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The Predictability of Retirement Income

By Lawrence H. Thompson

Summary

Predictable pensions, whose benefits bear some relationship to the standard of living when a worker retires, are desirable in any retirement system. Both defined-benefit plans, like Social Security, and defined-contribution plans, like individual retirement savings accounts, pose risks, but they are different. Hence, a mixed system might be the best balance. The United States already has a mixed system: (1) the public Social Security system which provides a predictable base of retirement income, but with relatively modest benefits for middle and upper income workers; and (2) the private system, with a large employer pension and retirement saving industry, that has been shifting toward a defined-contribution model. America does not need to privatize Social Security to achieve a mixed system.

The projected cost of the baby boom's retirement benefits has triggered one of the most vocal debates in the history of the U.S. Social Security system. The wisdom of substituting privately managed, individual accounts for a portion of the current defined-benefit system is a prominent feature of this debate.

Retirement Income Needs to be Predictable

Thus far, analyses have focused on how a shift to individual accounts would affect national savings, the federal budget, or rates of return earned by different birth cohorts. This Brief asks an important question that has been generally overlooked: that is, how would individual accounts affect the predictability of retirement incomes for workers?

Pension systems promise that, in return for making regular contributions during their working years, retirees can rely on them for income during retirement. To function effectively, pension systems should be organized so that these promises provide a stable, predictable and adequate source of retirement income to each participant. Predictability means two things. First, it means that the benefits that were promised during one's working life will actually materialize in retirement. Second, it means that the value of the benefits paid will have some predictable relationship to the standard of living prevailing at the time of retirement. In other words, the benefit will replace a predictable percentage of one's earnings.

Predictability allows individuals and society as a whole to plan appropriately to finance the desired level of retirement income, so that the resources available in retirement are neither too high — meaning too much was set aside for retirement that might have been better used to meet other needs — or too low — causing too large a drop in living standards at retirement.

Pension predictability has received relatively little attention because thus far the debate has focused on comparisons using artificial scenarios in which events always unfold in a predictable manner. For example, they assume that: workers have continuous employment and steady wage levels; wages and prices grow at a fixed rate; investment returns are constant from year to year;

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changes in life expectancy follow a known path; and political and private-sector institutions will fulfill their roles effectively.

History tells us that every one of these assumptions is wrong. This Brief compares how two different styles of pensions — pay-as-you-go defined *benefit* plans and funded defined *contribution* plans — deal with these risks.

- A **defined-benefit** plan provides retirement benefits scaled to reflect a worker's average earnings over his or her career.[1] In this analysis, it is assumed to be centrally managed and financed on a pay-as-you-go basis from employee and employer contributions.
- A **defined-contribution** plan is one in which workers and employers make fixed-rate contributions that are invested in financial assets. At retirement, the benefit is based on the value of the accumulated contributions and their earnings. In this analysis, the plan is assumed to be privately-managed and balances are converted into monthly income through an annuity at retirement.

How are these two models likely to work out in the real world, with its unexpected changes in demographic and economic conditions? How do workers fare in terms of the predictability of their retirement income under each model? How are the risks that things will not work out as planned shared between individual retirees and society as a whole? Is one approach more insulated from the different risk factors than the other?

Both Pension Types Require Adjustments to Changing Demographics

Life Expectancy. Increases in life expectancy have similar effects on the cost of paying monthly benefits under both a defined-benefit and a defined-contribution pension. In each case, the cost of a given pension rises because it must be paid over a longer period of time. The likely adjustments to changes in life expectancy differ, however.

Increasing retiree life spans cause defined-benefit systems to fall out of fiscal balance because aggregate benefit payments will rise without an offsetting increase in contribution income. The system must be adjusted through the political process with increased contributions, lowered benefits or delays in the retirement age. History suggests the adjustment is likely to be some combination of the three.

The advantage of political intervention is that it can spread the impact of the change among a broader population, thereby reducing the risk it poses to the benefits promised to individual retirees. The disadvantage is that if the political system is not strong enough to make the necessary decisions, policy impasse and deficits result.

A defined-contribution plan is equally affected by increasing life expectancy, but there is less ability to spread the risk this poses for retirement benefits. A defined-contribution plan does not promise to provide a particular level of retirement income relative to prior earnings; rather, it promises a retirement income that is based on the assets accumulated by the time an individual retires. If life expectancy rises and benefits must be paid for additional years, then monthly income must fall. In this situation, contribution rates could be increased to restore the value of monthly benefits to future retirees, but little can be done to help those nearing retirement.

To function effectively, pension systems should provide a stable, predictable and adequate source of retirement income to each participant.

Birth Rates. If birth rates fall, the number of workers relative to the number of retirees will fall. In a pay-as-you-go system, this will lead to a shortfall in income needed to pay benefits. Consequently, either contribution rates will have to be increased or retirement benefits have to be curtailed.

The impact of declining birthrates on an advance-funded, defined-contribution system is much less clear. If there are fewer workers to whom retirees can sell their accumulated assets at retirement, prices (and retirement income) may fall. Yet such selling occurs in a much larger capital market than just the retirement system. It is not possible at this time to predict whether this is likely to be a problem.

Individual Savings Accounts Require Adjustment to Changes in Wages and Investment Returns

Changes in wage levels or investment returns have little impact on benefit promises in a pay-as-you-go defined-benefit system. But they create major risks for an advance-funded defined-contribution plan. Unexpectedly high (or low) investment returns relative to wage growth will cause a defined-contribution system to significantly exceed (or fall short of) a target wage replacement rate.

Simple calculations based on the post-World War II history of wages, interest rates and stock market returns in Germany, Japan, the United Kingdom and the United States show how difficult it is to set the contribution rate at a level that produces the desired pension.

Consider a scenario in which each of these four countries had set up a defined contribution pension system in 1953, and let us say that each country in 1953 somehow accurately predicted the long-term rate of wage growth and the interest rate, but did not know what the year-to-year fluctuations would be.[2] So it set an initial contribution rate at the level that it thought would produce an adequate standard of living in retirement, given that country's own long-term rate of wage growth and interest rate, and then adjusted the contribution rate every 10 years to reflect actual economic developments during the past decade.

We can simulate the impact on retirement income, using the contribution rates produced by this policy, given the year-to-year fluctuations in the economy that actually occurred. It shows that the plans in the four countries would have overshot their retirement income targets by 50 to 80 percent, using an all-bond investment policy. And if the year-to-year fluctuations occurred in the *reverse* order of historical experience, the plans would have fallen short of their target by 30 to 40 percent.

Including stocks in the investment plan allows for a lower contribution rate, but does not make setting the contribution rate any easier. Among the four countries, the plans could have overshot their goals by more than 80 percent, and undershot them by as much as 40 percent. The table shows the results of the simulation for the four countries.

Percent of Retirement Income Target Achieved Under Defined Contribution Pension

	U.S.	United Kingdom	Japan	Germany
All bond investment				
Actual economic experience	**181**	**165**	**153**	**163**
Reverse order of actual economic experience	**58**	**64**	**68**	**66**
50/50 equity and bond investment				
Actual economic experience	**154**	**188**	**125**	**93**
Reverse order of actual economic experience	**66**	**59**	**87**	**100**

Note: In this simulation, the "retirement income target" is defined as a pension that would replace 50 percent of pre-retirement earnings. Thus, if 200 percent of the retirement income target is achieved, the plan would replace 100 percent of pre-retirement earnings. If 50 percent of the retirement income target is achieved, the plan would replace 25 percent of pre-retirement earnings.

Source: Lawrence H. Thompson, "Individual Uncertainty in Retirement Income Planning Under Different Public Pension Regimes," *Framing the Social Security Debate: Values, Politics and Economics*, R. Douglas Arnold, Michael J. Graetz and Alicia H. Munnell, eds. (Washington, DC: National Academy of Social Insurance, forthcoming), Table 2.

The history of the last half century suggests that the unpredictability of wage growth and investment returns can cause defined-contribution pensions to far exceed or fall far short of retirement income goals. Moreover, all of the risk due to economic performance is borne by individual workers. Workers with unexpectedly large retirement savings accounts may enjoy a more comfortable retirement than they had expected, but may have preferred to reduce their retirement contributions during their working lives in order to meet other needs, such as educating their children or helping their own parents. Workers whose accounts are lower than expected will have a leaner retirement than they had planned, with little opportunity to make up the lost savings.

Both Systems Face Political Risks

Retirement income systems in all countries, whether public or private, depend on the political process to establish and enforce the rules and to make periodic adjustments in the face of changing economic and demographic conditions. But the political risks can differ according to which pension model is used.

Political Risks in Defined-Benefit Plans

Pay-as-you-go defined-benefit plans are more dependent on the political system for adjusting benefits and therefore face the risk of political stalemate in the adjustment process or of excessive benefit promises.

Political Stalemate on Adjustments. Because defined-benefit systems promise a particular benefit level, the taxes necessary to pay for those benefits (or the benefit promises themselves) must be adjusted from time to time through the political system. If policymakers fail to act expeditiously, the predictability and adequacy of retirement income is threatened.

In pay-as-you-go defined-benefit plans, regular forecasts can reveal deficits and compel the political process to swing into action. With sufficiently early adjustment, the burden of rebalancing the system can be spread equitably and with adequate opportunity for workers to adjust their plans. If there is stalemate, workers will know that an adjustment is needed, but will not know what kind of changes will be enacted and therefore cannot plan. Moreover, continued controversy can undermine public confidence in the program.

The U.S. record here is mixed. Benefit reductions and future revenue increases were enacted in 1977 and again in 1983. The 1977 changes were adopted on a bi-partisan basis in advance of a last-minute crisis. The 1983 changes were agreed to on a bi-partisan basis only when pressure to meet benefit payments made further delay impossible.

Today, although it is clear that changes will very likely have to made in the benefit and/or financing schedules of Social Security, politicization of the debate may make it difficult to enact such changes. Where the political system is unable to come to a consensus about the adjustments to be made, the imbalance may develop into a source of social division and continuing fiscal difficulties for the government.

Excessive Benefit Promises. Pay-as-you-go defined benefit systems in other countries have proven vulnerable to excessive benefit promises where those countries lack institutions that force politicians to consider the future cost of current promises. These problems have been particularly common in Latin America and the former socialist countries of Eastern Europe. This risk has been far less important in the United States, Canada and Northern Europe.

The U.S. Social Security program has historically been protected from this risk by the tradition of issuing long-range cost estimates every year. Because it has taken seriously the responsibility to maintain balance in the 75-year cost estimates, Congress has never enacted changes that were projected at the time of passage to cause a long-range deficit or to increase the size of one that had already existed.

Political Risks for Retirement Savings Accounts

Shifting to a defined-contribution plan faces the risks associated with paying for the transition, assuring that account balances are held until retirement, and achieving effective administration of the private accounts.

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Costly Transition. Shifting from a pay-as-you go system to individual retirement savings accounts requires that one or more generations of workers pay twice: once to pay continuing benefits to those who are retired under the old system, and again to fund their individual accounts. Paying transition costs that can easily amount to 3 percent of a country's gross domestic product over several decades is a significant challenge. Transition costs can turn out to be larger than predicted or acknowledged, and political support for transition financing must be maintained over a lengthy phase-out period.

Preserving the Money for Retirement. A major political challenge is to assure that the money in defined-contribution accounts is held until retirement, and not used for other needs that occur prior to retirement, such as health care, buying a home or financing education. In the United States, the political system has not previously shown the kind of policy discipline needed to force individuals to preserve their private retirement assets, such as IRA's, 401(k)s and other pensions.[3] Whether policy makers would succeed in requiring that new Social Security defined contribution accounts be held for retirement is an open question.

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Inadequate Administration. Finally, there is the risk that regulation or administration of financial institutions might be inadequate to the job of securing the basic pension for the entire workforce. Recent experience in the United Kingdom shows the potential for loss, and the complexity of correcting mistakes, in a privately-managed defined contribution approach. Several hundred thousand British workers were convinced to convert their existing pension to a defined-contribution plan, although they lost substantial sums by making the switch.

In short, neither defined benefit nor defined contribution systems are immune to political and institutional risks that threaten benefit promises to individual workers.

Conclusion

Neither defined benefit nor defined contribution systems are without risk. Both approaches to providing a secure retirement income will require periodic adjustments due to increased longevity. Retirement income targets in a defined-contribution system are subject to great uncertainty due to wide year-to-year fluctuations in wage levels and market returns. Both depend on the political process to sustain healthy, predictable pensions. Because the two systems face different kinds of risks, a mixed system that uses both a defined-benefit and a defined-contribution model in its overall retirement income policy might be the best balance. Countries that have, in the past, relied on national social security schemes to provide nearly complete wage replacement through a defined-benefit system are now moving to a more mixed approach. They are scaling back their public systems and encouraging development of private supplemental defined-contribution plans on top.

The United States already has a mixed public/private and defined-benefit/defined-contribution system. Along with Canada and a handful of other countries, the United States has never tried to provide anywhere near complete wage replacement through Social Security. Instead, Americans set up a Social Security system that, by design, provides replacement rates that fall short of a comfortable retirement income for middle and upper income workers in the expectation that tax-advantaged private arrangements would supplement these benefits.[4] The result has been the growth of a huge private pension and retirement savings industry which appears to be shifting steadily toward the defined contribution model. America does not need to privatize Social Security in order to have a mixed defined-benefit and defined-contribution retirement system that balances the risks and rewards inherent in each approach to providing retirement income. ■

Endnotes

1 In this system, wages are indexed to reflect economy-wide growth in average wages.

2 In the United States, the long-term rates (from 1953-95) were 1.0 percent real wage growth, 2.3 percent real return on Treasury bonds and 9.1 percent real return on stocks.

3 These assets receive favorable tax treatment if held until retirement, and also if used for specific other purposes such as purchasing a home or paying educational expenses. In addition, the assets can be used for any purpose at any time, subject to payment of a very modest penalty tax.

4 About half of all workers are covered by an employer's pension plan. Others have access to tax-favored retirement savings accounts, but not all take advantage of such opportunities.

Social Security Brief

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