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Worth the  
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Federal Reserve Bank of Boston

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## Are Pensions Worth the Cost?

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The U.S. Treasury estimates that personal income tax receipts in fiscal 1992 would be \$51 billion higher without the special provisions accorded employer-sponsored pension plans. Pension provisions, in fact, were the single largest item in the tax expenditure budget. Like most other tax expenditures, and unlike direct expenditures, the revenue loss from favorable tax provisions for employer-sponsored plans is not submitted to a formal and systematic review each year by Congress. Therefore, the question of whether taxpayers are getting their money's worth from this very large implicit outlay should be addressed periodically.

To that end, this paper first takes a closer look at the tax expenditure for employer-sponsored pensions--a number that has been the subject of considerable controversy. After establishing that the forgone revenues are substantial no matter how they are estimated, the following sections explore whether the expenditures produce the desired results. Section II addresses the saving issue and concludes that support for employer-sponsored pension plans should not rest on the assumption that they increase national saving.

The last three sections assess the effectiveness of pensions as a provider of supplementary retirement income. They discuss three serious weaknesses with the current system. Section III focuses on the coverage problem; only 46 percent of the private work force is currently covered and coverage continues to decline. Section IV explores the erosion in the value

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\*Senior Vice President and Director of Research, Federal Reserve Bank of Boston. Prepared for the National Tax Association meeting, Washington, D.C., May 10, 1991. The views expressed are solely those of the author and do not necessarily reflect the official position of the Federal Reserve Bank of Boston or the Federal Reserve System.

of benefits experienced by mobile employees under defined benefit plans. Section V addresses the lack of cost-of-living adjustments to annuity payments to retired employees, under either defined benefit or defined contribution plans.

The conclusion that emerges from this review is that despite a myriad of legislative changes, all of which combine to increase the likelihood that persons covered by pension plans will actually receive benefits, the U.S. pension system is still a very erratic and unpredictable way to provide retirement income and it benefits only a privileged subset of the population. In short, the \$51 billion is not well spent. If the government is going to use taxpayers' money to subsidize supplementary retirement income, it should do so in a fashion whereby all citizens enjoy the subsidy. If this seems unrealistic in the current environment, the alternative is to recoup the subsidy. One way to accomplish this goal would be simply to levy an annual tax of roughly 2.5 percent on the stock of pension assets; of course, numerous other approaches are possible. The important message is that it is time to explore the alternatives for revising the tax treatment of employer-sponsored pension plans.

#### I. The Tax Expenditures for Employer-Sponsored Plans

Under current law, employees are not taxed currently on the value of their annual accrued pension benefits; rather, they are allowed to defer taxes until benefits are received in retirement. This treatment is equivalent to an interest-free loan from the Treasury and significantly reduces the lifetime taxes of those employees who receive part of their compensation in wages and

part in pensions as opposed to those who receive all of their compensation in cash wages.

In estimating the revenue loss from the favorable treatment of pensions, the Treasury treats the absence of tax on the annual increment of accrued pension benefits as equivalent to excluding from gross income the value of employer contributions to pension plans and the annual earnings on accumulated pension assets. This equivalence is not quite correct. In the old days, when plans were significantly underfunded, contributions probably exceeded benefit accruals since they generally included a payment to amortize unfunded liabilities as well as to cover normal costs; in recent years, when many plans have been more than adequately funded, contributions generally have been less than the increase in accrued pension benefits. This difference is noted only as a point of interest, however, since the thrust of this section is that whatever concepts are used, the size of the forgone revenues is large.

The Treasury calculates the tax expenditure for pension plans on a cash-flow basis, which is consistent with the expenditure side of the budget. The two-step process involves first estimating the revenue that would be gained from current taxation of pensions by applying the average marginal rate for persons covered by pension plans to annual pension contributions and estimated pension fund earnings. The second step requires subtracting from this revenue gain the amount that would be lost from not taxing benefits in retirement, as is done under the current law. This difference is reported as the revenue loss in the Treasury's tax expenditure accounts. The total figure reflects the tax expenditure associated with private pensions, state and local plans, and the civil service retirement system (Table 1); no estimate appears to be made for the military plan. Nevertheless, the exclusion of employer-sponsored

pension plan contributions and earnings is the single largest tax expenditure, topping even the revenue loss arising from the deduction of mortgage interest on owner-occupied homes (Table 2).

Two lines of argument are sometimes employed to diminish the importance of these estimated revenue losses. The first, which contends that the treatment of pensions is consistent with that of saving under a consumption tax, is accurate but of little relevance. True, the United States has something of a hybrid system, but its commitment to the income tax was reaffirmed in the Tax Reform Act of 1986, and the Treasury itself, with the apparent concurrence of Congress, classifies the treatment of pensions as a deviation from both the "normal" tax structure and the so-called "reference law" baseline.

The second line of argument actually represents some confusion on the part of critics. The notion is that the current calculation does not properly take account of the fact that the large pension accruals not taxed today will be taxed in the future. A generous interpretation of this concern is that the cash-flow calculation may not be the best measure of the revenue loss.

Indeed, the cash-flow approach, which is meaningful for permanent deductions and exclusions, does not properly account for tax concessions in those cases where tax payments are deferred. Its limitations for qualified pension plans can be seen clearly by considering a situation in which (1) annual contributions to private plans and pension fund earnings exactly equal benefit payments during the year, and (2) workers face the same marginal tax rate in retirement as they do during their working years. Under these assumptions the revenue loss would equal zero, according to the Treasury calculations of tax expenditures. Yet individuals covered by private plans

Table 1  
 Estimated Revenue Loss from Net Exclusion of Employer Pension Contributions  
 and Plan Earnings, Fiscal Years 1990-1992  
 (Billions)

	1990	1991	1992
Total	\$45.4	\$48.0	\$51.2
Private Plans	23.9	25.5	27.1
State and Local Plans	14.1	14.7	15.7
Civil Service Retirement	7.4	7.8	8.4

Source: Estimated based on unpublished data from the Department of the Treasury, Office of Tax Analysis.

Table 2  
 Top Ten Tax Expenditures in the Income Tax Ranked By Revenue Loss, Fiscal Year 1992

Item	Billions
Net exclusion of employer plans pension contributions and earnings	\$51.2
Deductibility of mortgage interest on owner-occupied homes	40.5
Exclusion of employer contributions for medical insurance premiums and medical care	33.5
Step-up basis of capital gains at death	26.8
Accelerated depreciation	26.1
Deductibility of nonbusiness state and local taxes other than on owner-occupied homes	20.4
Exclusion of OASI benefits for retired workers	18.0
Deductibility of charitable contributions	16.8
Exclusion of interest on public purpose state and local debt	14.0
Deferral of capital gains on home sales	13.9

Source: U.S. Office of Management and Budget, The Budget for Fiscal Year 1992, 1991, Section XI, "Tax Expenditures," Part Three, p. 40.

would continue to enjoy the advantage of deferring taxes on employer contributions and investment income until after retirement. Clearly, such tax deferral reduces the present value of lifetime taxes for the individual and produces a significant revenue loss for the Treasury.

A better estimate of the annual revenue loss resulting from deferral would be the difference between (1) the present discounted value of the revenue from current taxation of employer contributions and pension fund earnings as they accrue over the employee's working life, and (2) the present discounted value of the taxes collected when the employer's contributions and investment returns are taxable to the employee after retirement. To estimate the annual tax expenditure for employer-sponsored plans in this way requires assumptions about the average age of covered workers, the typical retirement age, life expectancy at retirement, the rate of earnings on pension reserves, the appropriate discount rate, and marginal tax rates for workers and retirees.

In the following calculations the typical retirement age is assumed to be 62 and the participants' life expectancy upon retirement is assumed to be 18 years. For consistency with assumptions underlying the Treasury estimates, contributions to employer-sponsored pension plans in fiscal 1992 are assumed to be \$143.5 billion, the effective tax rate for workers covered by a pension plan is 23 percent, and the effective tax rate for pension plan beneficiaries is 17.5 percent. Because of the sensitivity of the results to the other assumptions, a number of estimates are calculated based on alternative values for the average age of a covered worker and on differences between the rate of return on pension reserves and the discount rate.

This exercise reveals that deferring taxes on 1992 employer contributions and on the earnings on those contributions until retirement, combined with a significantly lower marginal tax rate in retirement, reduces tax revenues between \$40.0 billion and \$68.9 billion in present value terms (Table 3). For instance, if the typical worker covered by a pension plan were 35, and if the earnings on accumulated contributions were 7 percent and the discount rate 7 percent, then the tax expenditure calculated for fiscal 1992 contributions on the present-value basis would be \$51.4 billion. This compares to the Treasury tax expenditure estimate calculated on a cash basis of \$51.2 billion for fiscal 1992.

It could be argued that the tax benefit for pension plan participants should be limited to the value of deferral, and the rate effect that results from the progressive tax structure ignored. Focusing solely on the revenue loss from deferral, the present-value estimate of the tax expenditure becomes \$47.2 billion for the 35-year-old individual and an assumed interest rate of 7 percent. Thus, the revenue loss associated with the favorable treatment of pension contributions and earnings is substantial regardless of how it is measured.

Although this analysis provides some information with which to compare alternative estimates of tax expenditures associated with employer-sponsored pension plans, it is by no means intended to produce a precise estimate of this expenditure. Rather, the exercise was designed to illustrate that the debate over the precise magnitude of the tax expenditures is an unproductive digression that diverts attention from the important topic of whether the favorable tax treatment accorded contributions to private pension plans represents an efficient and equitable use of scarce federal resources. The

Table 3  
 Alternative Estimates of Cost to Treasury of Favorable Tax Provisions for  
 Employer Pension Plans,<sup>a</sup> Fiscal Year 1992  
 (Billions)

Rate of Return on Plan Assets (percent)	Average Age of Covered Worker			
	30	35	40	45
	Estimate A <sup>b</sup>			
7	\$56.5	\$51.4	\$45.9	\$40.0
8	62.4	56.1	49.4	42.2
9	68.9	61.2	53.2	45.0
	Estimate B <sup>c</sup>			
7	52.3	47.2	41.8	35.9
8	56.9	50.8	44.4	37.6
9	61.6	54.5	47.1	39.5

<sup>a</sup>Includes private pension plans, Federal Civilian Retirement System, and state and local retirement systems.

<sup>b</sup>Tax rate is 23 percent in working years and 17.5 percent during retirement.

<sup>c</sup>Tax rate is 23 percent during working years and retirement.

Source: Author's estimates.

next sections explore the alleged benefits of employer-sponsored plans and then highlight some of the major deficiencies.

## II. The Saving Issue

Many people have espoused the expansion of employer-sponsored pensions as a means of stimulating saving and capital formation, and have cited the rapid increase in pension fund assets as evidence of pensions' positive impact on saving. Indeed, the growth in pension reserves has been extraordinary; from the end of 1945 to the end of 1990, private pension assets rose from \$5 billion to almost \$2 trillion and state-local reserves from \$3 billion to \$0.8 trillion. Proponents of employer-sponsored plans imply that the buildup of pension reserves represents a net increase in saving for the economy. Economic theory suggests, however, that it may simply reflect a shift in the form of saving. The life-cycle model predicts that, in an ideal world characterized by perfect labor and capital markets, no taxes, and no uncertainty, people would simply substitute the increase in their expected pension benefits for their own saving.

Of course the U.S. economy deviates substantially from the model described above, and these deviations introduce some ambiguity about the probable effects of private pensions on saving. Favorable tax provisions, imperfect capital markets, and induced retirement may cause pension plans to increase saving. Uncertainty about the receipt and amount of benefits may either increase or reduce saving, depending on whether people overestimate or underestimate their future pension benefits. The fact that pensions are paid as annuities and that private plans are less than fully funded should mean that there is less aggregate saving than under the simple life-cycle model.

Because of all these factors, the net effect of private pensions on personal saving is indeterminate.

Since the issue cannot be determined theoretically, a final assessment must rest on empirical evidence. If plans are fully funded--a reasonable assumption these days--the key determinant of saving is the extent to which individuals reduce their other saving in response to promised pension benefits. The bulk of the evidence to date does provide some support for the prediction of the simple life-cycle model that individuals reduce their own saving in anticipation of benefits provided through public and private pension plans. However, with one exception, none of the studies employed a very good measure of anticipated pension benefits. Moreover, most of the studies focused on the behavior of older men for whom retirement was the primary saving motive; little progress has been made in terms of assessing the impact of pensions on the saving of the entire population. All that can reasonably be said is that some offsetting behavior occurs and that it is less than dollar for dollar.<sup>1</sup>

For illustrative purposes, however, assume a 65 to 70 cent offset for each dollar of pension accrual--an estimate consistent with the results of most of the accepted, albeit flawed, studies. This assumed offset implies, at first glance, that if pension saving averaged \$150 billion in the last few years, individuals would have reduced their own saving by roughly \$100 billion, producing a net increase in saving of \$50 billion. From this amount, however, must be subtracted the revenue loss created by the tax expenditure for pension plans. Although considerable controversy surrounds these numbers

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<sup>1</sup>See Munnell and Yohn (1990) for a review of studies examining the impact of pensions on saving.

as indicated earlier, the Treasury figure for tax loss is around \$50 billion and very rough estimates based on present value calculations yield a similar number. Given the large errors associated with both the saving and the tax expenditure numbers, the most reasonable conclusion is that the increase in private saving may well have been almost completely offset by a comparable increase in the federal deficit.

Hence, the national saving issue is not a very important criterion for supporting employer-sponsored pension plans. Rather, the question is whether employer-sponsored plans are an equitable and effective mechanism for providing retirement income. In this regard, the lack of universal coverage and inadequate protection from inflation must be viewed as serious flaws.

### III. The Coverage Problem

The goal of federal tax policy since 1942 has been to encourage, through favorable tax provisions, the use of tax-qualified pension and profit-sharing plans to ensure greater retirement security for all employees. Unfortunately, the private pension system does not meet this desired objective. Among those covered by pension plans, the benefits of the tax concessions go mainly to average- and above-average-paid workers. In part this problem is inevitable, since a progressive income tax makes it increasingly more advantageous for individuals to defer taxes as their marginal income tax rates rise. In part, it also reflects a history of integration provisions that allowed employers to reduce earned pension benefits by a portion of the worker's social security benefit and thereby provide substantially greater benefits for higher-paid employees. Recent reforms of the integration provision should help.

The fundamental problem, however, is that not everyone is covered by a private or government-sponsored supplementary pension plan. The most recent survey, the May 1988 Current Population Survey (CPS), showed that only 39 percent of full-time private wage and salary workers aged 16 and over were covered by a traditional defined benefit or defined contribution plan. Another 7 percent were covered by employer-sponsored--although not necessarily employer-financed--pre-tax plans, such as 401ks or 403bs. Although these pre-tax plans sometimes provide annuities at retirement, they frequently allow lump-sum payments before retirement; hence, their contribution as a source of retirement income remains unclear. Nevertheless, even adding those with salary reduction or pre-tax plans to those covered by basic retirement plans brings the total to only 46 percent of full-time workers (Table 4).

Moreover, the percentage of the private work force covered by any type of employer-sponsored retirement plan, after decades of expansion, declined in the 1980s. Between 1979 and 1988, the percentage of full-time workers covered by any type of plan fell from 50 to 46 percent. Moreover, in view of the enormous expansion of 401k-type plans, the decline in coverage under traditional plans has probably been even more pronounced.<sup>2</sup>

When the decline in coverage was first revealed in a 1983 survey, many attributed the development to the poor economic conditions and high unemployment associated with the 1982 recession. Observers thought that coverage losses were due solely to temporary layoffs and that coverage would be expected to rebound with economic growth. In many older industries, however, the proportion of employees working for firms that are large and

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<sup>2</sup>Between May 1983 and May 1988, the availability of 401k arrangements increased threefold; the proportion of nonagricultural wage and salary workers offered 401k plans increased from 8 to 27 percent (EBRI 1989).

Table 4

Coverage Under Employer-Financed Pension or Retirement Plan, Full-Time Private Wage and Salary Workers Aged 16 or Older, 1972, 1979, 1983, and 1988

Coverage Status	Percent of Total			
	1972	1979	1983	1988
Covered by employer-financed plan	48	50	48	46
Basic pension only	--	--	--	33
Both pension and pretax plans	--	--	--	6
Pretax savings plan only	--	--	--	7
Not covered	47	43	49	52
Don't know	4	7	3	2
Addendum:				
Number (in thousands)	48,000	59,735	59,938	71,485

Source: John R. Woods, "Pension Coverage Among Private Wage and Salary Workers: Preliminary Findings From 1988 Survey of Employee Benefits," Social Security Bulletin, October 1989, p. 17.

unionized, which are key determinants of pension coverage, has suffered a permanent decline. While employment and pension coverage in the service-producing industries expanded between 1979 and 1983, the gains in this sector have not offset the declines in manufacturing. The inevitable conclusion is that because of the influence of industry structure on pension coverage, the percentage of the work force covered by supplementary plans in the United States will not increase noticeably in the foreseeable future.

Efforts to broaden pension coverage through individual voluntary arrangements have not been successful. In an attempt to offer retirement income opportunities to more individuals, ERISA authorized the individual retirement account (IRA). Although eligibility was limited initially to those without pensions, it was expanded in 1981 to encompass all workers, including those currently covered by pension plans. It soon became evident, however, that while IRAs were offered to all, they were being used primarily by higher-income people, many of whom already had pension coverage.<sup>3</sup> As a result of this pattern of usage, Congress substantially tightened IRA provisions in the Tax Reform Act of 1986. Specifically, contributions to IRAs were fully tax deferred only for persons who were not active participants in an employer-sponsored pension plan or whose adjusted gross income fell below certain phaseout levels (\$25,000 for an individual and \$40,000 for a married couple). Persons not eligible for tax-deferred treatment on the contribution could make taxable contributions to an IRA and still enjoy tax-deferred earnings.

The 1988 CPS revealed that 12 percent of wage and salary workers contributed to an IRA. The interesting fact, however, is that workers covered

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<sup>3</sup>Data showed that 58 percent of individuals earning over \$50,000 contributed to an IRA in 1982 compared to only 17 percent of people earning between \$15,000 and \$20,000 (EBRI 1984).

by an employer-sponsored pension plan reported higher IRA contribution rates than did noncovered workers. Moreover, those who had both basic pension coverage and a tax-deferred plan reported slightly higher IRA contribution rates than those covered by only one type of pension. This pattern meant that only an additional 10 percent of wage and salary workers picked up coverage through IRAs, leaving nearly half with no pension provisions at all.

Thus, the lack of universal coverage for supplementary retirement benefits remains an unsolved problem. This inevitably creates a tension, because, as discussed earlier, the tax concessions for private plans represent a significant revenue loss to the Treasury. With the current structure, less than half the work force is covered by a pension plan, yet all taxpayers must pay higher taxes to make up for these forgone revenues. With such an inequitable distribution of tax concessions, proposals constantly surface for either restricting the favorable tax provisions for private plans or making coverage universal so that all workers can enjoy the advantages of deferral. Unfortunately, no one has suggested a workable way of resolving the coverage dilemma within our current institutional framework.

The next section focuses on another difficult problem--namely, the loss in the value of earned pension credits suffered by the mobile employee under defined benefit plans.

#### IV. The Erosion in the Value of Vested Pension Credits after Termination

Despite recent growth in defined contribution plans, the majority of those covered by basic pension plans still participate in defined benefit plans. For workers who remain with one employer throughout their work lives, defined benefit plans have the advantage of offering a predictable benefit,

usually expressed as a percent of final pay for each year of service. A problem arises, however, in the case of mobile employees, and this would arise even if all firms had identical plans and immediate vesting; mobile employees receive significantly lower benefits as a result of changing jobs than they would have received from continuous coverage under a single plan. This difference arises because final earnings levels determine pension benefits. The worker who remains with a plan receives benefits related to earnings just before retirement, but the benefits for mobile employees are based on earnings at the time they terminate employment.

The more wages rise with productivity and inflation, the relatively lower the benefits received by the mobile employee. A simple example indicates that, if wages increased 4 percent annually, the pension of a worker who held four jobs would equal 61 percent of the pension of a worker who remained continuously employed by one firm. If wage growth were 8 percent, the relative position of the mobile employee would deteriorate further (Table 5). Thus, the higher the rate of inflation and the greater the productivity growth, the more discontinuous employment reduces the real value of benefits.

This erosion occurs because plan sponsors do not calculate benefits at termination on the basis of projected salary, nor, alternatively, do they index benefits to the rate of wage growth for the period between termination of employment and retirement. The problem could be solved very easily, in a mechanical sense, by having each employer provide the terminating employee a lump sum that reflected the value of benefits based on projected earnings at age 65 rather than earnings at the time of termination. This enhanced amount could then be invested in an IRA and the mobile employee would suffer no loss in benefits. Hence, the problem is not a technical one.

Table 5  
Comparison of Pension Benefits for a Four-Job Worker and a One-Job Worker<sup>a</sup>

Item	Compensation Base: Final Pay <sup>b</sup>	Compensation rule (Percent of Salary) <sup>c</sup>	Benefits	Ratio of Benefits: Four-Job/One-Job Worker
<u>Inflation Rate: 0 Percent</u>				
Four-job worker <sup>d</sup>				
Job 1	\$ 10,000	10%	\$ 1,000	----
Job 2	10,000	10	1,000	----
Job 3	10,000	10	1,000	----
Job 4	10,000	10	1,000	----
Total	----	40	4,000	
One-job worker	10,000	40	4,000	1.00
<u>Inflation Rate: 6 Percent</u>				
Four-job worker <sup>d</sup>				
Job 1	17,908	10	1,790	----
Job 2	32,071	10	3,207	----
Job 3	57,435	10	5,744	----
Job 4	102,857	10	10,286	----
Total	----	40	21,027	
One-job worker	102,857	40	41,143	0.51
<u>Inflation Rate: 8 Percent</u>				
Four-job worker <sup>d</sup>				
Job 1	21,589	10	2,159	----
Job 2	46,609	10	4,661	----
Job 3	100,626	10	10,063	----
Job 4	217,243	10	21,724	----
Total	----	40	38,607	
One-job worker	217,243	40	86,897	0.44
<u>Inflation Rate: 10 Percent</u>				
Four-job worker <sup>d</sup>				
Job 1	25,937	10	2,594	----
Job 2	67,275	10	6,728	----
Job 3	174,494	10	17,449	----
Job 4	452,593	10	45,259	----
Total	----	40	72,030	
One-job worker	452,593	40	181,037	0.40

<sup>a</sup>Assumes a consistent increase in wages to compensate for inflation, and no growth in wages due to productivity.

<sup>b</sup>Base salary is \$10,000 and benefit is calculated on earnings in last year of employment.

<sup>c</sup>Assumes annual benefit accrual of 1 percent a year.

<sup>d</sup>Assumes worker stays at each job for 10 years.

Source: Alicia H. Munnell, The Economics of Private Pensions, 1982, Table 7-2, p. 176.

Instead, the difficulty is one of cost. Employers are willing to keep their benefits up-to-date with wages, by basing benefits on final salary, for people who remain covered by their plan until retirement, but they resist doing so for terminated employees. Increasing benefits for terminated employees will increase employer cost and mean either lower benefits for remaining employees or lower wages for all employees. Furthermore, by providing lower benefits to mobile employees, the firm can reduce turnover and retain skilled workers, which, after all, was one of the motivations for establishing pension plans in the first place.

Moreover, this problem cannot be solved simply by improving "portability." Literally, portability means nothing more than the ability of an employee to transfer the present monetary value of vested pension credits to a succeeding plan or central clearinghouse upon termination of employment. The key issue is the amount of money transferred. The transferring of vested pension credits where benefits are based on salary at termination does not prevent the erosion of the value of benefits. Such an arrangement would be advantageous only if the market interest rates systematically exceeded the interest rate used by the actuary to determine the discounted value of future benefits.

In short, employees covered by defined benefit plans will probably continue to receive pension credits based on their salary at the time they terminate employment with a firm, rather than on salary projected at retirement. These benefits, frozen in nominal terms, will erode in value in the face of persistent inflation and wage growth. This phenomenon, for which no easy solution exists, makes the future level of retirement income highly uncertain for the mobile employee.

The next section addresses the indexing question, where a feasible financial innovation may be available.

#### V. The Erosion of Benefits after Retirement

Supplementary pension plans generally do not provide post-retirement cost-of-living adjustments. Consequently, even moderate rates of inflation will erode the purchasing power of benefits fixed in nominal terms, noticeably lowering retirees' standards of living. When persistent inflation is combined with the trend toward earlier retirement, the value of unindexed pension benefits declines significantly.

Employers and plan sponsors have been aware of the erosive impact of inflation and have attempted to adjust benefits in response to rising prices. For the majority of beneficiaries who are covered by defined benefit plans, these adjustments have taken the form of ad hoc increases in pension benefits. The problem is that such adjustments tend to offset no more than one-third of inflation's erosive impact. Furthermore, almost no sponsors guarantee cost-of-living adjustments and those that do, primarily plans sponsored by state and local governments, have annual caps of 2 or 3 percent. Consequently, even beneficiaries who do receive annual adjustments experience a considerable reduction in the purchasing power of their benefits.

In the major defined contribution plan, Teachers Insurance and Annuity Association (TIAA) and College Retirement Equities Fund (CREF), the response to inflation has been to design annuities that pattern benefits to reflect expected inflation. For example, TIAA offers a graded benefit payment, under which benefits are significantly lower to start but then increase each year in relation to the amount by which actual investment experience exceeds the

interest rate. CREF offers a variable annuity under which benefits are adjusted each year to reflect the performance of the fund's stock portfolio. Stocks, however, have been so volatile that some retirees have suffered serious declines in both the real and nominal values of their retirement benefits. A difficult thing to remember in a period when the Dow hits a new high every day.

One possible reason for the lack of automatic cost-of-living adjustments for private pension benefits is that no financial asset exists that could serve as the basis for a fully indexed annuity. Common stocks, which have for a long time been thought to be an inflationary hedge, have been shown to be a particularly unsuitable investment for producing a stable retirement income. While over the past 30 years stocks have provided a high average return, investors have experienced significant periods of negative real earnings. Long-term bonds have fared much less well: their average real return has been near zero and in recent years the variability has been almost as great as that for common stocks. Treasury bills do offer a stable positive real return, but it is very low, and these instruments are still not a perfect hedge against inflation.

What pension sponsors need is a financial instrument whose real yield is unaffected by inflation and whose return reflects a full inflation premium. Index bonds, which have long been advocated by economists from both ends of the political spectrum and which in 1981 were launched quite successfully in Great Britain, are just such instruments.<sup>4</sup> Unlike conventional bonds, which are issued at a nominal interest rate and which subject holders to capital

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<sup>4</sup>See Munnell and Grolnic (1986) for a description of index bonds, an examination of the British experience, and a discussion of the application of index bonds to the U.S. situation.

gains or losses if the underlying inflation assumption proves incorrect, index bonds are designed to fully protect investors against the deterioration of principal and interest due to inflation.

Index bonds are the perfect instrument to enable pension plan sponsors to provide inflation-adjusted annuities. These bonds could be issued exclusively to pension plans, thus circumventing some tax issues, and in relatively small amounts, so that they do not disrupt financial markets. Careful analysis indicates that they should not have any adverse effect on Treasury revenues. Index bonds would significantly enhance the current array of financial options and improve the predictability of pension benefits at no additional cost to the government or the taxpayer. Without such an instrument, automatic cost-of-living adjustments are unrealistic, since they would impose more real costs on plan sponsors than they would have incurred in a noninflationary environment.

## VI. Conclusion

During the 1980s, considerable progress was made towards improving the equity and effectiveness of private pension plans: integration provisions were revised, vesting requirements were lowered, and limits were reduced on amounts eligible for preferred tax treatment under both defined benefit and defined contribution plans. At the same time, ERISA funding provisions and the runup of the stock market resulted in plans being more fully funded. The funding, vesting, and integration developments all increased the chance that someone covered by a pension plan would actually end up receiving a benefit in retirement. The reduction in the contribution and benefit limits for individuals also helped ensure that the benefits of the favorable tax provisions were focused on the middle class rather than the very rich. (Not

all developments were desirable during the 1980s, however; the Omnibus Reconciliation Act inappropriately limited employers' tax-deductible funding contributions to qualified defined benefit plans.)

Despite these positive developments, coverage continues to decline. This means that less than half of the population gains from the tax-preferred treatment of pensions, yet all taxpayers must make up for the revenue loss by facing higher tax rates. It seems increasingly difficult to justify the generous subsidy as the proportion of the population covered by pensions falls.

Dismantling the pension system is not a desirable or feasible goal, however; pensions provide supplemental income to millions of retired persons. Moreover, the trend from defined benefit to defined contribution plans will help address the problem of the erosion of vested terminated benefits, and the introduction of index bonds could allow plan sponsors to adjust benefits for inflation after retirement. In short, those who are covered by pensions could end up getting more substantial and reliable benefits than they have in the past.

Whereas the case for employer-sponsored pensions as an institution is strong, the case for a major tax expenditure is weak. The simplest way to recoup the subsidy without interfering with the institution is to levy an annual tax on pension reserves. A rate of 2.5 percent would recover the entire tax expenditure; a lower rate would recover a portion. Many other approaches to taxing employer-sponsored pensions are also feasible. The important point is that, given the other demands on the budget, eliminating a tax expenditure that benefits a declining and privileged proportion of the population should be given serious consideration.

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