979, a loss of 24.2 percent. If there had been no increases in nominal benefits, the real benefit would have been only \$1,303 and the real value would have fallen by 38.8 percent.

Thus, despite regular increases in average nominal benefits of approximately 3.5 percent, the real value declined in each year. The decade of the 1970's was a period of relatively high inflation, and the lowest annual increase in the CPI during 1973–79 was 5.8 percent. Table 2 shows the increase in pension benefits and the increase in consumer prices. During this period, the average annual benefit increase represented between 25.7 and 65.5 percent of the annual increase in the CPI.

The effect of the assumptions concerning the timing of benefit increases can be shown by reproducing tables 2 and 3, but assuming benefit increases are effective at the beginning of the year they are awarded and the Dec. 31, 1978, benefit is the benefit for all of 1978. This results in the same nominal benefit values, except they cover 1972-78 instead of 1973-79. Table 4 shows that using this alternative set of assumptions raises the ratio of nominal benefit increases to CPI increases from 37.9 in table 2 to 42.9 in table 5. This table shows that under these assumptions the loss in real benefits in 1972-78 is 20.5 percent. Tables 4 and 5 suggest that benefit adjustments were slightly more generous than shown by our primary assumptions. The basic finding is, however, unaffected. Throughout the remainder of this analysis, only numbers consistent with our primary assumptions are reported.

Plan size and benefit increases

The magnitude of postretirement increases varies substantially by plan size. These differences are reflected in the trend of average benefits by plan size shown in tables 6

Table 5. Average real benefit¹ for persons retired before 1973 as a percent of the 1972 benefit, 1972–78

						Y	e	a	,								Average real benefit in 1973 dollars		Percen of 1972 benefit	?	Perce annu chanç	al
1972																	\$2,260	I	100.0			
																		L			_	
1973																	2,205	ı	97.6		-2.	
1974																	2.070	L	91.6		-6.	1
1975																	1.968	ı	87.1		-4.	
																		ı				
1976																	1,914	ı	84.7		-2.	
1977																	1.879	L	83.1		-1.	8
1978																	1,797	l	79.5		-4.	

¹Nominal values for benefits deflated by the Consumer Price Index.

Table 6. Ave	rage benefits	by plan size	for persons re	tired
before 19731	in dollars and	index (1973	for persons re = 100),2 1973-	-79

(in dollars)

		Nu	mber of rec	ipients in plar	in 1979	
Year	1-99	100-499	500-999	1,000-4,999	5,000-9,999	10,000 and over
1973 1974 1975 1976 1977 1978 1979	\$1,835 1,841 1,849 1,870 1,880 1,889 1,899	\$2,073 2,097 2,157 2,203 2,222 2,324 2,381	\$2,057 2,079 2,162 2,212 2,216 2,333 2,341	\$2,256 2,259 2,318 2,322 2,421 2,448 2,472	\$2,242 2,258 2,339 2,477 2,530 2,563 2,712	\$2,149 2,305 2,434 2,553 2,659 2,841 2,927
[1973 =	100]					
1973	100.0 100.3 100.8 101.9 102.5 102.9 103.5	100.0 101.2 104.1 106.3 107.2 112.1 114.9	100.0 101.1 105.1 107.5 107.7 113.4 113.8	100.0 100.1 102.7 102.9 107.3 108.5 109.6	100.0 100.7 104.3 110.5 112.8 114.3 121.0	100.0 107.3 113.3 118.3 123.7 132.2 136.2

¹Observations are weighted by plan weights. (See table 2.)

²Benefits in each year as a percent of benefits in 1973.

through 8. Nominal benefits in 1973 range from \$1,835 for the smallest plans to more than \$2,200 for plans with more than 1,000 recipients. The differences in average benefits by plan size increase over time because the larger plans are more likely to award increases in postretirement benefits. Table 6 shows that the average benefit for persons in plans with fewer than 100 recipients rose by only 3.5 percent between 1973 and 1979, while plans with between 100 and 9,999 recipients raised benefits between 10 and 21 percent. The largest plans with more than 10,000 recipients increased benefits by 36.2 percent during the period.

As table 7 shows, these increases were not sufficient to maintain the real value of benefits during retirement. The

Table 7. Average real benefit for persons retired before 1973 in dollars and index (1973 = 100), 1973-79

[In dollars]

		Nu	mber of rec	ipients in plac	n in 1979	
Year	1-99	100-499	500-999	1,000-4,999	5,000-9,999	10,000 and over
1973 1974 1975 1976 1977 1978 1979	\$1,835 1,658 1,527 1,460 1,379 1,287 1,163	\$2,073 1,890 1,781 1,720 1,629 1,582 1,457	\$2,057 1,874 1,785 1,726 1,625 1,589 1,433	\$2,256 2,035 1,914 1,813 1,776 1,668 1,513	\$2,242 2,035 1,931 1,934 1,855 1,746 1,660	\$2,149 2,078 2,010 1,992 1,950 1,935 1,792
[1973 = 10 0))			•		
1973	100.0 90.4 83.2 79.6 75.1 70.1 63.4	100.0 91.2 85.9 83.0 78.6 76.3 70.3	100.0 91.1 86.8 83.8 79.0 77.2 69.7	100.0 90.2 84.8 80.4 78.7 73.9 67.1	100.0 90.8 86.1 86.3 82.7 77.9 74.0	100.0 96.7 93.5 92.7 90.7 90.0 83.4

¹Nominal dollar values in table 6 deflated by the Consumer Price Index. Real benefits are shown in 1973 dollars

²Benefits in each year as a percent of benefits in 1973.

first part of table 7 illustrates the decline in real dollar values by plan size while the lower half of the table shows the real value of benefits in subsequent years as a percent of 1973 values. For persons in the smallest plans, the average benefit declines by 36.6 percent; in plans with 100 to 9,999 recipients, the real value fell by approximately 30 percent; and in the largest plans, by only 16.6 percent.

Incidence of benefit increases by plans

Although most retirees in this sample received a benefit increase after retirement, only 21.6 percent of the plans with at least one retiree in 1973 awarded any increase in benefits between 1973 and 1979. These seemingly contradictory findings are reconciled by noting that most plans in the sample have only a small number of beneficiaries and these small plans tended to give no postretirement increases. For example, only 17.0 percent of plans with fewer than 100 recipients in 1979 granted any increase, while all of the plans with more than 10,000 recipients provided at least one increase and 23.3 percent of these large plans awarded an increase each year. The relatively low proportion of all plans awarding increases is largely caused by the dominance of small plans. Table 8 indicates that 84.4 percent of all plans represented by this survey had fewer than 100 recipients in 1979. The number of increases provided by the large plans is generally consistent with that reported by Francis King in his review of three surveys of benefit increases during the 1970's.4

Collective bargaining status

In addition to plan size, the number of benefit increases and the amount of the increase are influenced by the collective bargaining status of the plan. The following data show that 80 percent of beneficiaries in collectively bargained plans received at least one increase in retirement benefits between 1973 and 1979, while almost 40 percent received an increase every year. Beneficiaries in nonunion plans had fewer total increases and also were more likely

Table 8. Percent of plans with persons who were retired before 1973 that awarded benefit increases, by plan size, 1973–781

		N	lumber of a	recipients ir	1979		
Number of increases	1-99	100-499	500-999	1,000- 4,999	5,000 <u>–</u> 9,999	10,000 and over	All plans
0	83.0	61.2	24.7	45.9	16.9	0.0	78.4
1	3.6	9.8	43.5	12.8	13.7	14.9	5.3
2	4.8	23.7	15.3	33.8	40.4	0.0	7.7
3	2.5	1.7	6.4	0.0	0.0	27.3	2.5
4	1.3	0.0	0.0	0.0	0.0	34.4	1.2
5	0.3	0.0	10.1	0.0	21.7	0.0	6.6
6	4.5	3.5	0.0	7.5	7.3	23.3	4.4
Percent of all plans in this cate-							
gory	84.4	12.0	2.0	1.0	0.4	0.3	100.0

¹Percents are calculated from a weighted sample of plans.

to have received no increase during the sample period:

Number of	Percent of recipients						
increases	Union	Nonunion					
0	20.2	32.3					
1	7.5	16.5					
2	15.6	19.5					
3	5.6	20.0					
4	5.1	9.5					
5	7.0	0.8					
6	38.9	1.5					

Our analysis also shows that in any given year, 45 to 66 percent of union retirees received an increase. By contrast, only 11 to 43 percent of nonunion retirees received an increase in a given year.



¹The 5500 forms are used for the annual reports required by ERISA on the financial status of pension plans.

²Two subsamples were created from this sample for use in a regression analysis that is available in the full study. One subsample consisting of 121,103 recipients for whom all values were present for the independent variables—union status, number of beneficiaries in plan in 1979, years of service, age at retirement, sex, race, industry code, year of retirement, and salary average—was used to estimate initial benefits at retirement. Another subsample consisting of 103,579 recipients who retired between 1973 and 1977 for whom all values were available for the same independent variables was used in the regressions to estimate the percent changes in benefits between the year of retirement and 1979.

³Regression analysis for percent change in benefits for 1950–72 retirees was based on a subsample of 137,038 observations from this group with no missing values in the independent variables. This analysis is reported in the full study and is further extended in Steven G. Allen, Robert L. Clark, and Daniel A. Sumner. "Post-Retirement Adjustments of Pension Benefits," Faculty Working Paper No. 44. January 1984. North Carolina State University.

⁴Francis King in "Indexing Retirement Benefits," *The Gerontologist*. December 1982, pp. 488–92, reports that 75 percent of the plans in the 1980 Bankers Trust Survey provided at least one increase between 1975–79, 85 percent of the plans in the Hewitt Associates Survey awarded at least one increase between 1975 and 1981, and 56 percent of the plans in the Hay Associates Survey granted increases in 1981.

Poverty estimates lowered by inclusion of noncash benefits

The number of persons estimated to be below the poverty level would be significantly reduced if the value of noncash benefits (food, housing, and medical care) were included in the determination of such estimates, according to a study by the U.S. Bureau of the Census. Depending on which noncash benefits are included and which method is used to count them, the inclusion of noncash benefits as income would lower the poverty rate between 9 and 33 percent in 1982.

In August 1982, 34.4 million persons, or 15 percent of the population, were officially below the poverty level (cash income only). But, including the value of food stamps, free or lower-priced school lunches, public or other subsidized housing, medicaid, and medicare reduces the estimate to between 22.9 million (10 percent) and 31.4 million people (13.7 percent).

Measured by money income alone, the official number of poor persons increased by 8.3 million, from 26.1 million in 1979 to 34.4 million in 1982. When noncash benefits are added to money income, the number of poor persons increased between 7.8 and 8.9 million (depending on how noncash benefits were valued), up from 15.1 million in 1979.

The official poverty rate rose 28 percent, from 11.7 percent of the population to 15.0 percent over the 1979–82 period. By contrast, under the alternate estimate (which includes noncash benefits), the poverty rate rose even faster, between 37 and 47 percent depending on the valuation of the noncash benefits. (This apparent anomaly is explained by the difference between the poverty bases in 1979: the alternative estimate (cash and noncash benefits) that year was 15.1 million in contrast to the official estimate of 26.1 million persons.)

The Census Bureau study investigates three valuation approaches and three combinations of benefits, yielding nine different estimates of poverty. The three valuation approaches used in the study were:

- The market value approach assigns a value to the noncash benefit that is equal to the private market price of the goods and services received by recipients. For example, the market value of food stamps is the face value of the stamps.
- The cash equivalent approach assigns a value equal to the amount of cash that the recipient would accept in lieu of the goods or services. For example, a person might trade some of his food stamps for a lesser amount of cash which could be spent on other services or commodities.
- The poverty budget share approach does not attempt to value the noncash benefit directly, but, instead measures the amount by which the poverty threshold could be reduced for the family receiving the benefit. This reduction is equal to the average dollar amount of the goods or services consumed by households with money income approximately equal to the poverty level. Poverty budget share is a more limited valuation approach than the other two because it is relevant only for the purpose of determining poverty status.

Each of the valuation approaches was used to assign values to three different combinations of food, housing, and medical benefits. Because medical benefits represent such a large proportion of the total noncash benefits and because of various problems in valuing these benefits, one set of estimates was derived based on food and housing benefits alone. Furthermore, the question of whether to include or

exclude institutional health care benefits resulted in two additional estimates based on food, housing, and medical care.

The effect of noncash benefits on the estimated number of poor varies for different subgroups of the population. Noncash benefits have their largest effect on poverty estimates for the aged (persons 65 years old and over) if the value of medical benefits, mainly in the form of medicare, are included. The poverty rate for this group, 14.6 percent in 1982, is reduced by as much as 76 percent, to a rate of 3.5 percent, when medical benefits are considered. Other population subgroups are also greatly affected. For example, the poverty rate for blacks, 35.6 percent, is reduced by as much as 40 percent, while the poverty rate for whites is

decreased by 31 percent, using the value of all food, housing, and medical benefits. Furthermore, the poverty rate for families maintained by women, with no husband present, is reduced by as much as 39 percent.

Estimating the value of noncash benefits is considered difficult and controversial by economists and social scientists. There are various strengths and weaknesses associated with each valuation approach and with the data used in the estimates. Details of these problems are discussed in the comprehensive report, Estimates of the Poverty Population Including the Value of Noncash Benefits: 1979–1982, Technical Paper No. 51, which may be ordered from the Customer Services Branch (Publications), DUSD, Bureau of the Census, Washington, D.C. 20233. The cost is \$5.

A note on communications

The Monthly Labor Review welcomes communications that supplement, challenge, or expand on research published in its pages. To be considered for publication, communications should be factual and analytical, not polemical in tone. Communications should be addressed to the Editor-in-Chief, Monthly Labor Review, Bureau of Labor Statistics, U.S. Department of Labor, Washington, D.C. 20212.