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# Private Pension Policies in Industrialized Countries: A Comparative Analysis

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# Preface

Many countries are moving towards greater reliance on market institutions, and as part of this process they are developing and strengthening their private pension systems. At the same time, the aging of populations is straining social security systems. As a result of these trends, future retirees will rely increasingly on private pensions to provide retirement income.

This book identifies important issues involved in developing and managing private pension systems and examines how selected countries have dealt with these issues. It discusses a wide range of experience that may be useful for policymakers to consider in developing pension policies.

This book grew out of discussions between the authors in Japan in October 1993. John Turner gratefully acknowledges the financial support of the Franco-American Commission for Educational Exchange and the Commission for the International Exchange of Scholars. He expresses his appreciation to the Institut de Recherches Economiques et Sociales for providing a productive working environment, and in particular, he expresses appreciation to Lucy apRoberts and Emmanuel Reynaud. The authors acknowledge the following people who have collaborated on related work: Stuart Dorsey, Sophie Korczyk, David Rajnes, and especially Lorna Dailey.

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Lucy apRoberts, Joanne Brodsky, Lorna Dailey, Judy Gentry, David Rajnes, and two anonymous reviewers read the entire manuscript and made many useful comments. In addition, pension scholars from Germany, the United Kingdom, and other countries contributed to the book by explaining aspects of their countries' pension systems.

The material in the book is the responsibility of the authors and does not represent the position of any institution with which they are associated.

# The Authors

This book was written while John A. Turner was a Senior Fulbright Scholar at the Institut de Recherches Economiques et Sociales in Paris, France. He has written or edited eight books on pensions and employee benefits, including *Trends in Pensions 1992, Trends in Health Benefits, Pension Policy: An International Perspective,* and *Pension Policy for a Mobile Labor Force*. He has also written more than 40 articles on pension and social security policy. Two of his books have been translated into Japanese. He has a Ph.D. in economics from the University of Chicago.

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# 1
# The Trend Toward Private Pensions

Economic insecurity among the elderly is a universal problem. Many industrialized countries have dealt with this problem by developing retirement income systems likened to a "three-legged stool."[1] This image refers to the three primary sources of income for the nonworking elderly: government-provided social security, employer-provided pensions, and household-provided savings.[2] The three-legged stool, however, is more an ideal than a reality. In most countries that use this approach, only households with higher income—fewer than half of retirees—actually receive income from all three sources.

Pension systems are the result of cultural and economic forces and reflect different political philosophies concerning the relative roles of government, employers, and individuals in providing retirement income. In some countries, the ideas of national solidarity and communal responsibility are important, and government plays a major role in providing retirement income. In other countries, a high value is placed on individual responsibility and freedom of choice, and employers and workers play a larger role in determining retirement income. Historical experiences concerning inflation and the development of capital markets also influence the development of pension systems. The result is a diversity of systems among countries.

Regardless of the institutional arrangements of pension systems, population aging is a fundamental force that affects the way retirement income is provided. As populations age, the political power of the older generation increases, but so also does the cost of providing retirement benefits. The net effect is manifested in increasing payroll tax rates and cutbacks in benefit generosity. These changes reduce the rate of return on social security benefit programs, favoring the development of funded private pensions.

In addition to demographic changes, the shift towards private pensions may also be due to a move in many countries towards greater reliance on market institutions. This move has resulted in some countries from the fall of Communism. The trend has been more

widespread, however, with many countries seeking to reduce the role of government in economic life.

Pension retirement benefits provided by private-sector employers are an increasingly important source of retirement income in the United States, Japan, the United Kingdom, and Western Europe.[3] Spain in 1987 (Ruano 1995) and Italy in 1993, for example, countries that have not had well-developed pension systems, have adopted comprehensive legislation to encourage and regulate private pension plans. Countries in Central and Eastern Europe are studying Western models to develop reforms of their retirement income systems. Countries in Latin America, following the lead of Chile, are moving towards private-sector pension systems. In 1993, Peru adopted a version of Chile's pension system, followed by Argentina in 1994 (Campbell 1994). Colombia has passed legislation calling for similar reforms. In the United States, there has been a long-run trend of employer-provided pensions providing a growing share of U.S. retirement income (Chen 1992).[4] In short, these developments suggest that over the next decade, the growing importance of private pensions—the privatization of retirement income—will be worldwide.[5]

The primary purpose of private pensions traditionally has been to provide retirement income, a purpose sometimes called "welfare capitalism." Private pension systems, however, are increasingly being called on to serve other functions. For example, the 1993 private pension legislation in Italy was a response to the government's declared aim of increasing savings and capital accumulation, supporting and enlarging the domestic financial market, and creating the capacity to absorb the large amount of assets to be sold during the process of privatizing public enterprises.

## Pension Terminology

Pension terminology varies among English-speaking pension experts. While in many countries social security programs include a wide range of benefits, social security refers, in this book, to a government-provided retirement income program. Employer-provided pensions include those provided by private-sector employers and those

provided by public-sector employers for their employees. This book focuses on private pensions. A private pension plan is an employer-provided plan or an employee group-sponsored plan that provides retirement benefits for private-sector employees.

In an international comparison of pension plans, the variety of benefit arrangements blurs the distinctions among different types. Plans providing cash benefits to older workers differ as to who sponsors them, who is covered by them, and what purposes they are used for. Pension plans for government-owned enterprises are plans in the private sector for enterprises that are owned by the government. Savings plans are employer-sponsored plans that may be used for retirement or for other purposes. Disability plans for older workers may allow a worker to retire with a pension, but require the worker to have a medical condition that affects the ability to work. Unemployment compensation plans for older workers may provide benefits that function as retirement benefits, but they require that the worker qualify as unemployed. Severance pay plans may provide retirement benefits for older workers, but they generally pay benefits regardless of the age at job separation. When discussing private pension plans, it is worth keeping in mind that other plans serve similar purposes.

A private pension plan may be voluntary or mandatory. This book considers the mandatory pension plans in France and Switzerland to be private pension plans because the assets of these plans remain under private-sector control. While some plans serve multiple purposes, plans used primarily for providing retirement income are considered in this book to be retirement plans.

## Overview

Social security powerfully influences private pensions. Social security benefit expenditures have been growing in the developed countries of the Organisation for Economic Cooperation and Development (OECD).[6] Social security expenditures as a percentage of Gross Domestic Product (GDP) are a measure of the public burden of providing old-age benefits. Table 1.1 shows that measure for the G7 countries—the major democratic, developed economies. Between 1960 and

1985, social security expenditures as a percentage of Gross Domestic Product doubled in France, nearly tripled in Italy, and quadrupled in Japan. In 1985, this percentage covered a fairly broad range, from a low of 5.3 percent in Japan, to a high of 15.6 percent in Italy. Expenditures as a percentage of GDP will continue to grow, due to the large increases in old-age dependency that will begin to occur early in the twenty-first century (table 1.2). Population aging will be a particularly serious problem in Japan. Because of long life expectancy, low fertility, and low immigration in Japan, the projected old-age dependency ratio (the ratio of the population aged 65 and older to the population aged 20 to 64) in the year 2025 will be nearly 50 percent higher than in the United States at that time. Increasing expenditures on social security have also been caused by a growth in the percentage of the aged who are beneficiaries (the maturing of social security systems), and by increases in benefit generosity in past years.

**Table 1.1 Social Security Expenditures as a Percentage of Gross Domestic Product in Selected Countries, 1960-1985**

| Country | 1960 | 1975 | 1980 | 1985 |
|---|---|---|---|---|
| United States | 4.1 | 6.7 | 6.9 | 7.2 |
| Canada | 2.8 | 3.7 | 4.4 | 5.4 |
| France | 6.0 | 10.1 | 11.5 | 12.7 |
| Germany | 9.7 | 12.6 | 12.1 | 11.8 |
| Italy | 5.5 | 10.4 | 12.0 | 15.6 |
| Japan | 1.3 | 2.6 | 4.4 | 5.3 |
| United Kingdom | 4.0 | 6.0 | 6.3 | 6.7 |

SOURCE: Mitchell (1993).

NOTES: The percentage is the ratio of annual public expenditure on pensions to current-year GDP. Public pensions in this table include both transfers through social programs and pension payments to retired government employees. Privately sponsored pensions are not included, nor are tax expenditures granted to private and/or public plan savings. Figures for Germany refer to the former West Germany.

With social security growing relative to the economy, a number of OECD countries are facing pressures to reduce their social security benefits. Future social security benefits have been lowered by legislation: in the United States in 1983, in Japan in 1985 and 1994, in the United Kingdom in 1980 and 1986, in Germany in 1989, in France and

Italy in 1993, and in Sweden in 1994. The United States, Germany, and Japan have scheduled increases in the age for full benefits and a higher reduction in benefits at early retirement. When the change is fully implemented in the United States in 2022, benefits at early retirement will be reduced by 12.5 percent below what they would have been had no reduction occurred.[7]

**Table 1.2 Old-Age Dependency Ratio in Selected Countries, 1990, 2010, and 2025**

| Country | 1990 | 2010 | 2025 |
|---|---|---|---|
| United States | 21 | 22 | 34 |
| Canada | 19 | 24 | 38 |
| France | 24 | 27 | 38 |
| Germany | 24 | 34 | 42 |
| Italy | 24 | 34 | 44 |
| Japan | 19 | 37 | 49 |
| United Kingdom | 27 | 29 | 39 |

SOURCE: U.S. Department of Commerce (1993, p. 122)
NOTE: The old-age dependency ratio is measured here as the number of persons 65 years and over per 100 persons 20 to 64 years.

In some countries, rather than directly lowering social security benefits, changes have been made that indirectly have that effect. France, for example, has raised the qualifying period for full benefits from 37.5 years to 40 years, has raised the base earnings for computing benefits from 10 to 25 years, and has changed the indexing of the earnings used in computing the base from wage indexing to price indexing. These changes will reduce social security benefits by 8 percent. Similar changes have been made in Italy (Graham 1994). Thus, while social security expenditures are growing relative to the economies of a number of countries, legislative changes in place will cause the generosity of social security benefits to decline.

## Effects of Shifting Towards Private Pension Systems

Government policy makers presumably base retirement income systems on the relative merits of private pensions and social security. There are important differences between the two: (1) private pensions generally do not cover the entire private-sector workforce, while social security generally does; (2) private pensions are at least partially funded through investments in the private sector, while social security generally is unfunded or has limited funding through holdings of government bonds; (3) social security frequently provides complete indexation for postretirement inflation, while private pensions provide partial or no indexation; and (4) social security benefits are fully portable between jobs, while private pension benefits in defined benefit plans generally are not.[8] (When a pension benefit is fully portable between jobs, a job change causes no loss of future retirement benefits.)

Private pensions and social security may differ in how they affect workers and retirees. A reduction in social security could have the most serious consequences for low-income workers not covered by private pensions, who depend primarily on social security for their retirement income. Whether that effect occurs, with a consequent worsening of the income distribution, depends on how social security benefits are reduced. If social security is reduced across-the-board, as will happen in the United States in the next century, then it appears the shift towards private pensions would cause a worsening in the income distribution and an increase in poverty.[9]

Private pensions are at least partially funded in most OECD countries, while social security is generally unfunded. Thus, a shift away from social security toward private pension plans may increase national savings. A survey of studies suggests that a one-dollar increase in funding of a private pension plan increases aggregate savings on average by 40 cents and decreases nonpension savings by 60 cents (Pesando 1992). Researchers do not agree on the size of this effect, however, although most researchers have found at least a small positive effect. In the countries of Eastern Europe, which have poorly developed capital markets and thus fewer competing assets through which to save, the effect of private pensions on net savings would prob-

ably be greater than in countries with well-developed capital markets. Studies of the effect of social security on savings generally find a negative or insignificant effect (Feldstein 1974).

Because of differences in the degree and type of funding, social security and private pensions are subject to different risks. Funded private pension systems face financial market risks. Inflation risk is greater for private pension benefits than for social security benefits because private pension plans lack full inflation protection after retirement. Also, funded private pension systems are more at risk due to inflation than are unfunded public systems because of fixed rates of return on some investments. Unfunded systems depend on wage payments, which tend to keep pace with inflation better than do financial rates of return. Because defined benefit private pensions are generally not portable between jobs, they also have greater risk of benefit loss due to job change than does social security. Workers face risks associated with changeable political commitments to social security systems, but also face risks concerning changeable laws affecting private pensions.

Private pensions are more expensive to administer than social security systems because of the economies of scale in administering social security. On the other hand, private pensions offer greater flexibility because they can be tailored to the needs of small groups of workers.

## Private Pension Systems and Policies

In developing pension policy, it may be useful to understand the experience of other countries with similar economies as they confront problems concerning retirement income. For example, many countries have legislated pension rules to protect workers against pension benefit loss at job change. All countries face the problems of demographic change and of inflation eroding the purchasing power of retirement benefits. All countries must decide on the tax treatment of their pension systems.

Private pension systems and policies can be analyzed by comparing across pension systems, treating each country as an entire entity, or by comparing across countries on individual issues without discussing

entire pension systems. The first approach provides an understanding of the major issues as to how different countries structure their pension systems, but comparisons on individual policies are not as clearly drawn. The second approach provides a clearer international comparison on individual issues, but the major comparisons on system structure are lost. This book adopts the second approach because that approach is more useful for analyzing particular policy issues. It is designed for readers wishing to learn about how different countries address particular policy issues, rather than for those wishing an overview of pension systems in different countries. This decision reflects the availability of good country studies.[10]

## A Selective Summary of Pension Trends

This book discusses issues that arise as countries adopt and expand private pension systems. In doing so, it identifies a number of international trends in various aspects of pension policy and systems. First, there is a trend towards greater privatization of retirement income. This is occurring through explicit privatization of social security and through legislative cutbacks in the generosity of social security benefits. Chile has almost entirely privatized its system of retirement income, and other countries have adopted partial versions of its system. The United Kingdom and Japan both allow for partial privatization of social security through "contracting out," which is known in the United States (in the context of health care) as "pay or play." Germany has a privatized system of pension benefit insurance.

Second, the aging of populations in developed countries is raising the cost of providing social security benefits, but it is also making the tax subsidies to support private pension systems more expensive. Presumably in response to this, a number of countries have reduced the generosity of the tax subsidies for private pension plans.

Third, in many countries there is a trend towards defined contribution plans. This is at least partly the result of increasing regulation of defined benefit plans. In some cases, it is the result of government policy mandating the provision of defined contribution plans.

Fourth, pension plans are investing increasingly in foreign securities. Regulations inhibiting foreign pension investments have been reduced or eliminated in some countries. In other countries, increased foreign investment seems to be driven by a realization of the financial benefits afforded by the greater diversification.

Fifth, many countries have reduced the loss of benefits suffered by workers who change jobs. Pension portability has been enhanced by reducing the years required for vesting and, in some countries, by indexing (up to a ceiling inflation rate) the benefits of workers leaving a job before retirement age.

Sixth, in most countries with pension systems the coverage rate of workers has increased over the past twenty years. In more recent years, this trend has stabilized or slightly reversed in some countries.

## NOTES

1. Outside of the United States, the images of three pillars or three tiers are more commonly used.

2. Earnings, disability programs, unemployment insurance, and poverty programs also provide income for the elderly.

3. Reynaud (1994a) characterizes this analytical focus on the public/private division as an Anglo-Saxon approach. In France, analysis is based on whether a pension is a basic pension or a complementary pension. Reynaud also notes that when faced with the complexity of pension systems, analysts tend to practice ethnocentrism, applying a familiar analytical framework that does not always correspond to the logic of the pension system being analyzed.

4. Because of the declining generosity of social security starting in the year 2000, it can be expected that private pensions in the United States will provide a larger share of retirement income in the future.

5. These trends suggest that there will be a convergence of retirement income policies as many countries react to the changing demographic and political environment.

6. These countries include Japan, Canada, Australia, the United States, and the countries of Western Europe.

7. Generally, when referring to an aspect of social security or pension law where the primary source of the information is the law itself, secondary references are not given.

8. Multiemployer defined benefit plans are an exception. They allow unionized workers to change jobs within a single union and geographic area without losing benefits. For other exceptions see Turner (1993a).

9. This is the conclusion of Pestieau (1992).

10. Readers wishing to learn about particular countries should refer to the listing of countries in the index. In addition, readers wishing an overview of the pension systems in Canada, Japan, the Netherlands and the United Kingdom can refer to Turner and Dailey (1991). Readers wishing an in-depth analysis of the U.S. pension system can refer to Turner and Beller (1992). Additional country studies available include: Chile (Diamond and Valdes-Prieto 1994); Japan (Clark 1991b); Ireland (Hughes 1994); Germany (Bodie, Mitchell, and Turner 1995); France (Reynaud 1994b); and Mexico (Cross 1994). The World Bank (1994) discusses the overall structure of retirement income systems.

# 2
# Basic Issues in Structuring Pension Financing
## An International Survey

Pension financing methods are important in the overall structure of pension systems. A wide range of approaches have been adopted by different countries in dealing with some of the basic financing issues.

### Issues

The issues discussed below represent fundamental questions about retirement income financing that must be addressed in designing new pension systems or changing established ones. As a convenient reference for comparing the structure of different pension plans, table 2.1 provides an overview of the retirement income systems of the G7 countries.

1. To what extent should retirement income be privatized? Alternatively stated, What should be the relative roles of social security and private pensions? The fundamental measure of the privatization of retirement income is the percentage of retirement income provided through the private sector.

Private pensions differ in their role as a source of retirement income depending largely on how generous the social security program is.[1] In Italy, for example, social security benefits are generous and there is little role for private pensions. In Germany, the social security system provides generous benefits, even at relatively high incomes, and private pensions are provided mainly to middle- and upper-income workers. In Chile, most benefits are provided through the private sector, though with extensive government regulation. In Japan and the United Kingdom, social security benefits are moderate and private pension coverage is more extensive. Japan and the United Kingdom have retirement income systems that allow firms and workers to partially privatize their retirement income by voluntarily withdrawing from part of social security. Those programs are described in the next chapter.

**Table 2.1 Overview of Social Security and Private Pension Systems in Selected Countries, 1994**

| | Social Security | | | Private Pensions | | | |
|---|---|---|---|---|---|---|---|
| Country | Coverage | Type of benefit<br>---<br>Average gross replacement rate | Financing<br>---<br>Payroll tax rate (including disability insurance tax) shared equally by employer and employee | Type of system<br>---<br>Coverage-% of working population<br>---<br>Type of plan | Type of benefit<br>---<br>Average gross replacement rate including social security | Financing<br>---<br>Benefit insurance | Taxation |
| U.S. | All workers | Pensions linked to average earnings<br>---<br>(41%) | Partially funded<br>---<br>12.4% payroll tax | Voluntary<br>---<br>(50%)<br>---<br>Defined benefit and defined contribution | Lump-sum pensions or annuities<br>---<br>(68%) | Funded<br>---<br>Yes, covering most defined benefit plans | Employer contributions deductible<br>Employee contributions taxed (except 401(k))<br>Benefits liable for income tax. |
| Canada | All residents for flat-rate pension; all workers for earnings-related pension | Flat-rate pension and pension linked to average earnings during working life<br>---<br>(35%) | Pay-as-you-go<br>---<br>5.2% payroll tax for earnings-related pension; flat-rate pension from general revenue | Voluntary<br>---<br>(29%)<br>---<br>Predominantly defined benefit | Lump-sum pensions or annuities<br>---<br>(70%) | Funded<br>---<br>Province of Ontario only | Employer and employee contributions deductible up to a ceiling.<br>Benefits liable for income tax. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| France | All workers | Pensions linked to average earnings of best 10 years<br>--------<br>(50%) | Pay-as-you-go<br>--------<br>16.45% payroll tax (not including disability, 6.65% employee and 9.8% employer) | Compulsory<br>--------<br>(100%)<br>--------<br>Defined benefit | Annuities<br>--------<br>(67%) | Pay-as-you-go<br>--------<br>No | Employer and employee contributions deductible. Benefits liable for income tax |
| Germany | All workers | Pensions linked to average earnings during working life<br>--------<br>(50%) | Pay-as-you-go<br>--------<br>17.5% payroll tax | Voluntary<br>--------<br>(42%, West Germany<br>--------<br>Defined benefit | Lump-sum pensions or annuities<br>--------<br>(60%) | Mainly book reserve (no funds set aside)<br>--------<br>Yes | Employer contributions deductible, benefits partially taxed depending on financing method. |
| Italy | Employees, self-employed, certain professional categories | Pensions linked to average earnings of last 5 years<br>--------<br>(80%) | Pay-as-you-go<br>--------<br>27.07% payroll tax (7.54% employee, 19.53% employer) | Voluntary<br>--------<br>(5%), mainly only for executives<br>--------<br>Defined benefit | Annuities<br>--------<br>(60%) | Pensions often collectively bargained. Insured, pay-as-you-go, or book reserve<br>--------<br>No | Benefits liable for income tax |

**Table 2.1 (continued)**

| | Social Security | | | Private Pensions | | | |
|---|---|---|---|---|---|---|---|
| Country | Coverage | Type of benefit<br>---<br>Average gross replacement rate | Financing<br>---<br>Payroll tax rate (including disability insurance tax) shared equally by employer and employee | Type of system<br>---<br>Coverage-% of working population<br>---<br>Type of plan | Type of benefit<br>---<br>Average gross replacement rate including social security | Financing<br>---<br>Benefit insurance | Taxation |
| Japan | All residents for flat-rate pension; all workers for earnings-related pension; contracting out of earnings-related pension permitted | Flat-rate pension linked to years worked and pensions linked to average earnings over working life<br>---<br>(47%) | Partially funded<br>---<br>14.5% payroll tax, lump-sum tax and general revenue for flat-rate benefit | Voluntary<br>---<br>39% in funded plans, others covered by unfunded plans)<br>---<br>Defined benefit | Lump-sum pensions or annuities<br>---<br>(60%) | Funded, book reserve, and unfunded<br>---<br>Yes, covering about half the plans | Contributions deductible. Pension assets taxed. Benefits liable for income tax. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| U.K. | All workers for flat-rate and earnings-related pension; contracting out of the earnings-related pension permitted by company plans and by individuals | Flat-rate pension (higher for married than single) and pensions linked to average earnings during working life<br>--------<br>(40%) | Pay-as-you-go<br>--------<br>19.4% payroll tax (employee's share is 9%, employer's share is 10 4%, lower rates for low earnings, zero for very low earners | Voluntary<br>--------<br>(29%)<br>--------<br>Predominantly defined benefit | Lump-sum pensions or annuities<br>--------<br>(68%) | Funded<br>--------<br>No | Employer and employee contributions deductible. Benefits liable for income tax, except lump-sum payments up to a ceiling. |

SOURCE. OECD 1992, pp. 34-38; Dailey and Turner 1992

2. Should the private pension system be voluntary or mandatory? In France, Finland, Chile, Mexico, Switzerland, Sweden and Australia, most employees are required to be covered by a pension plan.

Even in countries where private pensions are mandatory, however, small employers, workers younger than a minimum age, and those working fewer than a minimum number of hours may be excluded. Switzerland uses such a system. In France, however, all workers (excluding the self-employed) are covered from the first hour of work.

In Canada, Germany, Japan, the United Kingdom and the United States, employers voluntarily decide whether to provide a pension plan. In countries where pension plans are voluntary, the government requires that plans meet minimum standards concerning which workers are included and by how much the plan is funded in advance of benefit payments.

In the Netherlands, providing a plan is voluntary for some employers. In other industries, however, employers are required to participate in an industrywide plan. Some groups of self-employed workers are also required to belong to such a plan. There are eighty-one industrywide pension plans, of which sixty-six are compulsory for all employers and employees in the industry (Lutjens 1995). Issues concerning pension coverage are discussed in chapter 7.

3. If private pension plans are voluntary, should the government encourage them or simply permit them? Most countries with well-developed pension systems encourage pension plan provision by granting tax preferences and occasionally direct subsidies. Since April 1993, the government in the United Kingdom has provided a subsidy of 1 percent of covered earnings to workers over age 30 who leave the earnings-related social security system and participate instead in an individual pension plan. In Canada, Japan, and the United States, pension plans receive tax preferences that allow money to accumulate tax free, but no direct subsidies are offered. In New Zealand, no special tax preference or subsidy is provided to pensions. For tax purposes, pensions are treated exactly like other forms of savings. The tax treatment of pensions is considered in greater detail in chapter 4.

4. Who is best able to bear the inherent financial risks in pension plans? The primary decision as to who bears the pension financial risks is made when policy makers or employers determine whether pension

plans should be defined benefit plans, defined contribution plans, or a mixture of both types. Countries where defined benefit plans predominate include Germany, Japan, and the Netherlands. Countries where defined contribution plans predominate include Australia, Chile, and Singapore. In Canada and the United States, a mix of both defined benefit and defined contribution plans is provided. In the United States, and to a lesser extent Canada, as well as in other countries, there has been a trend towards defined contribution plans. Risk-bearing in pension plans is considered in more detail in chapter 5.

5. Should there be mandatory insurance for pension benefits? In Chile, Finland, Germany, Japan, Mexico, Sweden, Switzerland, the province of Ontario in Canada, and the United States, the government requires that benefits in some plans be guaranteed. In Japan, Germany, and Sweden, mandatory pension benefit insurance is provided through private-sector institutions. This insurance covers the risk that the sponsoring firm will declare bankruptcy without having fully funded its pension plans. It also covers the risk of financial malfeasance by the plan sponsor. In Australia, there is no government insurance for pension benefits. Chile, Argentina, Mexico, and Switzerland insure or guarantee defined contribution plans. Pension insurance programs are considered in chapter 5.

6. Who should pay for pension plans? Should the funding for pension plans come from employers, employees, or both? In Japan and the United States, the money provided for pension plans comes predominantly from employers. In Argentina and Chile, it comes entirely from employees. In the United Kingdom and Canada, both employers and employees provide money for pension plans. From an economic point of view, however, employees indirectly pay for pension benefits through reduced wages (Montgomery, Shaw, and Benedict 1992). Thus, the source of funding may be unimportant in determining who ultimately pays for benefits. In practical terms, however, the source of funding is an important design consideration in developing a pension system. The question of who should pay for pensions is considered in chapter 6.

7. Should benefits be funded in advance? Most countries, with the exception of France, require at least some advance funding for pension benefits. The French, argue that requiring no advance funding avoids

financial market risk and the expense of asset management in financial markets, and that a social benefit of a pay-as-you-go national private pension system is an increase in social cohesion as the retired and working generations share in the economic downturns or economic success of a country.

In Germany and Japan, some plans are fully funded in advance, some are partially funded, and some have no advance funding. In Canada, the Netherlands, the United Kingdom, and the United States, plans receiving preferential tax treatment are required to be funded in advance. However, the advance funding is generally less than the pension liabilities of ongoing plans. These issues and the remaining four are discussed in chapter 6.

8. To what extent should pension portfolios be regulated? In Germany, the government does not regulate the investments of some types of pension plans. In the United Kingdom, pension portfolios are governed by the general requirement that all investments be prudently considered. In addition, no more than 5 percent of a plan's funds can be invested in assets of the sponsoring employer. In Chile, allowable pension portfolios are regulated in greater detail. In Canada and other countries, excluding the United States, the percentage of a portfolio that can be invested in foreign securities is restricted.

9. What types of organizations should be allowed to sponsor pension plans? In most countries, employers are allowed or encouraged to provide pension plans. In many countries, large multiemployer, industry, or union organizations are also allowed to sponsor pension plans. These countries include the Netherlands, Japan, Canada, Germany, and the United States.

10. Should individual plans be allowed? In some countries, workers can receive pensions through individual plans that are not tied to a particular employer. These countries include Argentina, Chile, the United Kingdom, Canada, and the United States. In other countries, pensions are provided exclusively through plans that are tied to a particular employer. These countries include Germany, the Netherlands, and Japan.

11. What types of institutions should be allowed to manage pension funds? In Chile, only special institutions established specifically to

manage pension funds are allowed to do so. In most countries, including Japan, Germany, the United Kingdom and the United States, insurance companies and banks are allowed to manage pension funds. In France, insurance companies are allowed to manage funded pension plans, but banks are not allowed to do so. In some countries, such as Canada, Japan, the United Kingdom and the United States, investment managers are allowed to manage pension funds. In many countries, such as the United States and the United Kingdom, but not Japan, employers are allowed to manage pension funds internally.

## Conclusion

These eleven issues of pension finance are basic questions to consider when designing or modifying pension policy. The following chapters address each issue in greater detail.

## NOTE

1. To a lesser extent, the relative size of private pensions is affected by government disability and unemployment insurance programs. In some countries, such as the Netherlands, disability and unemployment insurance programs provide early retirement benefits for some workers.

# 3
# Privatizing Retirement Income

What should be the roles of social security and private pensions? For both ideological and economic reasons, a minority of pension experts have advocated the complete privatization of pensions, with retirement income financed by the employer or the individual rather than by government under the social security system (Nusberg 1988). This approach has appealed to conservatives for ideological reasons because it greatly reduces the role of the government by substituting private-sector institutions. Conservatives have also argued that a program that allows workers and employers to voluntarily privatize part of social security would be desirable because it would increase their range of choices. Privatization has also had appeal for economic reasons; it is argued that the substitution of a funded private-sector system for an unfunded public one would increase national savings.

For most pension experts, it has traditionally been inconceivable that social security could be abolished (O'Higgins 1987). They take the position that coexistence rather than dominance or replacement should be the key feature of the relationship between social security and private pensions.

The optimal mix of public and private provision, defined benefit and defined contribution, funded and pay-as-you-go can presumably be determined within an optimal portfolio framework, considering each alternative as a possible asset in the retirement income portfolio. Each type of pension plan has different characteristics concerning its risk, expected rate of return, and covariance with other retirement income sources. In actuality, the determination of the retirement income mix is more complex because it also has elements of public choice affecting the level of benefits provided by social security. With a declining internal rate of return to social security in many countries, there is political support for reducing the role of social security.

This chapter discusses three countries that have pension programs for privatizing social security. They can serve as important models for any other countries considering whether to partially or completely privatize their social security systems.

## Mandatory Individual Accounts: Chile

In 1924, Chile was the first country in the Western Hemisphere to initiate a defined benefit social security system. Because of the high cost of that system, the government ended it in 1981. In its place, the Chilean government introduced a new system of funded individual accounts managed through the private sector. With this arrangement, Chile has succeeded in largely privatizing its social security system, and in the process has revolutionized thinking about retirement income systems.

Because of its financial success and because of the philosophy of retirement income provision that it represents, the Chilean pension reform has attracted worldwide attention, particularly among countries lacking a well-developed pension system (World Bank 1994). The Chilean pension system has been proposed as a model for Poland and other Central and Eastern European countries, and it has been adopted in modified form in Mexico, Argentina, and other Latin American countries.

Chile has a compulsory system of individual retirement accounts that covers nearly all workers. The system includes civil servants, but excludes the armed forces.[1] The self-employed have the option of participating, but most do not.

### *Contributions and Benefits*

Employee contributions for old-age benefits are 10 percent of earnings in Chile. In addition, employees must pay for disability and survivor's insurance, and they also pay a commission. The average cost of these additional features was 3.2 percent of covered wages in 1990. All employee pension contributions are tax deductible. Employers do not contribute.

Employees are allowed to make additional voluntary, tax-deductible contributions. Until 1990, those contributions were limited to an additional 10 percent of earnings, but since 1990 there has been no limit on those contributions. Withdrawals from voluntary contributions are limited to annuities. This restriction, which limits the ability of workers to use their savings, may explain why few individuals make voluntary contributions.

There is a ceiling on earnings subject to the mandatory contributions. The ceiling is about 5.25 times the average salary of all covered workers. The nominal amount of the ceiling is indexed, rising each year at the rate of inflation. In 1994, the annual ceiling was roughly equal to $17,000. Only about 4 percent of contributors earned more than the ceiling (Diamond and Valdes-Prieto 1994).

Individual retirement accounts are managed by large privately operated fund management companies.[2] These specialized companies only manage pension fund accounts, and each company may only manage one fund. In 1992, there were thirteen such companies. Retirement annuities are provided separately by life insurance companies; by the end of 1992 there were nineteen such companies.

Employees are allowed only one tax-deductible account. Contributions are withheld from pay by employers and transferred monthly to the pension fund chosen by the employee. Employees may select which fund they wish to use and may transfer their account balances to another after four months.

Employee contributions to individual pension accounts are tax-deductible, and the interest earned is tax-free. Pensions benefits are treated as taxable income. In contrast to this favorable tax treatment of individual accounts, employer-provided pension funds are given no tax advantages. This is in sharp contrast to the tax advantages given to employer-provided plans in most OECD countries.

Retirement benefits are available at age 65 for men and at age 60 for women. Pension benefits may be taken at those ages whether or not an individual continues to work. They are available earlier if the pension payable is either (1) at least 50 percent of the average indexed earnings of the individual in the last ten years, or (2) at least 110 percent of the legal minimum wage.

Workers must take their retirement benefits either as an indexed annuity, a phased withdrawal, or a combination of the two. Benefits cannot be taken as a lump-sum payment. Pension fund management firms do not provide annuities. At retirement, the individuals must contract with an insurance company to convert their account balance to an annuity or contract with the pension fund management company to receive benefits over their lifetime.

If an individual purchases an annuity from an insurance company, that annuity must be fully price-indexed. The government guarantees

the annuity payments of insurance companies in case an insurance company fails. For low-wage workers, the government guarantees a minimum pension. For all workers, the government guarantees 100 percent of the minimum pension and 75 percent of their pension above that level. An individual who contracts with the pension fund management company continues to bear the risk of fluctuations in the investment rate of return. With phased withdrawals, the individual's annual benefit is recomputed each year, taking into account the investment performance of the fund and whether the worker's spouse or other beneficiaries have died.

In converting the account balance at retirement to an annuity, life insurance companies consider the difference in life expectancy between men and women, along with any other relevant factors. With equal account balances, single men receive higher benefits than do single women. This practice differs from the treatment of men and women in pension plans in the United States and Western European countries. For married workers in Chile, a survivor's benefit must be provided for the spouse and for minor children.

There are two ways in which the Chilean system is not completely privatized. First, the government provides a lump-sum benefit at retirement for all persons who had at least twelve months of coverage under the old system during the sixty-month period ending October 1980. The lump-sum benefit is derived from special government bonds, called recognition bonds, transferred to workers switching into the new system. The amount of the bond is based on the age, salary, and sex of the individual. These bonds pay a 4 percent real rate of return, generally considered to be a high real rate of return for a long-term investment instrument. In fact, however, this rate was about a third of that earned in Chilean financial markets during the 1980s. The bonds are financed out of general government revenues.

A second quasi-governmental feature of the Chilean pension system is that if the benefit provided by the lump sum and the individual's accumulated account balance is below a certain level, a guaranteed minimum benefit is paid. The minimum benefit is payable to individuals who have contributed to the old and new pension systems for at least twenty years. The minimum benefit is financed out of general tax revenue on a pay-as-you-go basis.

The minimum pension benefit discourages some workers from complying with pension contribution regulations. Low-income workers may conceal income and avoid fully paying into a fund in some years since they would receive little more than the minimum amount if they contributed. The minimum pension is set at a relatively high level—85 percent of the legal minimum wage. The legal minimum wage is about half of the average wage for the country. Thus, a worker with average wages is guaranteed a pension of about 40 percent of earnings. This may explain why many low-wage Chilean workers do not contribute to the system.

Participants in poor health may prefer to receive benefits as scheduled withdrawals because, in the event of early death, remaining account balances are inherited by dependents. This arrangement is more generous than the survivor's benefit paid by an annuity. An advantage of scheduled withdrawals to low-wage workers is that if the retiree lives a long time and his or her benefit falls below the guaranteed minimum, the government will make up the difference.

Both the lump-sum benefit to workers who participated in the previous system and the guaranteed minimum benefit are costs for the Chilean government. Each year there is an additional interest cost on the bonds given to workers who had been in the old system. This cost will eventually diminish as that generation of workers dies. The guaranteed minimum benefit will remain, however, as a permanent ongoing cost to the Chilean government.

### *Pension Fund Investments*

When the Chilean funded pension system began in 1981, allowable investments were strictly controlled to limit financial risks. The majority of assets were invested in government bonds, with the next largest amount invested in bank deposits, both indexed against inflation. The large share of pension assets invested in government bonds was partly because the poorly developed capital markets in Chile offered few other financial assets in which to invest. No funds were invested in stocks until 1986.

The portfolio mix of Chilean pension funds continues to be restricted by law. The rules are primarily designed to assure that pension funds are conservatively invested with at least some diversifica-

tion, and to assure that the investments are made primarily within Chile. The rules generally specify maximum limits on investments. The complete set of limits is detailed, but table 3.1 shows some of the more important. The government has changed these limits several times, gradually making them more flexible

**Table 3.1 Pension Portfolio Restrictions in Chile, 1994**

| Asset type | Maximum percentage of pension portfolio |
|---|---|
| Mortgages | 80 |
| Bonds of private and publicly owned businesses | 50 |
| Government bonds | 45 |
| Common stocks | 30 |
| Foreign securities | 12 |
| Securities of a single company | 7 |

SOURCE: Chilean pension regulations.

The Chilean government permits pension funds to invest outside the country. In 1994, a minimum of 6 percent and a maximum of 12 percent of a plan's assets could be invested internationally. The government restricts the types of foreign investments allowed, again to control risk.

For domestic stock investments, only government-approved stocks can be purchased. This restriction limits the participation of the larger pension funds in the Chilean stock market. Government approval is determined through a system that classifies stocks according to risk. Government-approved stocks consist of a small group of state-owned firms in the process of privatizing. In 1992, there were only 38 publicly traded firms in which the pension funds could invest. By comparison, large U.S. pension plans often have portfolios of more than 1,000 stocks.

Government pension investment regulations also protect Chilean financial markets. Regulations limit a pension fund management company to no more than 30 percent of a bond issue. In addition, a fund can hold no more than 7 percent of the stock of a particular company in

which no investor owns more than 50 percent of the shares, and no more than 1 percent in firms with more concentrated ownership.

Another restriction on investments is that Chilean pension funds are prohibited from investing in pension fund management companies or in insurance companies. This prevents conflicts of interest involving pension fund management and pension fund investments.

Chilean pension funds have been far more active in domestic debt markets than in domestic capital markets. In June 1992, the funds held 52 percent of the corporate bonds of both public and private enterprises. The large supply of funds available to finance corporate debt has lowered financing costs and reduced dependence on foreign financing.

When a privately managed pension system invests in government bonds rather than in private sector assets, it can be considered a mixed or government-sector system rather than a privatized system. Social security system funds for most countries are invested exclusively in government bonds. The Chilean system has gradually become more privatized as it has increasingly invested in the private sector.

Chile, like many other countries, has privatized a number of formerly nationalized industries. Its experience exemplifies the role that pension plans can play in privatization. Pension funds played a crucial role in Chile's program to privatize nationalized industries between 1985 and 1989. Through pension fund purchases, stock was sold indirectly to workers via what was called "institutional capitalism." Pension funds were heavy investors in public utilities and other state-owned companies. The total equity positions of the Chilean pension funds in previously state-owned companies privatized during that period varied in 1990 between 10 and 35 percent of each firm's equity, with an average of about 25 percent. Investments in privatized firms account for about 5 percent of pension fund portfolios, but that is nearly 90 percent of their equity investments (Vittas and Iglesias 1992). This large percentage in part reflects the importance of privatized companies in the Santiago Stock Exchange. In 1989, stock in privatized enterprises accounted for 60 percent of the stock trading on the Santiago Stock Exchange (Luders 1993).

In privatizing companies during the mid 1980s, the government first offered shares to the pension funds through competitive bidding at the Santiago Stock Exchange because the funds had trained financial ana-

lysts who could analyze the value of the shares. Sales to the pension funds became the way of establishing a market price for shares not traded before, or when their market had been very thin (Luders 1993). Thus, pension funds played an important role in the development of private-sector financial institutions in Chile.

### *Regulation of Pension Fund Management Companies*

The market of pension fund management companies is highly concentrated, the four largest having 75 percent of the participants. In 1994, pension fund management companies employed more than 8,000 people out of a population of about 12 million (Adrian 1994).

The government does not restrict the ownership of the management companies. They generally are operated by private Chilean financial groups or banks, or by foreign banks or insurance companies with minority Chilean ownership. Some of the fund management companies were owned by the government during the 1980s, but they have since been privatized.

Commissions charged by pension fund management companies are competitively set. Commissions measured relative to the size of account balances have been falling, and in 1990 they averaged 2.3 percent of account balances (Vittas and Iglesias 1992).

Besides regulating the type of fees charged, the government supervises management companies to minimize mismanagement or fraud. Management companies are required to report their operating expenses and investments to the government, which publishes the reports.

To protect pension participants, the government regulates the allowable minimum annual rates of return received by pension funds. It requires a minimum rate of return of the lesser of: (1) the average return on all funds less 2 percentage points, and (2) half the average return on all funds. If plans do not achieve the minimum return, they must make up the difference from their reserves. This restriction on rates of return further limits the portfolios Chilean pension funds are willing to hold because of the disincentive to have portfolios that differ greatly from the typical portfolio of other pension management companies.

Other countries have followed Chile's lead. In 1993, the Peruvian government launched a voluntary system of individual privatization for

retirement pensions. The Peruvian system follows closely the Chilean model. Contributions to the system are financed at the rate of 1 percent of the worker's earnings paid by the employer and 8 percent paid by the employee. Argentina also started a system in 1994 in which individuals may continue in the social security system or may contribute 11 percent of earnings to individual accounts, but new workers must establish individual accounts (Campbell 1994).

### *Conclusions*

The Chilean pension system has encouraged the development of Chilean financial markets. In addition to providing a market for financial assets, it has created a demand for financial intermediaries. It has done this is by encouraging the growth of life insurance companies through the sale of annuities to retirees. A second way human capital has increased in Chilean financial markets is that pension fund management companies have developed competent professional portfolio management departments to assess investment opportunities in Chile.

Pension funds do not have a long history in Chile, but they have withstood the test of a major recession. In 1982, the Chilean Gross Domestic Product fell 14.3 percent. Unemployment reached nearly 30 percent, and the economy stagnated until 1985. Some of the pension fund management companies became insolvent due to the drop in commission income. However, none of the pension funds, which are financially separate from the pension fund management companies, experienced financial problems.

Because of the very high real rates of return earned on Chilean pension plan investments, the pension system has been a financial success. Those rates of return are partly due to the success of the Chilean economy and partly due to the government policy of providing high real rates of return on government debt.

The Chilean pension funds had assets in 1992 equaling 40 percent of the Gross Domestic Product. The pension system is the principal source of savings in Chile, providing 72 percent of all domestic investment in 1991 (Cohen 1994b).

Some analysts have questioned whether a 10 percent contribution rate will provide adequate retirement benefits when rates of return decline to more normal levels. Roughly in 2020, the first group of

workers who have spent their entire career contributing to the new Chilean pension system will retire. At that point and in future years, it will be much clearer whether the contribution rate was adequate, given the rates of return experienced in the system over a worker's career. Workers believing that the 10 percent contribution rate is too low to provide an adequate retirement have the option of voluntarily contributing a higher percentage. An argument could be made, based on paternalism by the government and myopia or lack of discipline by workers, that the mandatory contribution rate should be increased slightly to assure an adequate retirement benefit.

The Chilean pension system has had high administrative costs, partly because of competition between pension fund management companies for clients. While it might appear that competition would result in low fees, the expenses for advertising and sales force necessary for a private market system are not present in a government-run system. In Argentina's pension system, most advertising has been banned.

Workers in Chile bear more financial market risk than workers in the United States, because U.S. workers have a defined benefit social security system that is not directly affected by financial market risk. This aspect of risk bearing may ultimately be viewed as an important weakness of the Chilean system. With the Chilean economy growing at a steady pace, that weakness has not been evident. However, one aspect of risk is lower in Chile. By privatizing management of its social security system, Chile has succeeded in greatly insulating old-age benefits from the risk of change due to political forces (Diamond and Valdes-Prieto 1994).

## "Pay-or-Play" Pensions: Japan and the United Kingdom

"Pay-or-play" refers to a government benefits policy for workers that has two options. Under "pay" the firm contributes to a mandatory government-sponsored program. Under "play" the firm provides a benefit plan that substitutes for the government program and in exchange pays a reduced mandatory contribution.

Pay-or-play permits firms to voluntarily privatize government benefit programs. Such a policy differs from the pension system in Chile where privatization is mandatory for all new workers. The extent to which privatization occurs under pay-or-play depends on the voluntary choices made by firms, and in some variants by workers. Firms and workers presumably pick the private-sector option if it minimizes their long-run costs for providing a desired level of benefits.

"Pay-or-play" has been used to refer to policy options for health care reform. The term has not been used to refer to similar pension policy options, but it applies equally well to them.

To understand how a pay-or-play policy could privatize social security, and how, once started, such a policy might evolve, we can look to the experience of the United Kingdom and Japan. The pay-or-play option for pensions originated in the United Kingdom in 1961, but was discontinued for a period. It has continuously operated there since 1978. Such a system has operated in Japan since 1966.[3] Firms that meet certain criteria can withdraw, or "contract out," from part of the Japanese and British social security systems.

Contracting out allows firms to voluntarily privatize part of the social security system by paying a reduced contribution to social security when they provide a replacement private pension plan of sufficient generosity.[4] This option expands the range of choice open to the private sector while assuring adequate retirement income.[5]

The current forms of contracting out in Japan and the United Kingdom have evolved from simpler programs. The initial programs may provide insight into how such a program could be started, while the historical development in those countries suggests possible refinements to a system after the initial framework has been established.

The Japanese and British defined benefit pay-or-play systems compete with the Chilean mandatory defined contribution system as a model for pension reform. The patterns of risk-bearing in the Chilean defined contribution option are much different from the Japanese and British defined benefit systems. Although pension experts have debated the relative merits of defined benefit and defined contribution plans, defined benefit plans have traditionally been preferred by most workers and employers.[6]

### *Japan*

Pay-or-play pensions in Japan can only be understood in relationship to the Japanese social security system. The Japanese social security system has a program called the National Pension, where benefits are based on the number of years for which the individual has made monthly contributions. Monthly contributions are equal for all contributors, not based on earnings. In 1991, the flat rate benefit plan was 29 percent of total social security benefits and 10 percent of social security tax payments (Turner and Rajnes 1995). Japanese social security also has an earnings-related segment called Employees' Pension Insurance. Benefits from Employees' Pension Insurance are based on a flat rate times average earnings times years of service. Employers can contract out of part of the earnings-related segment of the program and establish plans called Employees' Pension Funds.

Unlike the U.S. social security system, the earnings-related benefit formula of the Japanese social security system is not progressive in that it does not provide higher benefits relative to covered earnings for low-wage workers. The lack of income transfers within the earnings-related part of the Japanese social security program facilitates contracting out because there are no systematic incentives for high-income workers to contract out at the expense of low-income workers.

A Japanese employer can qualify three ways to contract out of the social security Employees' Pension Insurance. First, large employers can contract out. When this option was first available, the size requirement for a firm to be eligible was 1,000 full-time employees, but it has been reduced so that a firm with 500 full-time employees can contract out.[7] Second, a controlled group of employers can contract out. A controlled group is a group of allied employers having substantially the same ownership. Initially, 5,000 employees were required, but this has been reduced to 800. Third, a group of smaller employers in the same industry can form a multiemployer group in order to contract out. Initially, 5,000 employees were required in such a group, but that number has been reduced to 3,000. A liberalization of the rules allows firms to form groups composed of employers in different industries within the same region. The minimum size for such a regional group is also 3,000 employees.

In 1992, data on contracted-out plans indicated that there were 547 single-company plans, 612 allied company plans, and 566 multiemployer plans (Pension Fund Association 1993).

The Japanese government requires a minimum number of employees in a contracted-out pension plan because of concern for the financial stability of the plan. The volatility of plan finances is greater for plans composed of smaller employers because smaller employers have a greater risk of bankruptcy than larger employers. For that reason, contracted-out plans composed of small employers have a higher minimum number of employees than plans where only large employers participate.

Besides the minimum size requirement, four other requirements must be met for establishing a contracted-out plan. First, the firm must have made a profit for each of the preceding three years. Second, at least half of the full-time employees of the firm must vote in favor of establishing a plan. Third, if a union represents at least a third of the employees, it must approve the plan by a majority vote. Fourth, the firm must have had a stable or growing labor force for the preceding three years. Once a firm has established a contracted-out plan, it can continue such a plan even if it later fails to meet the initial size and profitability requirements.

As a result of contracting out, the payroll tax rate for Employees' Pension Insurance was reduced in 1994 by 3.2 percentage points, from 14.5 percent to 11.3 percent (table 3.2). The payment of contributions and the reduction in rates is shared equally by the employer and the employee. As the payroll tax rate has risen over time, the percentage by which contracting out reduces the total has fallen considerably. In 1994, contracting out reduced the payroll tax rate by 22 percent, in comparison to 44 percent or more in 1966.

These contracted-out plans must participate in a national Pension Fund Association, a nonprofit, private-sector organization heavily influenced by the government through the Ministry of Health and Welfare. The Association provides several services. First, it insures the benefits in the plans. If an employer were to go bankrupt, the Pension Fund Association guarantees the benefits provided by the plan and pays beneficiaries.[8] Second, the Association assures that there is no loss of benefits for employees changing jobs. The amount that has been accumulated for a job-changing employee is transferred to the Pension

Fund Association. Third, for a fee, the Association provides administrative and record keeping services for smaller employers. In this way, smaller employers can gain economies of scale in plan administration. The Association also consults with plans at no charge concerning administrative problems. Fourth, the Association researches issues concerning the administration and structure of plans.

**Table 3.2 Reduction in the Social Security Tax Rate Due to Contracting Out in Japan, 1966-1994**

| Year in which rate began | Reduction | | Total payroll tax rate | | Percent reduction is of total | |
|---|---|---|---|---|---|---|
| | Male (%) | Female (%) | Male (%) | Female (%) | Male (%) | Female (%) |
| 1966 | 2.4 | 2.0 | 5.5 | 3.9 | 44 | 51 |
| 1971 | 2.6 | 2.2 | 6.4 | 4.8 | 41 | 46 |
| 1980 | 3.2 | 2.9 | 10.6 | 9.0 | 30 | 33 |
| 1988 | 3.2 | 3.0 | 12.4 | 11.6 | 26 | 26 |
| 1994 | 3.2 | 3.2 | 14.5 | 14.5 | 22 | 22 |

The government's goal is to have 50 percent of the full-time labor force (private and public) participating in a contracted-out pension plan. The percentage has been growing over time, reaching 36 percent in 1993. Growth has been due to the reduction of the minimum size requirement and to regional groups of small employers being allowed to participate.

While many U.S. pension experts oppose contracting out for pensions, the system has operated successfully in Japan for many years. An alternative and considerably more complex system of contracting out has also existed in the United Kingdom.

### *United Kingdom*

While virtually every developed country has a social security system, the United Kingdom is virtually unique in giving every employer and employee the option of contracting out of part of social security.

Contracting out in the United Kingdom has developed into a highly complex system.

Like Japan, the United Kingdom has a two-tier social security system supplemented by a voluntary private pension system. The main part of social security benefit expenditures is a flat rate benefit, called the National Insurance benefit. Unlike in Japan, where the flat rate benefit is relatively unimportant, in the United Kingdom it is more than two-thirds of social security benefits. This benefit is financed primarily by employer and employee contributions, but is also partly financed by government payments. In 1993, government contributions were set at a level not to exceed 20 percent of benefit payments. The program is financed on a pay-as-you-go basis.

As in the Japanese system, it is not possible to contract out of the British flat rate benefit, although such a policy has been discussed. The National Insurance program provides a uniform benefit to all recipients, varying as in Japan by years of work but not by previous earnings. It does, however, vary by marital status, being about 60 percent higher for married workers. The Chilean system, in contrast, does not provide higher benefits based on marital or family status, but does provide higher benefits based on gender and other indicators of life expectancy.

The British social security system also provides an earnings-related benefit, called the State Earnings-Related Pension Scheme (SERPS), where benefits are financed by a payroll tax levied within an earnings band.

The flat rate pension has been frozen in real terms, keeping pace with inflation but not with growth in real wages. Over time, it will gradually become a less important aspect of the British retirement income system. The earnings-related part will gradually grow in relative importance, reaching about a third of the total cost of social security pensions by the year 2030.

The British system differs considerably from the Japanese in the conditions under which contracting out can occur. While the Japanese restrict contracting out to certain firms or groups of firms, the British allow all firms to contract out of the earnings-related part of social security so long as they provide a benefit at least as generous. Most contracted-out defined benefit plans provide benefits considerably greater than the minimum required. Contracted-out defined benefit plans must base benefits on years of service and final earnings.

While the British have no restrictions as to the types of firms contracting out, or to their likely financial stability, the government attempts to assure that firms fully fund their contracted-out plans. The Occupational Pensions Board, an agency of the national government, has the statutory responsibility to ensure that employers fully fund the accrued liabilities for Guaranteed Minimum Pension (GMP) benefits at least equal to benefits that would have been provided by the social security system. The plan's actuary must provide a regular certificate to this effect, and the Occupational Pensions Board relies heavily on this oversight provided by actuaries.

In addition, the British social security system insures that the GMP be paid. If a firm goes bankrupt, the state assumes responsibility for paying the benefit by reinstating the worker in the State Earnings-Related Pension Scheme. Contracted-out salary-related defined benefit plans must pay at least the GMP, which in 1994 was approximately 18 percent of the worker's average indexed salary up to the ceiling salary. That percentage will rise to 25 percent as the system matures, but then will gradually fall to 20 percent in the early part of the twenty-first century as a result of legislative changes.

In the United Kingdom, firms may unilaterally contract out. They are required to consult with the relevant unions if their workforce is unionized, but the decision is the employer's. About 50 percent of workers in the private and public sectors combined are covered by an employer-provided pension. Virtually 100 percent of public-sector pensions are contracted out. In the private sector, 78 percent of members of pension plans are contracted out (Daykin 1995).

When an employee joins a pension plan that is contracted out, the administration is simple. All that is required is for the employer's payroll department to deduct contributions for social security at the lower contribution rate that applies for contracted out plans. When year-end filings are made to the Department of Social Security, the worker's change from contracted-in to contracted-out status will be recorded. However, when an employee ends a job with a pension plan that is contracted out and moves to one that is not contracted out, the administration is more complicated. Whenever an employee leaves a contracted-out plan, the government needs to know: (1) if contracted-out benefits are being preserved in the plan; (2) if contracted-out benefits are being

transferred to another plan, and who will be liable for paying them; and (3) if the worker will be contracted out in the new job.

A job leaver with less than two years of service in a contracted-out defined benefit plan may pay a premium to the government to restore the social security earnings-related benefits as if they had not been contracted out.

*Contracting Out with Defined Contribution Plans*

As in Japan, the contracting-out option in the United Kingdom has been expanded over time to make it available to more people. Before the Social Security Act of 1986, the only way a firm or worker could contract out was by the firm providing a replacement defined benefit plan. Since 1988, firms can also contract out using a money purchase defined contribution plan. Unlike a salary-related defined benefit plan, there is no Guaranteed Minimum Pension in a contracted-out money purchase plan. The employer and employee simply contribute to the contracted-out plan at least the amount they would have contributed to the State Earnings-Related Pension Scheme. An employer may offer both a contracted-out money purchase plan and a contracted-out defined benefit plan and allow workers to choose.

The participant in a contracted-out money purchase plan has "protected rights." These are the benefits secured by the value of the assets based on the social security contributions that would have been made had the worker not contracted out. Benefits based on protected rights can only be taken as an annuity at retirement age, and then no earlier than age 60. The conversion to an annuity must be at a unisex rate, and the pension must provide survivor's benefits to a widow or widower who has dependent children or is age 45 or older.

In addition to allowing firms to contract out, British law has allowed workers to contract out individually since 1988. Workers can opt out of the employer's contracted-out plan and subscribe instead to a personal defined contribution plan called an Appropriate Personal Pension. For personal pension plans, contracting out means authorizing the government to pay a rebate of social security contributions into a personal plan. This option represents a fundamental change in the British pension system from compulsory to voluntary membership in employer-provided pension plans.

Appropriate Personal Pensions purchased with contracting-out rebates must be taken as an annuity, with 3 percent a year increases and a benefit to a surviving spouse of half the member's pension. Additional contributions can be used for other benefits.

Appropriate Personal Pensions can be chosen by all employees—including those whose employer does not offer a pension plan, those whose employer offers a contracted-out plan, and those whose employer offers a contracted-in plan. However, Appropriate Personal Pensions are not financially advantageous for low-income workers. Because the contributions of low-income workers into these plans are necessarily small, the fixed costs of establishing and maintaining such plans are too high a percentage of the contributions to make them profitable.

Like any personal pension, an Appropriate Personal Pension can be arranged directly with the provider with no involvement of the employer. Providers include insurance companies, banks, building societies, unit trusts, and friendly societies.[9] Since the employer will often be unaware that the worker has an Appropriate Personal Pension, the existence of such a pension plan has no effect on the worker's social security contributions, which continue to be paid in full. A rebate from the Department of Health and Social Security to the provider of the Appropriate Personal Pension Plan is paid after the end of each tax year. Personal income tax paid on the employee's share of the social security contribution is also rebated. The rebate does not include interest on the social security contributions or income tax payments, which could have been paid in part more than 12 months earlier.[10] By this method, contracting out can be back-dated to the beginning of the tax year as late as the end of the tax year.

An employee may opt out of a company's contributory pension plan where he or she may be contributing as much as 5 or 6 percent of earnings in favor of a contracted-out personal pension plan requiring only a 2 percent contribution. The ultimate retirement benefit in that case would be reduced.

The policy of allowing nonparticipation in an employer-provided pension plan complicates the financial calculus for the employer deciding whether to contract out. If all young employees opt out of the employer's contracted-out plan and the older, high-cost employees remain in, it may not be financially beneficial for the employer to pro-

vide such a plan. Any financial advantage to a firm of contracting out will depend on the age-sex composition of the employees covered by the plan.

Between 1988 and 1992, it has been estimated that the British government paid 10.5 billion pounds in the form of rebates on social security contributions to people taking out personal pensions. However, not all of the money spent on personal pensions has gone directly to increasing pension benefits. Insurance industry experts estimate that companies selling personal pensions typically take between 4 percent and 13 percent of contributions in commissions and charges for sales agents and management fees (Cohen 1994c).

In contracted-out defined contribution plans, the worker bears the investment risk. If the actual benefit based on the assets in the defined contribution plan is lower than what the worker would have received from a contracted-out defined benefit plan, the government does not make up the difference. Similarly, if the actual benefit is higher, the government does not reduce the social security benefit it provides. Thus, while contracting out through a defined benefit plan does not affect a worker's entitlement or risk, contracting out through a defined contribution plan does: it alters the worker's risk because the government defined benefit plan is replaced by a private-sector defined contribution plan.

As of 1992, more than 300,000 men and women who contracted out of the social security State Earnings-Related Pension Scheme through a personal pension probably were going to receive lower benefits on retirement than if they had remained contracted in. That is because the rebate system gives more than a young person would need to buy pension benefits equivalent to the social security State Earnings-Related Pension Scheme benefits, but far less than an older person would need (Cohen 1994c).

Contracting out through use of a personal pension plan is a reversible decision. Workers can later change their minds and rejoin the government program, but that option is available only once. For workers who opt out of their employer's contracted-out pension plan, the employer need not give the option to rejoin. Employers who allow workers to rejoin may require evidence of good health so that the employer's death benefits are not exploited.

For early job leavers, the contracted-out plan is required to provide cost-of-living adjustments to the value of accrued benefits between the date of job leaving and retirement.[11]

Both the Japanese and British governments have been reluctant to impose the full cost of postretirement inflation indexing on firms with contracted-out plans. In the United Kingdom, the government pays much of the cost of indexation equal to the increase in the Retail Price Index for the Guaranteed Minimum Pension after the worker retires. For benefits accruing after 1988, the firm is obligated to pay the cost of indexation up to 3 percent a year. For workers covered by a contracted-out defined contribution plan, the annuity benefits must be indexed for inflation up to 3 percent a year. For inflation higher than 3 percent, the government provides full indexing on the Guaranteed Minimum Pension.

*Contracting-Out Rebate*

The reduction in the social security contribution when contracted out is based on the estimated cost to plans of providing the Guaranteed Minimum Pension. However, the government has generally included an additional margin in the rebate partly as an incentive for contracting out, especially for plans with nontypical age distributions.

With these three methods of contracting out—defined benefit plans, employer-provided money purchase plans, and personal pension plans—social security benefits are reduced by an amount based on the worker's earnings while contracted out. This reduction is the same for each method. The reduction is intended to be at least sufficient so that the contribution of that amount to the contracted-out plan would provide the worker the same level of benefits as would have been provided through social security alone.

The contracted-out rebate has been independent of both the age and sex of the worker. The cost of an employee's contracted-out benefit, however, rises with age. At age 25 it is between 2 percent and 3 percent of earnings. At age 55, it may be 9 percent or more. Because of the constancy of the rebate across ages, the likelihood of having a better financial deal through a personal pension than through the government program declines as workers age. Different investment advisers suggest different ages for contracting back into the government program. For example, Prudential advises men aged 49 and women aged 42 to

rejoin. Because women can retire at a younger age than men, it is more expensive to provide women a given level of benefits. For that reason, the age for optimally rejoining social security is lower for women than men. The calculations underlying these figures depend on assumptions about annuity rates at retirement and investment returns before then.

Between April 6, 1988 and April 5, 1993, incentive payments of 2 percent of covered earnings in addition to the regular rebate were made to workers in newly contracted-out plans. Incentive payments of 2 percent were also made to workers in Appropriate Personal Pensions. In this way, the British government has subsidized contracting out through personal plans. Also, workers who had been in contracted-out employer-provided plans for less than two years could receive the 2 percent incentive payment if they started an Appropriate Personal Pension. Because of this subsidy to workers leaving the earnings-related part of social security, the British government decided to raise by 1 percent the base rate that workers pay into social security. About two-thirds of contracted-out workers are in employer-sponsored plans and one-third are in personal pension plans.

The contracting-out incentives continue to change over time in the United Kingdom. A 1 percent incentive for Appropriate Pension Plan holders over the age of 30 began in April 1993. The British government has announced its intention to consider a more finely tuned age-related rebate structure starting in 1996.

Other incentives encourage contracting out. First, pension contributions of workers are tax deductible, while their social security contributions are not. Second, social security benefits are only payable at age 65 for men (60 for women), while contracted-out benefits can be provided earlier.

Over time, the contracting out rebate has fallen in the United Kingdom (table 3.3), while it has risen in Japan. This decline has occurred in part due to the decline in the generosity of the earnings-related pension. In contracted-out plans, the percentage of the social security liability that is contracted out has varied around one-third without a trend.

The rebates are periodically reviewed and have been reduced after considering the underlying economic and demographic assumptions. Calculation of the rebate is based on assumptions about the age/sex/earnings profile of the population contracted-out and on assumptions about future investment returns and earnings growth, as well as other

actuarial assumptions. The economic assumptions used in calculating the 1988/89 rebate were an 8.5 percent investment return and a 7 percent annual growth in earnings. The assumptions provide a generous rebate. The rebate reduction in 1988 was due in part to the reduction that year in the accrual rate for future social security State Earnings-Related Pension Scheme benefits. The terms for contracting out became less favorable in 1993 and could result in many workers in contracted-out plans rejoining the State Earnings-Related Pension Scheme program. The 1 percent incentive for workers over age 30 is designed to counteract that.

**Table 3.3 Contracting-Out Rebate in the United Kingdom, 1978-1994**
**(percent of covered earnings)**

| Starting in tax year | Rebate | | | Tax rate before rebate | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | (a) | | | (b) | | |
| | Employer | Employee | Total | EE | ER | Total | (b-a) | (a/b) |
| | (%) | (%) | (%) | (%) | (%) | (%) | (%) | (%) |
| 1978-79 | 4.50 | 2.50 | 7.00 | 13.5 | 6.5 | 20.0 | 13.0 | 35.0 |
| 1983-84 | 4.10 | 2.15 | 6.25 | 11.45 | 9.0 | 20.45 | 14.2 | 30.6 |
| 1988-89 | 3.8-4.0 | 2.00 | 5.8-6.0 | 5-10.45 | 9.0 | 14-20 | 8-13 | 41-54 |
| 1993-94 | 3.00 | 1.80 | 4.8 | 4.6-10.4 | 9.0 | 14-19 | 9-15 | 35-25 |

NOTE: The tax year runs from April 6 through April 5 of the following year. A 1986 law increased the number of wage classifications on which employers are to pay payroll taxes, accounting for the range of tax rates shown. EE stands for employee and ER stands for employer.

Contracting out can be thought of as a means of borrowing from the state. The firm or worker receives contribution rebates now, but will have to meet future pension obligations. Moreover, in the United Kingdom it is a form of indexed borrowing because of the requirements for indexation of benefits. It follows that the attractiveness of contracting out will depend on the rate of return that can be earned on pension plan assets versus the implicit rate of return earned on contributions to social security. As population aging reduces the internal rate of return to social security, contracting out will be more attractive.

### *Critique of Contracting Out*

Attractive features of contracting out include reduced reliance on the government and greater reliance on the private sector, greater

incentives for private savings and investment, and more flexibility in shaping pension plans.

With contracting out, a largely underfunded public pension program is replaced by a private pension program designed to be fully funded and invested in the private sector. Thus, an advantage of contracting out is that it may increase savings and the national capital stock.

Contracting out expands the options open to firms and workers for providing for retirement income. The expanded choice provides greater flexibility and may allow individuals to better provide for their retirement in the manner they choose.

In both Japan and the United Kingdom, there were already well-developed private pension plans when the social security earnings-related benefit program was started. Contracting out was a way to protect the interests of the middle class who had substantial pension rights.[12] Thus, contracting out can be thought of as a way of providing the option for higher-income workers who are covered by a private pension to decline full participation in social security.

A redistributive social security system where it was possible to contract out fully from the redistributive portion would not be viable because all the high earners would contract out, leaving nothing to be redistributed to the low earners. In the United Kingdom, the higher-earnings employees in contracted-out plans pay considerably more in social security taxes than do the lower-earnings employees, but both receive the same flat benefit. In 1994, individuals earning less than a minimum amount, the Lower Earnings Limit of 56 pounds per week, paid nothing. Those earning 56 pounds per week or more paid a 2 percent rate on the first 56 pounds, and 10 percent on earnings between 56 pounds and the Upper Earnings Limit of 420 pounds. The rate the employer paid varied from 4.6 percent to 10.4 percent, increasing with the employee's earnings with no ceiling. Thus, the redistributive aspect of the system is maintained both on the tax and on the benefits side. The replacement rate from British social security falls from 76 percent for workers earning 25 percent of the national average earnings to 14 percent for workers earning 300 percent of the national average earnings (table 3.4).

**Table 3.4 British Social Security Earnings Replacement Rates at Different Earnings Levels, 1994**

| Earnings as a percentage of national average earnings | Replacement rate |
|---|---|
| 25 | 76 |
| 50 | 48 |
| 100 | 33 |
| 200 | 20 |
| 300 | 14 |

SOURCE: European Commission (1994).

*Financing the Transition*

A difficult problem in privatizing social security is how to pay for existing social security liabilities during the transition period from a fully state-run program to a privatized program. This is known as the "paying twice problem." The problem arises because the first working generation in a privatized social security system must pay for the social security benefits of the current generation of retirees, and it must pay for its own retirement benefits under the new system. The transition to the new system must make that generation worse off, since that generation would only need to pay for the benefits of current retirees under the old system.

This critique of the transition to a privatized social security system ignores private intergenerational transfers. So long as other intergenerational transfers are being made, those transfers can be increased or reduced to offset the intergenerational transfers caused by the transition to a privatized system. When generations care about each other, transfers will be made to restore the original intergenerational distribution of income.

When Japanese employers establish Employees' Pension Funds, the size of the government social security program is reduced. The size of contributions is reduced immediately, and the level of benefit payments is reduced in the future. If the Japanese social security system had operated on a pay-as-you-go basis, it would have been necessary to raise the social security payroll tax rate when contracting out was started in order to make up the lost revenue needed for current benefit

payments. The Japanese social security program is not operated on a pay-as-you-go basis, however, but rather is partially funded. For that reason, an increase in tax rates was not required when the Japanese contracting-out option was begun.

Financing the transition in Chile was easier than it would be in many countries because Chile had a relatively young population, and the liabilities to be financed were relatively small in comparison to the total population.

In the United Kingdom, contracted-out defined benefit plans only need to replace the level of benefits that would have been provided by social security, while in Japan the contracted-out benefits must be at least 30 percent higher than social security benefits. Many employer-provided contracted-out plans in the United Kingdom provide higher benefits than the minimum required, but that is not the case for the personal contracted-out plans (Appropriate Personal Pensions). There is concern that people relying on those plans will end up with low retirement income.

State-run social security systems presumably have a cost advantage over private systems. Because participation is mandatory, state-run systems incur no advertising costs. They also may enjoy economies of scale. However, their incentives for efficiency are fewer, since they have no profit motive.

When contracting out is an individual decision, greater responsibility is placed on the individual for becoming informed and making prudent decisions concerning retirement financing. There is also the possibility pension service providers will exploit the lack of knowledge of workers. There is considerable concern in Britain that more than two million people who have contracted out may have been wrongly advised by insurance companies to leave the social security earnings-related program or employer-provided plans and take out personal pensions.

A criticism of the British contracting-out system is that it is too complicated. While complexity has the advantage that it may create a range of choices, it also increases costs because it creates a demand for the services of actuaries and other highly paid benefits consultants.

*Adverse Selection*

Critics of contracting out cite adverse selection as a problem for the financing of such plans. With adverse selection, firms with employees for whom benefits can be provided less expensively leave the governmental program. This exodus of low-cost firms raises the average cost for firms remaining in the governmental program, which causes a further exodus of firms with relatively low cost.

A requirement that only large firms can contract out limits adverse selection to the extent that large firms have workforces with age distributions similar to that of the national workforce. The Government Actuary's office in the United Kingdom has argued that the age structure of the British workforce does not differ greatly across firms. However, in Japan, as in the United States, some large computer software companies have young workforces, for example, while some steel-producing companies have older workforces. Benefits are generally less expensive to provide for younger workforces through contracting out than through the government program.

Adverse selection is also limited by not allowing firms to freely withdraw from contracting out. In Japan, a firm must have the approval of its employees to end an Employees' Pension Fund plan.

Adverse selection is also limited in Japan because the earnings-related part of the Japanese social security system is not redistributive from high- to low-income workers. The redistributive aspect of the U.S. social security system makes contracting out more difficult to establish, since high-income workers and firms would tend to favor contracting out while low-income workers and firms would tend to favor remaining fully in the system. That problem has been solved in the United Kingdom, however, where redistribution occurs through higher social security tax rates paid by higher-income employees in contracted-out plans.

In spite of the incentive for adverse selection in the Japanese system, and the possibility of adverse selection by small firms joining regional or industry groups, the average age in contracted-out plans is similar to the average age in the Japanese workforce, according to government actuaries.

Nonetheless, to limit adverse selection in Japan, one proposal being considered would vary the terms of contracting out based on the average age of the employees in the firm. Firms with an older average age

would be allowed more favorable terms for contracting out because it is more expensive for those firms to provide the required benefits. A similar proposal on an individual basis is being considered in the United Kingdom.

## Conclusions

The British and Japanese systems provide a program for voluntarily privatizing government benefits. Together they have had more than 50 years of experience with their programs. Both programs have been modified several times, consistent with the desire to encourage firms and workers to contract out.

Compared to the Chilean approach of privatizing social security through a mandatory defined contribution plan, the British and Japanese approaches have more options and allow firms to select the form in which retirement income is provided. They also provide risk diversification in that pay-as-you-go and funded systems are subject to different risks. Pay-as-you-go systems are subject to the risk of demographic changes, while funded systems are subject to financial market risks.

British and Japanese workers in defined benefit plans do not bear the risks of pension asset value fluctuations, while those risks are borne by Chilean workers and by British workers in contracted-out defined contribution plans. Both defined benefit and defined contribution approaches, however, offer funded alternatives to unfunded social security systems.

## NOTES

1. Participants in the previous social security system had the option of remaining in that system. Because participation in the new system was offered on generous terms, few did.

2. The companies are known as Administradoras de Fondos de Pensiones (AFPs).

3. See Clark (1991b) for a description of the Japanese pension system and Turner and Dailey (1991) for a description of the British and Japanese systems.

4. The term "contract out" is synonymous with "pay-or-play," and is the term that has been used in describing such an option for pensions

5. In the United States, state governments that have historically not participated in social security are allowed to opt out, but there are no requirements concerning alternative retirement plans they might provide.

6. In addition, pay-or-play pensions in Japan provide a possible model for privatizing U.S. unemployment insurance, where large firms could privately contract out for such insurance.

7. Part-time employees are not counted in determining whether an employer is large enough to meet the minimum size requirement.

8. The insurance program has operated since 1989. As of 1993, no plans had terminated with insufficient assets.

9. A unit trust is a mutual fund where the price of units is determined by the managers based on the net asset value of the fund Investors can buy into the trust or redeem an earlier investment based on the value of units. A friendly society is a type of small financial institution in the United Kingdom, owned by its members, that offers sickness, retirement, unemployment, and death benefits, as well as savings plans, to its members.

10. An advantage of a contracted-out money purchase plan is that the rebate is paid directly in the plan with no delay.

11. The contracted-out plan can choose between three methods for revaluing benefits: (1) complete indexation, (2) a fixed 7 percent per year, and (3) 5 percent per year or full indexation if lower

12. The situation was similar to that in the United States, where workers in the railroad industry and workers in state, local, and federal government were not required to participate in social security when it was started.

# 4
# Tax Policy Towards Private Pensions

Tax policy is both the engine and the brakes of the private pension system. It both encourages firms to offer pension plans and discourages or regulates particular features. It encourages the formation and growth of pension plans by providing them favorable treatment compared to that of other assets. All countries with well-developed pension systems provide preferential tax treatment for saving through pensions. The tax system regulates private pensions by setting conditions under which favorable tax treatment can be received. In the United Kingdom, for example, these requirements are the primary legal constraints on private pension plans (Daykin 1995). At times the regulatory aspects of tax policy may discourage firms from offering plans, counteracting the policy aspects designed to encourage their formation.

The tax treatment of pensions is the result of compromises made within the political arena. While the broad goals of pension tax policy are similar across developed countries, specific policies and practices vary significantly. This chapter examines tax policy differences across countries.[1] By focusing on differences, insights can be gained into the tax treatment of pensions in individual countries. Differing policies and practices also demonstrate the range of options available to policy makers.

## Overview

The most common approach to taxing pensions is to allow a tax deduction for contributions, allow investment earnings to accumulate tax free, and tax benefits when paid to workers. New Zealand is the most notable current exception to this approach: pensions funds there are taxed on the same basis as a fully taxable savings account.[2]

Favorable tax treatment for pensions is justified by the argument that it encourages retirement savings and that without a tax subsidy families

would save too little (Ippolito 1990a). Possible explanations for insufficient savings are that some families may be myopic, not fully anticipating future needs, or that they may lack the discipline to save adequately for future needs.

By encouraging pensions through preferential tax treatment, governments incur a cost in lost tax revenue. This is the revenue that would have been received if the savings had otherwise occurred in taxable form. As populations age and the cost of tax preferences for pensions rises, it is not surprising to find governments seeking to reduce the loss in tax revenue.

Some of the tax provisions concerning pensions are not designed to raise or reduce tax revenue, but rather are designed to regulate plans by influencing the behavior of pension fund managers or pension participants.

Pension plans in the United States must meet requirements of the Internal Revenue Code in order to qualify for favorable tax treatment. To be tax-qualified, a plan must meet minimum standards regarding participation, vesting, nondiscrimination against lower paid workers, and other criteria. When plans do not meet these standards, the employer's contribution must be included in the employee's taxable income in order to be tax deductible for the employer.

In the United Kingdom, some actions by pension plans or employees are not forbidden or required, but instead are encourage or discouraged by the use of taxes. For example, tax penalties are levied on plans that are overfunded and fail to withdraw the surpluses from the plan. This policy encourages plans to withdraw their excess assets and return them to the employer. The opposite policy is followed in the United States. No tax is levied on excess assets if they remain within the pension plan. However, a minimum tax of 20 percent is levied on excess assets of overfunded plans when those plans terminate and the assets are returned to the employer. The tax rate is increased to 50 percent if the employer does not also transfer a portion of the excess assets to a replacement plan or increase the benefits in under the terminating plan.

Tax systems can be compared in terms of whether they distort choices made by workers and employers. These choices include: wages versus pensions, deferred wages versus pensions, other fringe benefits (such as health insurance) versus pensions, social security versus pensions, current consumption versus future consumption, defined benefit

versus defined contribution plans, individual plans versus employer-provided plans, self-employment versus corporate employment, lump-sum benefits versus annuities, and pension investments in some types of assets versus others. The analysis of each of these issues will be demonstrated by using a particular country or countries as an example.

Private pensions are composed of three transactions: pension contributions, investment earnings, and disbursements. These three transactions plus pension assets are the primary points at which pensions have the potential to be taxed.

## Contributions

### *Employer Contributions*

The United States, the United Kingdom, Japan and most other countries with well-developed private pension systems allow employer contributions to be tax deductible. In this way, employer costs for wages and contributions to pension plans receive equal treatment with respect to corporate income taxes. Thus, the tax system does not distort the choice of employers between paying current wages and paying future pension benefits. There is still a tax distortion between paying deferred wages and paying pensions, however, since there is no equivalent manner for a firm to set aside money to pay for deferred wages.

Employer contributions to a pension plan are not taxed as income to the employee, which avoids both personal income and social security payroll taxation at the time the contributions are made. Because employees pay tax on pension benefits when received in retirement, they entirely avoid social security taxation. This reduces the tax burden for workers, but it also reduces their future social security benefits in countries, such as the United States, where benefits are related to taxable earnings (Burkhauser and Turner 1985).

In Japan, the United States, and the United Kingdom, employers may deduct 100 percent of contributions for retirement annuity benefits. Contributions for past service liability are also tax deductible.

In Australia, by contrast, employer contributions are taxed at a rate of 15 percent to the employee. However, the difference between the 15

percent rate and the employee's marginal personal income tax rate can still be considerable (Asinta 1994).

### *Employee Contributions*

In the United Kingdom, Canada and most other countries, employee contributions also are tax deductible. In Belgium, however, only 30 to 40 percent of employee contributions are tax deductible. In New Zealand, neither employee nor employer pension contributions are tax deductible. In the United States, employee contributions for most types of pension plans are taxable under both the personal income tax and social security payroll tax. Thus, the U.S. tax code treats employer and employee contributions differently.

Employee contributions to salary reduction plans, however, are an exception to the rule that employee contributions are taxed in the United States. The most common type of salary reduction plans are 401(k) plans. In salary reduction plans, employee contributions are deductible from before-tax earnings under the federal income tax but still are liable for the social security payroll tax so as not to erode the social security tax base.[3]

The primary effect of not allowing employee contributions to be tax deductible for most types of U.S. pension plans is that most plans are funded entirely by employer contributions. Since employees probably bear the cost of employer contributions through reduced wages (Montgomery, Shaw, and Benedict 1992), the lack of deductibility of employee contributions appears to have little effect on the cost of pension plans to employers or employees. According to this argument, the tax deductibility of employee contributions to 401(k) plans would not be a particularly advantageous feature of those plans, and the fact that this feature is not available to defined benefit plans would not particularly disadvantage them.

In the United States, if an individual does not use his or her allowable tax deduction for pension contributions to a defined contribution plan within the tax year, it is generally lost. The tax treatment of contributions to defined contribution plans in Canada allows individuals greater flexibility in the timing of their contributions. An individual's unused contribution allowance in each year is carried forward indefinitely for use in subsequent years, subject to certain dollar limits. Sim-

ilarly, contributions not deductible in the year in which they are paid may be deducted in subsequent years.

This flexibility for contributions to defined contribution plans was introduced to achieve equal footing with the flexibility available to employers for contributions to defined benefit plans. Employers in most countries have flexibility in their contributions to defined benefit plans, so long as their plans are not overfunded to the extent that further contributions are not allowed.

Registered Retirement Savings Plans are the Canadian equivalent of Individual Retirement Accounts in the United States. Contributions to the Canadian plans must be made within 60 days of the end of the year in order to be deductible for the year. A similar provision in the United States is available for contributions to Individual Retirement Accounts. However, in Canada failure to contribute by the deadline does not cause the deduction to be lost. Unused contribution amounts, subject to a prescribed seven-year limit, may be carried forward and deducted when made (Hewitt Associates 1990).

### *Contribution Limits*

Countries generally set a maximum on allowable tax deductible contributions. The maximum is often expressed as both a maximum percentage of earnings and a maximum amount. Maximums are set to limit the government's loss of tax revenues and to limit the tax preferences received by high-income workers.

In the United States, maximum contributions to a pension plan on behalf of an employee are lower when the employee is covered by more than one plan, and when the plan is top heavy, which refers to plans (mainly found in small firms) where a disproportionate amount of the benefits accrue to the owners and higher-paid employees of the firm. Limits are placed on the maximum employee earnings that can be used to determine benefits or contributions. There are also contribution limits based on the extent to which defined benefit pension assets exceed or fall short of liabilities.

In the United States, there are maximum limits for both defined benefit and defined contribution plans. The limits set the amount that can be contributed to a defined contribution plan and the maximum benefit that can be received from a defined benefit plan. For a defined contribu-

tion plan, the annual limit is the lesser of 25 percent of compensation or $30,000. The $30,000 limit will be adjusted to equal one-fourth of the dollar limit on which benefits can be calculated for defined benefit plans, after that limit, which is price indexed, exceeds $120,000. Defined benefit plans are limited in the actuarial assumptions they can make, which prevents plans from claiming unreasonably large tax deductions.

The tax treatment of pensions in Canada is based on the principle that all workers should have equal access to a tax-preferenced pension plan, whether or not their employer provides a pension plan. This is viewed as an important principle of interpersonal equity. To achieve it, each worker's maximum contributions to a Registered Retirement Savings Plan is reduced by a Pension Adjustment to reflect the assessed accrual of benefit value under employer-provided defined benefit and defined contribution plans. This integration of employer-provided plans with individual plans assures that all workers are able to set aside roughly an equivalent amount in a tax-preferred retirement plan.

This is a major difference between the tax treatment of pensions in Canada and in the United States. No attempt has been made in the United States to equalize the treatment between employer-provided plans and individual plans. U.S. pension tax policy greatly favors employer-provided plans over individual plans. Since 1981, maximum deductible contributions to an Individual Retirement Account have been frozen at $2,000. For middle- and upper-income workers, maximum tax deductible contributions are roughly ten times higher in employer-provided plans than in Individual Retirement Accounts.

In Canada, tax deductible contributions to retirement arrangements by or on behalf of individuals are limited to the lesser of 18 percent of the prior year's earnings and dollar limits that will be wage indexed starting in 1995 from a base of $15,500 in 1994. The figure of 18 percent for the maximum allowable contribution was chosen because it is roughly consistent with the existing limit on benefit formulas of 2 percent of earnings per year of service that applies to pension benefits provided by defined benefit plans (Wyatt 1990).

In Japan, employee contributions to an Employees' Pension Fund, which is the contracted-out type of plan, receive a tax deduction because such plans are similar to social insurance. For a Tax-Qualified

Pension plan, employees may receive a tax deduction for contributions up to a low maximum of 100,000 yen a year (about $950).[4]

In the United Kingdom, the maximum allowable tax deductible contributions for personal pension plans increase with age, rising from 17.5 percent of earnings for those under age 36, to 40 percent for those ages 61 to 74 (table 4.1). The idea behind this policy is that older workers are more aware of their retirement income needs and may be more motivated to save for their retirement. In the United States and other countries, the amount does not vary by age.

The 25 percent limit for employer plans in the United States is considerably higher than the 18 percent limit in Canada, but considerably lower than the 40 percent limit for older workers in the United Kingdom. These differences, however, may be of little economic significance if few workers wish to contribute more than the 18 percent limit. The difference is most likely to be constraining for older workers and higher income workers, who would more likely wish to contribute a high percentage of their salary to a pension plan.

Perhaps because the aging of populations has raised the level of total tax deductions for pensions in many countries, there has been a trend in countries with developed pension systems toward reducing the maximum amount that can be deducted. This has occurred in the United States, Australia, the United Kingdom, and Canada.

**Table 4.1 Maximum Allowable Percentage of Salary Contributions to a Personal Pension Plan in the United Kingdom, 1994**

| Age | Maximum percentage of salary |
|---|---|
| Up to 35 | 17.5 |
| 36 to 45 | 20.0 |
| 46 to 50 | 25.0 |
| 51 to 55 | 30.0 |
| 56 to 60 | 35.0 |
| 61 to 73 | 40.0 |

SOURCE: British Tax Law.

### *Tax Treatment of High-Income Workers*

Because most countries have progressive income tax systems, with higher-income workers paying higher marginal tax rates, the tax deductibility of contributions is relatively more beneficial for higher income taxpayers. In the mid 1990s, higher-income taxpayers in the United Kingdom effectively received a tax rebate of 40 percent on pension contributions, while basic rate taxpayers, who were the large majority, received a 25 percent rebate. While pension tax policy can be criticized as favoring middle- and upper-income taxpayers, a broader analysis of tax policy that includes redistribution through social security would provide a better measure of the transfers made by the government to different income groups to provide retirement income.

The tax treatment of pension plans is more generous for high-income workers in the United States than it is in Canada. The maximum dollar amount of contributions to defined contribution plans is considerably higher in the United States, and the maximum percentage of earnings that may be contributed is also higher. Both of these features benefit high-income workers.

### *Book Reserve Plans*

For book reserve plans in Germany, Austria, Luxembourg and Japan, firms may take a tax deduction even though they make no contribution to the plan. A book reserve plan is one where the firm indicates the pension liabilities in its financial accounts but does not set aside money in a separate fund. The tax deductible amount is determined by calculating the contribution that would be necessary to fully fund the accrued liability.

In Germany, book reserve liabilities are not deductible for employees younger than age 30, and limitations are placed on the actuarial assumptions to prevent employers from deducting unreasonably large amounts. In Japan, only 40 percent of the accrual of book reserve is tax deductible. In the United States, firms receive no tax deduction for their unfunded pension liabilities.

In Japan, it is cheaper for employers to accumulate the money necessary to pay benefits through an Employees' Pension Fund plan or a Tax-Qualified Pension plan than it is to accumulate money to pay ben-

efits through a book reserve plan. The present tax laws are not favorable for book reserve plans. However, many large companies have book reserve plans because they can use the money that would have been put into a pension plan as working capital in the firm. The popularity of book reserve plans in Japan in spite of their relatively unfavorable tax treatment indicates the high value that firms appear to place on the availability of this form of corporate financing.

## Investment Earnings

In Canada, the United States, and the majority of countries with well-developed private pension systems, investment earnings on pension assets accumulate tax free. Pension plans receive dividends, capital gains, and interest payments and pay no tax on those earnings. However, taxation of pension investment earnings is becoming increasingly common. In Australia, they are taxed at 15 percent, while capital gains are taxable at 15 percent after adjustment for inflation. This disparate treatment of capital gains and investment earnings distorts the pension portfolios of Australian pension funds towards investing in stocks providing capital gains rather than dividends.

In Belgium, pension funds face a tax rate of 10 percent on interest income, and 20 or 25 percent on dividends and income from property. In Ireland, a tax was placed on pension fund investment income in 1988, including realized capital gains, on a one-time-only basis (Stewart 1995). In the Netherlands, pension investment income is taxed to the extent that it exceeds a real rate of return of 3.5 percent. Both realized and unrealized capital gains are included in the calculation of the real rate of return. The tax rate is 40.5 percent. In Sweden, pension investment income is taxed at 10 or 15 percent, compared to a general income tax rate of 30 percent.

In the United Kingdom, pension plans received a full rebate from the government for many years on the pro rata share of the corporate income tax paid by companies in which they owned stock. It was reasoned that because pension plans are tax-exempt investors, they should not be forced to pay the corporate income tax indirectly before receiving income from their investments on corporate stock. A change in tax

law in 1993 modestly reduced the rebate. In the United States, corporations pay corporate income tax and then pay dividends out of after-tax corporate income. Pension plans are not taxed on those dividends, but they do not receive a rebate for the corporate income tax that was paid. In this respect pensions receive more favorable tax treatment in the United Kingdom than in the United States.

Defined benefit plans in Canada and the United Kingdom offer employers the possibility of a windfall tax shelter for surplus funds. Since an employer able to withdraw those funds will have received the benefit of tax deductions, employers have an incentive to contribute more to their pension plans than is required to assure adequate funding. Employers in Canada and the United Kingdom are allowed to withdraw surplus funds without terminating a plan, whereas in the United States the only way to withdraw surplus funds is to terminate. To discourage overfunding, Revenue Canada (the federal tax collecting authority) has set contribution limits. By denying tax deductibility to contributions when funding reaches a certain level, Revenue Canada and Inland Revenue in the United Kingdom have limited contributions to plans with surpluses.

### *Assets*

Pension assets are not taxed in most countries. Because of the large size of pension assets in several countries, however, taxation has become an appealing possible source of government revenue. Such a tax offsets the loss in government revenue from other aspects of preferential tax treatment that pensions receive. It also, however, offsets the incentive effect that encourages firms and employees to establish plans.

In Belgium, there is a 0.17 percent tax on pension fund assets. In Japan, a tax of 1.17 percent per year is levied on the assets of Tax-Qualified Pension Plans. This tax is considered to be the recovery by the government of interest on income tax not paid during the period of tax deferral. It generally does not apply to the assets in contracted-out plans (Employees' Pension Fund plans).

Special corporate tax payments on pension assets have grown in Japan, as private pension plans have developed (table 4.2). The amounts in 1991 were 950 million yen for Employees' Pension Fund plans (paid by 30 plans) and 12.7 billion yen for Tax-Qualified Pension

Plans. Many groups, including the Japan Employers' Association, have proposed abolishing the taxation of pension assets.

In Japan, as in other countries that allow book reserve plans, the funds that would have been set aside had those plans been funded are invested in the working capital of the company. Company earnings are subject to the corporate tax, which is roughly 50 percent (including a regional tax).

**Table 4.2 Asset Tax Payments by Private Pension Plans in Japan, 1982-1990 (million yen)**

| Year | Employees' Pension Fund Plans | Tax-Qualified Pension Plans |
|---|---|---|
| 1982 | 40 | 44,901 |
| 1984 | 119 | 59,219 |
| 1986 | 186 | 81,911 |
| 1988 | 512 | 101,515 |
| 1990 | 950 | 127,030 |

SOURCE Japanese Advisory Council on Social Security.

## Disbursements

### *Lump-Sum Distributions*

Some countries provide preferential income tax treatment for benefits received as a lump-sum payment, rather than as an annuity. The economic justification for this policy is unclear. Annuities provide a form of insurance—they assure that the retiree will not outlive his or her income. Lump-sum payments do not provide this insurance, and thus appear to be a less desirable form in which to receive retirement benefits. However, social security benefits, which are paid as annuities, provide this type of insurance. In some cases, workers appear to indicate by their choice of a lump-sum benefit that the social security program provides them adequate insurance against outliving their resources. Employees often do not have much information as to how to

invest their lump-sum benefits, however, and may be overly conservative in managing such investments.

In Japan, an Employees' Pension Fund plan must pay a life annuity for benefits contracted out from the Employees' Pension Insurance social security program. However, 93 percent of all Tax-Qualified Pension Plans have a lump-sum benefits option, and more employees choose that option than annuity benefits. The popularity of lump-sum benefits arises in part because of the more favorable tax treatment of lump-sum benefits than of annuities.

Japanese retirees can deduct lump-sum payments up to a certain amount from their retirement income. The deductible amount increases with an employee's years of work. The amount that it increases by is greater for years of work exceeding twenty (table 4.3).

**Table 4.3 Taxation of Lump-Sum Benefits in Japan, 1994**

| Years of service | Deduction amount |
|---|---|
| Less than 3 | 0.8 million yen |
| 3 to 19 | 0.4 million yen x (years of service) |
| 20 or more | 0.7 million yen x (years of service –20) + 8.0 million yen |
| Taxable amount = (lump-sum benefit – deduction amount) x 1/2. | |

SOURCE: Japanese Income Tax Law, Section 30.

In the United Kingdom, part of a pension may be received at retirement as a tax free lump sum. This is limited to 1.5 times final annual pay, with a smaller multiple for retirement with less than twenty years in the pension plan. Ireland and Australia also provide preferential tax treatment for retirement benefits received as a lump sum rather than as an annuity.

In the United States, lump-sum distributions at retirement have been granted special income averaging provisions for tax purposes, but lump-sum distributions from Canadian pension plans have been prohibited.

### *Annuity Benefits*

The taxation of benefits is the most common way for pensions to be taxed. Any payment from a Canadian or U.S. pension plan, whether on death, retirement, or termination of service, is taxable income. In Ger-

many, pensions financed through the book reserve method are taxed as normal income when received as benefits, except that 40 percent is tax free up to an annual ceiling. If benefits are funded through direct insurance with an insurance company, company contributions are considered taxable income. Accordingly, the retirement benefits are tax free if paid as a lump sum, or taxable only to a certain extent if paid as an annuity. The taxable percentage of the benefit depends on the age of the worker at retirement. This percentage is 29 percent at age 60, 26 percent at age 63, and 24 percent at age 65. Thus, the tax treatment of pension benefits in Germany is used to encourage delayed retirement.

In Japan, pension and social security annuities are subject to special income tax treatment and are tax free up to a certain amount per year. The deduction is composed of a flat amount, plus a deduction that varies with the size of the annuity. The percentage deducted declines in increments for benefits exceeding certain levels.[5]

Annuity benefits paid by an Employees' Pension Fund plan are subject to the same tax as social security benefits. The tax is applied after certain deductions are made (table 4.4). For a married annuitant under age 65, the maximum annuity on which no tax would be paid is 1.75 million yen per year (about $16,500). For the annuitant who is age 65 or older with a spouse who is age 70 or older, the maximum annuity on which no tax would be levied is 3.05 million yen (about $29,000).

**Table 4.4 Maximum Level of Tax-Free Pension Annuities in Japan, 1994**

| Annuitant | Maximum tax-free annuity | |
|---|---|---|
| Under age 65 | | |
| Single | 1.05 million yen | $ 9,900 |
| Married | 1.75 | 16,500 |
| Age 65 and older | | |
| Single | 2.25 | 21,200 |
| Married | 2.95 | 27,800 |
| Spouse age 70 or older | 3.05 | 29,000 |

SOURCE: Japanese Income Tax Code, Section 35.

In a Tax-Qualified Pension Plan, annuity benefits after excluding the amount equal to employee contributions are subject to the same tax as on an Employees' Pension Fund plan.[6]

In the United States, pension benefits received at retirement are taxed under federal and state personal income taxes, but not the social security payroll tax. A participant generally recovers tax free the amounts that were previously included in taxable income, which would be non-tax deductible contributions made by the participant. Due to the progressivity of the income tax system, workers frequently have lower marginal income tax rates in retirement than while working.

### *Implicit Taxes*

Even when an explicit tax is not levied on pension benefits, an implicit tax may cause the net increase in retirement income to be less than the amount paid by the pension fund. In the United States, social security benefits are taxable for retirees whose income exceeds a certain level.[7] For some U.S. workers, there is double taxation of pension benefits at retirement. This occurs if pension benefits raise income to a level where social security benefits are taxable. Each extra dollar of pension benefits raises the recipient's tax payments by the tax on the pension benefit and by the increased tax on the social security benefit.

In Canada, the income-tested component of the social security system discourages participation in employer-sponsored pension plans for workers with low lifetime earnings. For each dollar of retirement income exceeding a certain amount, social security Guaranteed Income Supplement benefits are reduced by 50 cents. The net result is that Canadians with low lifetime earnings face a 50 percent tax rate on private pension income in retirement.

Increases in private pension benefits in Sweden will reduce the minimum benefit provided by the Swedish social security system by the rate of 50 percent (a reduction of one kroner for every two kroners increase in pension benefits) starting in 1996, until the minimum benefit is reduced to zero. This private pension benefit reduction is an implicit tax of 50 percent on those benefits.

### *Consumption Taxes*

The tax treatment of pensions moves the United States, the United Kingdom, Japan, and other countries toward a consumption tax system. Under a consumption tax, retirees generally pay higher taxes than

under an income tax raising equal revenue. Under such a system, consumption expenditures are taxed but savings (including investment earnings) are not. Earnings saved through a pension are not taxed until received in retirement when they are presumably consumed, which is the way they would be taxed under a consumption tax system. For other types of savings, a worker's earnings are taxed and then if the worker saves and receives investment earnings on the savings, the earnings are taxed again. A consumption tax avoids the double taxation of savings and thus does not distort the decision between current consumption and future consumption. This is a desirable aspect of a tax system, given the concern in many countries over inadequate savings, but its effect on total savings is diminished by the reduction in other savings.

In Japan, investment earnings for nonpension savings are taxable at a rate of 20 percent (a 15 percent national income tax and a 5 percent regional tax). For people age 65 and older, however, the investment earnings on savings are not taxable. Employer contributions to employee savings are deemed to be wage income to the employee and are immediately taxable.

In the United Kingdom, tax treatment is more favorable for pensions than for social security contributions and benefits. Employee pension contributions are deductible, while employee social security payments are not. Pension benefits can be taken, at least in part, as a tax free lump sum, while social security benefits cannot.

## Conclusions

While a number of comparisons across countries have been made, contrasts between the United Kingdom and the United States illustrate the insights that can be gained. The United Kingdom provides more favorable tax treatment for private pensions than does the United States. It allows employee contributions to be tax deductible, and it allows lump-sum benefits at retirement to be received tax free (both subject to restrictions). The United States allows neither. The United Kingdom gives pensions a partial rebate on corporate income tax paid

the companies in which pensions hold stock. Pension plans in the United States receive no such rebate.

Countries have developed a wide variety of tax rules for pension plans. However, all countries with well-developed pension systems provide some form of tax preference for pensions. The most common form is to allow contributions and investment earnings to be made and received tax free, but to tax pension benefits at receipt. Pension participants are taxed once, when they receive benefits. This taxation compares to the double taxation of other savings, where wage income is taxed and the subsequent investment earnings are also taxed.

## NOTES

1. Sections of this chapter are based in part on Dilnot (1995).

2. This tax treatment has greatly reduced the amount of savings through pensions. To some extent, lost pension savings have been channeled into other forms of savings; for example, greater investment in owner-occupied housing.

3. They are not deductible under the state income tax in some states.

4. There are no employee contributions to such plans because they are not funded.

5. The tax treatment of Japanese pensions is explained in Clark (1991b).

6. Book reserve plans do not pay annuity benefits, so this tax question does not arise for them.

7. Fifty percent of social security benefits are taxable at the personal income tax marginal rate for income exceeding a certain level and 85 percent of benefits are taxable for higher incomes.

# 5
# Pension Risk and Insurance

Risk-bearing is a fundamental aspect of pension systems. An important aspect of risk-bearing is the distinction between defined benefit and defined contribution plans. In some countries, specific programs have been established to insure or guarantee benefits against risk.

## Pension Risk in Defined Benefit and Defined Contribution Plans[1]

Financial risk is inherent in pension plans. It must be borne by some party—workers, employers, an insurance company, the stockholders and bondholders of the company, taxpayers, or other employers. Risks may differ between categories of workers, such as between long-tenure and short-tenure workers, or between men and women.

To the extent that the entity who bears the risk controls the investment of pension portfolios, the allocation of risk-bearing may affect financial markets. For example, individuals tend to be more conservative when investing their defined contribution plan portfolios than the professional money managers who generally are responsible for investing the defined benefit plan portfolios.

The rules that specify the conditions of benefit payment effectively determine who bears pension risk. An employer's first decision when considering the amount of pension risk to bear is whether to provide a defined benefit or defined contribution plan.[2]

It is traditionally argued that in defined benefit plans the employer bears the entire risk. The employer promises the worker a fixed benefit independent of the rate of return on pension assets. In financial terms, the defined benefit pension liabilities of the firm are independent of the investment performance of the pension plan. The firm acts in effect as an insurance company; it insures pension participants against financial risk. In publicly held firms, defined benefit plan risk is ultimately borne by corporate stockholders. Workers have no financial interest in the pension fund, since their benefits are independent of the performance

of the fund, according to the traditional argument. The conclusion that workers bear no risks in defined benefit plans, however, assumes that the plans are fully funded, or that there is no risk of the firm defaulting on its pension liabilities, or that the pension liabilities are fully insured.

In defined contribution plans, the worker is said to bear the entire risk. After contributing to the worker's account, the employer has no further liability.

In actuality, workers and employers in both types of plans shift risk to each other and to other parties. They do so through collective bargaining when a union is involved, they seek alternative risk-bearing arrangements through competition for workers and jobs in the labor market, and they influence government to enact laws regulating risk-bearing or to insure benefits.

The government, responding to political interests, influences the pension risk-bearing of employers and workers. For example, government may affect the choice between defined benefit and defined contribution plans. Sometimes it mandates a particular type of plan, such as the mandatory defined contribution plans in Chile. It may provide options, such as allowing workers to opt out of defined benefit plans and participate in personal pension (defined contribution) plans in the United Kingdom. It may affect the relative costs of the two types of plans, such as in the United States where government regulations have added to the costs of defined benefit plans.

Coverage by a defined benefit plan and a defined contribution plan are not mutually exclusive—a worker can be covered by both types of plans offered by the same employer. In the United States, 40 percent of workers covered by an employer-provided pension plan are covered by both a defined benefit and a defined contribution plan (Turner and Beller 1992). A study in Bavaria, Germany indicated that a large percentage of employers who offered a defined benefit plan offered voluntary participation in a defined contribution plan as an option (Ahrend, Forster, and Walkiewicz 1990).

### *The Trend Toward Defined Contribution Plans*

In a number of countries, there has been a movement towards defined contribution plans. Defined contribution plans are increasingly popular in the United States, the United Kingdom, Belgium, Canada,

Germany, and Ireland. Defined contribution systems have been mandated in Australia, Chile, and Switzerland. While in Japan and the Netherlands defined benefit plans dominate, in Denmark and Singapore defined contribution plans are the primary or sole type of plan.[3]

The United States and Australia both have a sizable percentage of participants in defined contribution plans. Australia has slightly more participants in insured defined contribution than defined benefit plans (52 percent), but it should be noted that data for noninsured plans are not available (table 5.1). In Canada and the United Kingdom, by far the largest number of participants are in defined benefit plans. Defined benefit plans have been dominant worldwide.

For many years, defined benefit plans were more popular than defined contribution plans in the United States, but that has changed. Since 1984, more workers have participated in defined contribution than defined benefit plans, and the disparity is growing. There are more assets in defined benefit plans than in defined contribution plans, but that is partly because defined benefit plans generally pay annuities out of the plan, while defined contribution plans generally pay lump sums, and thus disburse their money to retirees much more quickly.[4] It is also partly because when an employee participates in both a defined contribution and defined benefit plan, which is the case for about 40 percent of pension participants, the defined contribution plan is typically a secondary plan that is less generous.

Two explanations for the trend away from primary defined benefit plans in the United States have been advanced.[5] First, some researchers have attributed it to increasing regulation, beginning with the Employee Retirement Income Security Act of 1974 (ERISA) and continuing through tax and pension regulations passed during the 1980s. Many of these regulations have increased the cost of defined benefit plans relative to defined contribution plans. Other regulations, such as the top-heavy regulations for vesting, have reduced the advantages of defined benefit plans to small businesses. Plans for state and local government employees are not affected by the regulations, and there has been no trend towards defined contribution plans among those employees. They are predominantly defined benefit plans. Second, some studies have indicated that the changing composition of industry and the workforce has had an important role in the trend. Defined benefit plans are more likely to be found in union firms and in manufacturing indus-

**Table 5.1 Defined Benefit Versus Defined Contribution Pension Plans, 1988 (percent)**

| Participants, assets, plans | Australia[a] | Canada[b] | Germany (FRG) | Japan | United Kingdom | United States |
|---|---|---|---|---|---|---|
| By number of participants | | | | | | |
| Defined benefit | 48 | 86 | -- | 100 | 92 | 53 |
| Defined contribution | 52 | 12 | -- | 0 | 8 | 47 |
| By size of assets | | | | | | |
| Defined benefit | 62 | 87 | -- | 100 | -- | 66 |
| Defined contribution | 38 | 13 | -- | 0 | -- | 34 |
| By number of plans | | | | | | |
| Defined benefit | 19 | 40 | 90 | 100 | -- | 28 |
| Defined contribution | 81 | 59 | 10 | 0 | -- | 72 |

SOURCE: Dailey and Turner (1992).

a. Relates to insured plans only.

b. Plans and participants do not total 100 percent as there are composite plans in addition.

-- Data not available.

tries. These key correlates of plan type have declined. Unionism has declined and there has been a trend away from employment in manufacturing and toward services. The remaining policy issue is the degree to which the drop in defined benefit pensions is attributable to regulatory changes. While all studies examining this issue attribute some role to regulatory changes, they disagree on the importance of that role.[6]

The 1980s witnessed tremendous growth in 401(k) plans in the United States, a type of defined contribution plan named after the section of the Internal Revenue Code that enabled it. Between 1984 and 1990, participants in 401(k) plans grew by 12 million, while participants in defined benefit plans declined by 3.8 million. The number of workers participating in defined contribution plans other than 401(k) plans declined, so that the total growth of workers in defined contribution plans was 4.8 million (table 5.2). These aggregate statistics suggest that 401(k) plans have to some extent replaced previously existing plans.

**Table 5.2 Active Worker Participants in Defined Benefit, Defined Contribution, and 401(k) Plans in the United States, 1984-1990 (thousands of workers)**

| | | Defined contribution | | |
|---|---|---|---|---|
| Year | Defined benefit | Total | 401(k) | Non-401(k) |
| 1984 | 30,172 | 30,603 | 7,540 | 23,063 |
| 1985 | 29,024 | 33,244 | 10,359 | 22,885 |
| 1986 | 28,670 | 34,620 | 11,559 | 23,061 |
| 1987 | 28,432 | 34,959 | 13,131 | 21,828 |
| 1988 | 27,864 | 34,740 | 15,203 | 19,537 |
| 1989 | 27,295 | 35,010 | 17,337 | 17,673 |
| 1990 | 26,344 | 35,488 | 19,548 | 15,940 |

SOURCES: U.S. Department of Labor (1993) and author's calculations.

When workers are given greater choice, they are forced to rely more on themselves. With the trend toward defined contribution plans, where workers bear the investment risk and where they can generally cash out their pension when they change jobs, the U.S. pension system is shift-

ing away from employer responsibility and toward individual responsibility for retirement income.

### *Mixed Uses for Plans*

While defined benefit plans are designed for retirement savings, some defined contribution plans have elements of both a general savings plan and a retirement pension plan. For example, 91 percent of firms listed on Japan's eight stock exchanges provide Employee Stock Ownership Plans (ESOPs), which are a form of defined contribution plan that invests primarily or entirely in stock of the employer. These plans are not considered to be retirement plans, however (Jones and Kato 1993). Workers cannot withdraw shares while employed until they have been in the plan for twenty years, and then can withdraw some.

Workers in the United States often cash out their pension plans, primarily their defined contribution plans, when changing jobs and sometimes do not consider them to be retirement plans. In the United Kingdom, Canada, and the Netherlands, by contrast, after several years in the plan a worker cannot cash out a pension plan until retirement.

Not all plans are readily categorized as defined contribution or defined benefit plans. In many types of plans the investment risk is shared between the employer and the worker. The mandatory, employer-provided, pay-as-you-go pension plans in France are an example of plans where risk is shared, and thus they are neither a pure defined benefit nor pure defined contribution. In these plans, there is little financial market risk because they have little funding. There is risk as to the adequacy of the contributions being paid into the system, however. They must be considered defined benefit plans because the ultimate benefits are not based on the investment of contributions to an account. However, the generosity of the plans is adjusted according to the financial status of the pay-as-you-go funds, and thus the risk in the plans is shared between the workers and employers.[7]

## Determination of Risk-Bearing

How firms and workers divide pension risk-bearing can be analyzed as being specified through a contract. Some aspects of this contract are explicit—determined by law or written into the pension benefit formula or collective bargaining agreement. Other aspects are implicit agreements as to conditions under which the firm will provide cost-of-living adjustments to retirement benefits, reduce the worker's real pay, lay off the worker, or terminate the pension plan.

An implicit contract could take the following form: The firm promises the worker an ongoing pension plan and long-term employment, so long as the worker maintains a given level of productivity and the firm's financial status maintains a minimum level. If the firm's financial status deteriorates, the worker may bear some risk through reduced pay, including reduced pension accruals or plan termination.

Pension risks can be analyzed according to their source. Risks arise from uncertainties of labor supply and demand, from uncertainty as to life expectancy, from financial market variables, and from political change. The following sections examine who bears these risks in different pension systems.

1. Job Tenure and Wage Risk

*Workers.* In defined benefit plans, the benefit at retirement—and thus the annual accrual of benefits while working—usually depends on the worker's final salary. Defined benefit plans are generally backloaded, meaning that the accrual of pension benefits increases relative to salary the longer the worker has been in the plan and the nearer the worker is to retirement. In some defined contribution plans the percentage of pay the employer contributes to the plan increases with employee age or tenure.

While many workers in Japan, primarily men, have lifetime job security, workers elsewhere generally have uncertain job tenure with their firm and uncertain future wages. Backloading features make plans riskier for workers uncertain whether they will have long tenure with the firm than for workers who expect no job changes. Firms presumably impose this risk on workers to insure against hiring and training losses related to workers who quit before retirement.

Basing benefits in defined benefit plans on final average wages would appear to provide workers with retirement income maintenance insurance not available in defined contribution plans or in career-average defined benefit plans.[8] However, because wage paths are uncertain early in worklife, individuals bear risk when their retirement benefits depend so heavily on final salary. While backloading does hedge against inflation (because wages tend to keep pace with inflation), final earnings can sometimes be low due to poor health or changes in market conditions. This risk frequently is reduced by basing pension benefits on the highest rather than the final salary, by averaging over several years, and by providing special disability benefits for early retirement due to poor health.

Defined contribution plans provide "wage diversification" because they are based on career wages. Career-average defined benefit plans also have wage diversification, since they are based on wages earned over many years.[9]

*Firms.* The protection offered to workers is risk borne by the firm. To the extent that this risk is largely diversifiable to employers (because they can diversify it across a number of workers) and nondiversifiable to individual workers, the replacement rate stability would be an advantage of defined benefit plans to workers.

2. Early Retirement Risk

Defined benefit plans in the United States often provide early retirement benefits greater than what would result from an actuarially fair reduction in benefits. This feature of defined benefit plans insures an initial benefit level to employees who are unable to work past early retirement. Defined contribution plans cannot protect against this risk, since their level of benefits is determined by the individual's account balance.

3. Implicit Contract Risk

Workers bear the risk that firms break their implicit contracts. Suppose, for example, that a firm with a defined benefit plan that traditionally granted cost-of-living adjustments to its retirees is sold. The new owners discontinue providing cost-of-living adjustments or terminate the plan without providing a successor plan. If the workers had accepted lower wages anticipating a pension that was partially indexed after retirement, they would suffer a loss.[10]

4. Longevity Risk

Workers who do not annuitize their benefits risk outliving their assets. Because defined benefit plans generally provide annuities and defined contribution plans generally provide lump-sum benefits, the longevity risk is greater in defined contribution plans. However, this difference is not inherent. In Japan, some types of defined benefit plans provide benefits as a lump sum, while in Chile, the mandatory defined contribution plans require workers to annuitize their benefits or take them in installments over time.

5. Demographic Risk

Both unfunded and funded pension plans face demographic risk due to an increasing old-age dependency ratio raising the cost of providing retirement benefits. Changes in the percentage of the population that are elderly can be predicted years in advance, and thus would be considered cost factors rather than risk factors. When pension systems are set up, however, not all demographic changes are predictable years into the future, and thus pension systems face an element of demographic risk.

In unfunded pension plans, such as in France, the ratio of beneficiaries to covered workers acts like a price measuring the cost to workers of providing benefits to beneficiaries (Doescher and Turner 1988). When there are five workers for every retiree, it costs workers $.20 to provide an extra dollar of benefits to beneficiaries. When there are two workers for every retiree, the cost is $.50.

Funded systems are affected by demographic risk through the effect of population aging on the tax subsidy to pensions. The generosity of such subsidies is likely to be reduced during periods when a large age group is receiving them. Funded systems are also negatively affected by reduced market rates of return caused by aggregate dissavings.

Because defined benefit plans are generally backloaded, the expense of such plans depends on plan demographics. Thus, as population ages, the annual expense of defined benefit plans will increase.

6. Financial Market Risk

*Workers.* The generosity of some defined benefit plans may depend on the financial market performance of the plan's portfolio. Multiemployer plans in the United States are an example. They are collectively bargained between a union and a group of employers. The level of ben-

efits in multiemployer defined benefit plans usually is set as a fixed amount per year of service and does not depend on worker earnings. In addition, the level of employer contributions is also fixed through the collective bargaining agreement.

Every few years when the collective bargaining agreement is renegotiated, the fixed amount is increased. The size of these increases may depend on the financial performance of the plan's assets. Retirees benefit from favorable investment performance because if the plan reaches its maximum allowable funding, the required contributions of employers frequently are used to give retirees a one-time bonus.

Workers also may bear some of the risk of poor financial performance by defined benefit plans through reduced wages. When required to make additional cash contributions to the pension plan because of poor plan performance, employers may offer smaller wage increases or less generous increases in pension benefits. Data from a small survey of Canadian plan administrators suggest that some workers received benefit increases in response to favorable investment performance of a defined benefit plan, while workers were less likely to suffer from poor financial performance of a plan (Pesando and Hyatt 1992).

Top managers of firms are often major beneficiaries of the pension fund. While managers often also hold common stock or stock options in the firm, their pension benefits may be a substantial part of their expected retirement wealth. Because of the limit on the level of benefits insured by the Pension Benefit Guaranty Corporation in the United States, the benefits of top managers are at greater risk than are those of rank-and-file workers. Thus, managers will presumably consider the impact of their pension decisions on their own economic interests as beneficiaries, rather than single-mindedly promoting the interests of shareholders.[11]

Although in many situations defined benefit plans hold less financial risk for workers than do defined contribution plans, the reverse can also be true. Consider a career-average defined benefit plan with no postretirement indexing. Accrued benefits at retirement are thus purely nominal and have the investment characteristics of a long-term bond. Since inflation and investment risk are virtually synonymous for fixed income securities, retirees in such plans bear substantial investment risk. In contrast, workers in a money-purchase defined contribution

plan that invests in Treasury bills would be exposed to less inflation/investment risk.

Because workers bear the investment risk in defined contribution plans, firms often allow or require them to determine their pension investments by choosing among several investment funds. In contrast, defined benefit plans do not provide workers with a risk-return choice.[12]

*Firms.* Funded pension plans have financial market risk arising from the assets in their portfolios. Defined benefit plans can reduce the financial market risk to retirement benefits by risk-sharing between retirement cohorts. When a retirement cohort experiences a large decline in the value of pension assets due to a fall in financial markets, the firm can efficiently absorb such risk by spreading it over the cohorts for which it insures benefits.

Because pension plan liabilities have a long time horizon, the typical pension fund can absorb more investment risk during intermediate periods than can the average market investor. This gives defined benefit plans an advantage over defined contribution plans for bearing financial market risk. It allows defined benefit plans to hold riskier portfolios and to expect higher return than defined contribution plans.

*Insurance Companies.* Employers providing defined benefit plans and employees in defined contribution plans can shift risk to an insurance company by buying allocated annuity contracts. With these contracts, the plan pays premiums on a per participant basis toward immediate or deferred annuity payments.

*Government.* In defined benefit plans where the employer contribution is tax deductible (as in most plans in most countries, but not in New Zealand), some of the financial market risk is borne by the government. If the assets the plan invests in suffer a capital loss, the employer's contributions to the plan are increased. These increased contributions reduce the employer's taxable profit and tax payments. Similarly, if plan investments receive a high rate of return, the firm's contributions to the plan are reduced and its taxable income increases. Thus, the government shares both the upside and downside investment risk in defined benefit plans. The Canadian data, however, suggest that firms may modify this outcome by sharing upside returns with employees.

Through the tax system, the government also bears some financial risk for defined contribution plans. If a defined contribution plan suffers a financial loss, workers' retirement benefits are reduced. If those benefits are taxable, worker tax payments in retirement will be lower, making after-tax benefits fall less than before-tax benefits. If the benefits are not taxed in retirement, there would be no risk-sharing by the government.[13]

7. Risk Due to Wrongdoing

*Workers and Firms.* Funded plans risk wrongdoing by employers and fund managers. Both defined benefit and defined contribution plans face malfeasance risk. Malfeasance can be misappropriation of plan assets or it can result from placing plan assets in overly risky investments. The Maxwell pension scandal in the United Kingdom exemplifies both types of malfeasance. Before his death in 1991, Robert Maxwell stole more than 440 million pounds ($730 million) from pension funds of firms he controlled. He invested some of the funds in his own companies, which were having financial problems.

Some countries have sought to reduce the risk of malfeasance by requiring that employer representatives be on the board of trustees of pension funds. For example, starting July 1, 1995, all pension funds in Australia with five or more members must be administered by a trustee group comprising 50 percent member and 50 percent employer representatives. A similar arrangement was proposed by the Goode Commission in the United Kingdom in its report following the Maxwell affair (Pension Law Review Committee, 1994). In the Netherlands, plans have equal employee and employer representation (Lutjens 1995), as do multiemployer plans in the United States, as well as plans in France (Reynaud 1994b). In Spain, the majority of trustees must represent employees (Ruano 1995). In these plans, employers cannot determine the investment of plan assets. Rather, investment is determined by the employer and employee groups that manage the plans.

*Government and Insurance Companies.* In the United States, the United Kingdom, Germany, Sweden, Japan, Finland, and the province of Ontario, Canada a mandatory program insures against the risk of malfeasance for some defined benefit plans. Through this insurance, the risk is borne by other employers, by an insurance company, or directly by the government, meaning taxpayers. In contracted-out

defined benefit plans in the United Kingdom, the government guarantees a minimum level of benefits through the social security system.

Some countries without formal insurance programs partially insure defined benefit plans on an *ad hoc* basis. For example, a governmental fund was established in the United Kingdom to partially compensate members of the Maxwell pension plans for their losses. Malfeasance risk may also be borne by pension service providers, who in most countries have at least an implicit responsibility to protect pension participants from such risk.

Chile, Mexico, Switzerland, and Argentina provide government guarantees for defined contribution plans if their rate of return falls below specified levels (Campbell 1994). Plans in these countries are not subject to risk due to underfunding because of the requirements of their pension system, but they are subject to malfeasance and financial market risk.

For both defined benefit and defined contribution plans, governments reduce malfeasance risk by writing and enforcing regulations, by judicial remedies, and by requiring plans to report information to the government or make it available to plan participants. Regulations and the filing of reports impose costs on firms, and the reduction in risk should be balanced against the increased costs.

8. Risk Due to the Financial Performance of the Plan Sponsor

*Workers.* All pension plans to which employers contribute are affected by the financial risks facing the sponsoring employer or employers. This type of risk varies across plan type.[14] In profit sharing plans, a type of defined contribution plan in the United States, the employers' annual contributions can vary at their own discretion. These plans give employers flexibility, reducing their risk by lowering their fixed financial obligation. Workers bear some of the risk by receiving lower pension contributions when the firm performs poorly. While this arrangement increases the variability in employee compensation, it reduces their risk of being laid off.

In money-purchase defined contribution plans, the contribution is fixed, such as a fixed percentage of the worker's earnings. Because the required payment is fixed, the firm and not the worker bears risk in these plans. If the firm has financial problems, it may terminate the pension plan. If a money-purchase plan is terminated, plan accruals to

date of termination are unaffected, and workers receive the amount in their accounts. In a defined benefit plan, however, workers receive benefits based on their earnings at the time the plan is terminated. These benefits generally are lower than the benefits the workers would have accrued to date had the plan continued until the their retirement age.

Funding a pension plan collateralizes the interests of workers in their retirement benefits, reducing the risk to workers, but increasing it for shareholders and debtholders in the event of financial distress or bankruptcy. Without funding, or with underfunding, and without insurance of benefits, the risk of bankruptcy to benefit levels in defined benefit plans is borne entirely by workers.[15] This is the case in the United Kingdom for benefits that are not contracted out and in Japan for Tax Qualified Pension Plans.

The risk to a firm's stockholders depends in part on whether the risk of the defined benefit plan investments are positively correlated with the risk of the firm. If a firm fully funds its defined benefit plan in a diversified portfolio, the correlation between the financial performance of the plan and the firm would presumably be small. However, if a firm were to completely fund the plan by investing in firm assets, the correlation would be maximized. To the extent that firms underfund or use book reserve funding, they have implicitly invested plan assets in assets of the sponsoring employer. Such plans, unless otherwise insured, pose greater risks for workers.

*Stockholders.* Rules regarding the priority of pension participants in the bankruptcy of the sponsoring firm can affect which parties bear this risk. If pension participants are given top priority in bankruptcy, then some of the risk of defined benefit plans is shifted to stockholders, bondholders, and creditors of the firm.

9. Interest Rate Risk

Workers wishing to convert a defined contribution account balance into annuitized benefits face interest rate risk. The higher the interest rate, the higher the worker's annuitized benefit at retirement, given the level of assets in the plan.[16]

Because defined benefit plan benefits are paid as an annuity at retirement, workers do not face interest rate risk. Defined benefit plans in effect guarantee the interest rate for computing retirement annuities. Thus, the interest rate risk is shifted to the firm.

10. Inflation Risk

Inflation risk affects initial real benefits of job changers and real benefit levels during retirement for all pension recipients. Job changers in defined benefit plans face inflation risk from the point they leave the firm.[17] The real value of their nominal final salary is eroded due to inflation between that point and the time they receive benefits. While few if any plans anywhere voluntarily index benefits for early leavers, they are required to do so in the United Kingdom up to an inflation rate of 5 percent per year.

Annuitized pension benefits have the financial characteristics of a long-term bond. Thus, they face inflation rate risk. Once an initial level of retirement benefits is set, benefits will erode in real value due to inflation if that level is not periodically increased. Workers, however, in participant-directed defined contribution plans who do not annuitize their account balance can choose the asset composition of their pension wealth and thus their preferred risk-return tradeoff.

In the United Kingdom, for contracted-out guaranteed minimum benefits accruing since April 1988, the pension plan must provide cost-of-living adjustments after retirement of up to 3 percent annually. For inflation rates higher than 3 percent, the government social security program provides cost-of-living adjustments for the difference.

When inflation adjustments to pension benefits depend on the financial performance of the underlying assets in the pension plan or of the sponsoring firm, workers in defined benefit plans bear some of the risks.[18] They bear the risks in part because the risks affect the level of their benefits. Because women live longer than men, the postretirement inflation risk has a greater effect on women's lifetime retirement benefits than on men's.

Because workers presumably must pay through reduced wages for "inflation insurance" for a defined benefit plan, they may prefer partial rather than full indexing of their pension plan, especially since social security in most countries provides at least partial indexing. Private pensions would be more likely to index for inflation after retirement in such countries as the United Kingdom, where the social security benefits are relatively low. However, more complete inflation indexation of pension benefits is provided in Germany, where social security benefits are relatively generous.

11. Risk of Political Change

Firms face the risk that laws and regulations will be changed, making it more costly for them to provide a pension plan. For example, the law regulating vesting may be changed so that firms are required to vest workers after a shorter period of time, the extent that pensions are subsidized through the tax code could be reduced,[19] or court rulings could make firms liable for benefits in circumstances where they had not been liable before.

### *Defined Benefit and Defined Contribution Plans Combined*

The risk-return mix may be optimized for workers participating at the same time in both defined benefit and defined contribution plans. When offering both types of plans, firms effectively provide a defined contribution plan with a guaranteed minimum benefit. Employers and workers can trade off the level of the minimum benefit against the size of the expected defined contribution benefit. Combining the two offers the downside protection of defined benefit plans, yet allows workers to invest in high expected return assets. By offering a voluntary, supplemental defined contribution plan—such as a 401(k) plan in the United States or Additional Voluntary Contributions in the United Kingdom—firms allow workers greater flexibility. Workers who desire high savings can participate in such plans, while coworkers who wish for relatively high current consumption are not forced to save by participating in them.

A mixed public-private pension system in which many workers have both defined benefit and defined contribution plans offers the most diversification against risks. Risks are reduced in a mixed system because social security and private pensions are subject to different risks that are not perfectly correlated. A pay-as-you-go social security system is subject to risks to the level of its contribution base, usually national wage earnings, but is not directly subject to financial market risk. The United Kingdom, Canada, and the United States exemplify such a system.

### *Conclusions*

Risk-bearing depends on the institutional features of the pension plan and on the actions taken by workers and employers. It is commonly thought that employers bear all the risks in defined benefit plans and workers bear the risks in defined contribution plans. For both types of plans, however, that is frequently not true. In defined contribution plans, workers can shift some of the risk to insurance companies. In Chile, some of the defined contribution plan risk is borne by the government. In the United States, some of the defined contribution plan risk can be shifted back to employers, who can be sued for mismanagement of the plan. Workers bear risks in defined benefit plans that arise from risks to the employer and, for funded plans, from risks associated with the assets in which the plan invests.

The relative riskiness to workers of defined benefit and defined contribution plans depends on the particular circumstances being compared. For workers in financially weak firms with underfunded plans that do not provide postretirement cost-of-living adjustments, defined benefit plans may be fairly risky. For workers in financially secure firms with money-purchase defined contribution plans that are invested in products guaranteed by insurance companies, there may be little risk.

## Insolvency Insurance

A growing number of countries have mandated some form of benefit insurance or guarantee. Finland, Germany, Japan, Sweden, and the United States all have pension insolvency insurance programs for defined benefit plans, as does the province of Ontario, Canada. The United Kingdom guarantees a minimum benefit in contracted-out defined benefit plans. In Australia, the government has the power to impose a tax of 0.05 percent per year on fund assets of pension plans to pay for the financial loss suffered by a fund as a result of fraud or theft.

These insolvency insurance programs may affect capital markets by influencing the types of investments that pension plans make. In some cases, the ability of pension plans to hold equities is limited by regula-

tion. In other cases where such regulations do not exist, plans may be induced to increase their holdings of risky assets because the downside risk of losses is partially insured by the insolvency insurance program.

The rationale for insolvency insurance differs greatly across countries. In several countries, insolvency insurance has been instituted to allow firms to use pensions for self-financing. In Germany and Sweden, pension insurance is solely for this purpose, and firms that use pension assets to finance their activities are required to insure their pension liabilities.

In the United States, insolvency insurance protects workers against firm bankruptcy and insufficient pension funding in plans that are set up to be fully funded. In the Netherlands, there is no need for such insurance because pension regulation assures that funded pension plans do not become significantly underfunded.[20] Japan provides insolvency insurance for funded plans, but because it has strict regulations it has never had an insurance claim. The United States is the only country with an insolvency insurance program for funded plans in which a considerable amount of underfunding is permitted.

### *Germany*

The German pension insolvency system was established in 1974, the same year as the Pension Benefit Guaranty Corporation (PBGC) in the United States. The German Employers' Association joined with the Federation of German Industries and the Federation of German Life Insurance Companies to form a mutual insurance association known as the Pensions-sicherungs-Verein (PSVaG). Shortly thereafter, Germany's parliament designated the PSVaG as the sole carrier of mandatory pension insolvency insurance.

The PSVaG insurance premium is not risk-related, but is payable at a uniform rate based on the company's total pension liabilities and the total claims against the insurance system for a given year. Each company's share of total payments equals its share of total insured liabilities. Thus, the system uses pay-as-you-go financing of the liabilities as terminations occur. The PSVaG insures plans that are financed through the book reserve method. PSVaG insurance premiums have averaged less than 2 percent of the annually accruing liabilities.

The insured event is the insolvency of the employer since under book reserve financing an employer's insolvency also means that the pension plan is insolvent. When an employer goes into receivership or liquidates, the PSVaG purchases single premium annuity contracts from a consortium of the major German insurance companies to cover the benefits owed to present and former workers and their survivors. The benefit insurance has a high ceiling, it is limited to 300 percent of the ceiling on benefits under social security.

Between its inception and the end of 1989 the German system had 3,930 cases of insolvency (Windel 1991) and spent more than 5 billion DM ($3.3 billion) in protecting the benefits of more than 347,000 employees. It had 185 insolvency claims in 1992.

### *Japan*

In 1989, Japan established a pension insolvency insurance program that covers about half of the pension-covered labor force. The Pension Guarantee Program is managed by the Pension Fund Association, a private-sector organization which is heavily regulated by the Japanese Ministry of Health and Welfare.

In spite of a major economic downturn in Japan in the early 1990s in which the Nikkei-Dow Jones stock index lost half its value, the program has had no insolvency terminations. To initially qualify for coverage, a firm must meet minimum size requirements, have earned a profit for the preceding three years, and have a stable or growing workforce. Thus, the insured firms have a low probability of bankruptcy, at least during the early years following establishment of their contracted-out pension funds.

An important issue in the development of the Japanese pension system has been how to protect the value of pension benefits. With the decrease in asset prices in the early 1990s, the number of bankrupt companies has grown. Furthermore, the financial situation of trust banking companies, which manage pension funds, has grown weaker, as has that of the life insurance industry.

When the Employees' Pension Fund plans were established in 1966, all life insurance companies were required to guarantee a 5.5 percent investment rate of return for Employees' Pension Fund plans. On April 1, 1994, the guaranteed rate was reduced to 4.5 percent. There is grow-

ing support for deregulation, however, so that all companies could decide on their own rate. The Ministry of Finance intends to establish a Guarantee Fund for protecting insurance consumers. This would be the first time such a fund has existed in Japan.

*Lump-Sum Retirement Plan (Book Reserve Plan)*

In the recession that followed the oil shock of 1973, company bankruptcies increased in Japan. Many employees lost their jobs, and firms could not pay their wages and lump-sum retirement benefits. The regulations of bankruptcy law, labor law, and commercial law were insufficient to protect workers.

To solve this problem, a law was enacted in 1976 that guarantees 80 percent of unpaid wages. It also requires the employer to guarantee lump-sum retirement benefits through a contract with a financial institution. The percentage of employers who guarantee their book reserve plans through a financial institution increased from 12 percent in 1981 to 24 percent in 1989 (table 5.3). The law has not been strictly enforced, however, and many employers have ignored it. Among firms with 1,000 or more employees, only 16 percent guarantee their book reserve plan.

**Table 5.3 Percentage of Firms that Guarantee Their Book Reserve Plan With a Financial Institution in Japan, 1981 and 1989**

| Year | Total | Firm size (number of employees) | |
|---|---|---|---|
| | | Large | Small |
| | | (1,000+) | (30-99) |
| 1981 | 12.0 | 17.3 | 10.1 |
| 1989 | 24.3 | 16.3 | 23.7 |

SOURCE: Japan Labor Department.

*Tax-Qualified Pension Plan*

Corporate tax law requires that the present value of a Tax-Qualified Pension Plan be paid to the employee when an employer in Japan goes bankrupt. However, Tax-Qualified Pension Plans do not have a pension insurance system. This is perhaps the most serious unsolved problem concerning Tax-Qualified Pension Plans.

*Employees' Pension Fund Plan*

The Pension Guarantee Program established in 1989 only insures Employees' Pension Fund plans, and those plans are required to participate in the insurance program. An Employees' Pension Fund plan can be terminated with insufficient assets only if: (1) the sponsoring company declares bankruptcy; (2) the business of the sponsoring company or the industry deteriorates; or (3) other unavoidable circumstances occur under which continuation of a fund is deemed to be extremely difficult.

The level of contributions to the pension benefit insurance program is computed for size groupings of employers, primarily on the basis of the statistical likelihood of termination and the unfunded liability if terminated. The required contributions per participant decrease gradually as the number of participants increases, because the risk of termination with an unfunded liability is smaller for larger plans (table 5.4). The amount of the required contribution is recalculated every year based on the average number of participants in the plan in the previous year.

**Table 5.4 Schedule of Contributions to the Pension Guarantee Program in Japan, 1994**

| Number of participants in plan | Contribution per participant (yen) | Ceiling on contributions (thousands of yen) | Number of firms* |
|---|---|---|---|
| Less than 3,000 | 90 | 255 | 702 |
| 3,000 - 4,999 | 85 | 400 | 361 |
| 5,000 - 9,999 | 80 | 750 | 395 |
| 10,000 - 14,999 | 75 | 1,050 | 126 |
| 15,000 - 19,999 | 70 | 1,300 | 54 |
| 20,000 - 29,999 | 65 | 1,800 | 46 |
| 30,000 and more | 60 | 3,000 | 51 |

SOURCE: Pension Fund Association.

*Number of firms is for the fiscal year 1992, other figures are for 1994 due to different information sources.

### *Sweden*

The Swedish pension insolvency insurance program was founded in 1961 to give companies an opportunity both to retain pension capital within the firm and offer pension security for employees. It is a mutual insurance company that is owned by the 2,500 policy-holding companies that have purchased insurance. Nearly all of the liabilities of the insurance program (95 percent) are for a single pension plan, the ITP. The ITP is a plan for salaried employees based on a collective agreement between the Swedish Employers' Confederation and the Swedish Federation of Salaried Employees in Industry and Services. It covers more than 500,000 private-sector employees.

Firms participating in the ITP can either use the book reserve method and retain the pension capital within the firm, or insure the pensions by making contributions to the SPP Insurance Company. If the book reserve method is used, the Swedish insolvency insurer (the FPG) guarantees the benefits against the risk of the company becoming insolvent. If the company becomes insolvent, the insolvency insurer purchases insurance through the SPP.

### *The United States*[21]

The United States has a mixed system of pension insurance in which government and private guarantees compete. An employer can contract with a private insurance company to assume, through the purchase of annuities, all or part of its defined benefit pension obligations. Employers most commonly do this when a worker reaches retirement. The sponsor then pays a premium to the insurance company, and the insurance company becomes the guarantor of the retiree's pension benefits.[22]

Most defined benefit plan sponsors do not insure the pension liabilities for their workers through private insurance companies. They thus must buy insurance through the Pension Benefit Guaranty Corporation (PBGC).[23] The PBGC is an agency of the federal government funded entirely through premium payments made by firms that sponsor defined benefit plans.

The PBGC was created by the Employee Retirement Income Security Act of 1974 (ERISA). Before ERISA, when companies would not

or could not pay, plan participants lost benefits to which they were entitled. ERISA shifted the burden of underfunded plans terminated by employers from the plan participants to the PBGC and, through premiums, to sponsors of other pension plans.

Pension insurance protects against the risk that a defined benefit plan will terminate without sufficient funding to pay guaranteed benefits and the sponsoring firm will be unable to cover the shortfall. The federal government does not insure defined contribution plans.

Pension funding improved in the United States between the early 1980s and the early 1990s, but the PBGC is still concerned about its exposure to a small group of highly underfunded plans. Though only 17 percent of the labor force belongs to unions, the plans that are highly underfunded are all union plans.

PBGC has two pension guarantee programs—one for single employer plans and another for multiemployer plans. This section focuses on the insurance program for single employer plans, since PBGC's financial problems are entirely due to that program.[24]

PBGC guarantees basic retirement benefits. It does not guarantee special benefit supplements, such as special early retirement benefits which end when a worker reaches age 62 and becomes eligible for social security. It also does not guarantee benefits above a fairly high indexed ceiling ($2,353 per month in 1992).[25] There are one million high-income workers in underfunded plans who have benefits exceeding PBGC's guarantee ceiling (Lockhart 1992).

Firms can only terminate an underfunded plan in a distress termination. This means generally that a firm must be in bankruptcy proceedings in a federal bankruptcy court and receive a ruling from a federal judge to terminate an underfunded plan.

A firm can enter bankruptcy proceedings without ending its business and liquidating. Chapter 11 of the Bankruptcy Code allows firms to reorganize and continue operations. Management is given four months to propose a reorganization plan, but judges regularly extend that period for years.

In Chapter 11 bankruptcy, a firm continues operating its business with the goal of formulating a plan for paying back all or part of its debt. Terminating its underfunded pension plans may be an important part of the plan for reorganizing. In some cases, the main reason a firm

enters Chapter 11 bankruptcy is to terminate its underfunded pension plans.

A reorganizing company can terminate its underfunded plans only when a bankruptcy court judge determines the alternative is to liquidate the company. A firm that terminates an underfunded plan is liable to PBGC for the underfunding. The liability also extends to all members of a controlled group of firms. A controlled group of firms is all firms with 80 percent or more common ownership. Thus, if a firm declares bankruptcy, affiliated companies are responsible for the pension liabilities of the bankrupt firm. A firm with affiliated companies can terminate an underfunded plan only if the firm and all other firms with common ownership are in bankruptcy.

Employers who terminate underfunded pension plans and the employers' controlled group are liable to PBGC for the plans' funding up to 30 percent of the net worth of the controlled group. However, PBGC recoveries in bankruptcy are typically small because of the low value of firms in bankruptcy.

PBGC can initiate termination of an underfunded defined benefit plan if the plan sponsor has not made the minimum required contributions and PBGC believes that not terminating the plan would unreasonably increase its unfunded liability.

A firm cannot terminate a collectively bargained pension plan if its collective bargaining agreement does not permit it to do so. Frequently, a collective bargaining agreement stipulates that a pension plan cannot be ended without union approval. However, firms can circumvent this restriction by forcing PBGC to initiate the termination. For example, when LTV Corporation informed PBGC that it would not contribute further to its collectively bargained plans, PBGC terminated them.[26] Because employees would continue to accrue benefits until the plans were terminated, delaying termination would have substantially increased PBGC's liability.

*PBGC Exposure*

Bankruptcy courts do not treat PBGC claims uniformly, making it difficult to estimate PBGC's recoveries and potential net claims. ERISA provides that the PBGC shall have a priority claim in bankruptcy court for missed premiums and contributions and for a portion of the plan's underfunding. This provision is not, however, written into

Chapter 11 of the bankruptcy code. Some bankruptcy judges honor the ERISA provision; others do not.

PBGC's deficit is the difference between its liabilities and assets. Its liabilities are measured as the present value of benefits payable by PBGC to beneficiaries of plans that have been terminated with insufficient assets. Its assets include the assets of plans that have terminated and been taken over by PBGC, as well as PBGC premiums and investment earnings.[27] This measure of the deficit has been criticized because it does not allow for a reserve against greater-than-anticipated future claims.

Most of the large claims against PBGC have come from collectively bargained (union) plans. These plans are flat benefit plans, which provide a retiree a specified monthly dollar benefit for each year of service. Federal tax laws do not permit these plans to be funded for future benefit increases because the increases are not a legal requirement until the labor contract is renegotiated. Because benefits are usually increased at three- or five-year intervals, new liabilities are added before old ones are completely funded, leaving the plans chronically underfunded.

In contrast, final salary plans, which base benefits on salary in the last few years before retirement, are almost always overfunded relative to insured liabilities if they terminate. This is because their funding methods anticipate increasing salaries and therefore benefit levels. Consequently, typical final salary plans have funding ratios of 145 percent, while flat benefit plans have funding ratios of 75 percent. Because they are generally well funded, final salary plans can absorb large changes in interest rates, actuarial assumptions, and investment performance without becoming underfunded. Flat benefit plans cannot.

*Premiums*

Premium rates that plan sponsors must pay are not set by PBGC but by Congress, through legislation that the President must sign. Because of this cumbersome procedure, premiums are changed infrequently. Since 1987, underfunded plans have had to pay higher premiums than fully funded plans. In 1994, the premium for fully funded plans were $19 per participant. The premiums for underfunded plans were $19 per participant plus $9 per $1,000 of unfunded vested benefits per

participant, up to a maximum premium of $72 per participant.[28] Starting in 1995, the maximum is being phased out over several years.

In the past, new defined benefit plans have typically granted credits for past service, and have started with an initial unfunded liability and low funding ratio. The PBGC premium structure may discourage the formation of new defined benefit plans by charging relatively high premiums for plans that start with past service liabilities they do not immediately fund.

PBGC does not guarantee insurance annuities purchased by pension plans. Thus, though benefits are insured up to retirement, workers lose federal benefit insurance at retirement if their company buys an annuity for them. PBGC does not insure those annuities because insurance companies have been considered secure providers of retirement benefits. Also, in most states insurance companies are insured by state insurance company guarantee funds. If an insurance company fails, pensioners holding annuities must rely on state insurance guarantee laws.

### *Concluding Remarks*

The United States and Japan are the only countries that have instituted programs of insuring the benefits of funded pension plans. In Japan, the plans that are insured are tightly regulated as to funding levels, and there has never been a claim against the insurance program. Thus, the United States is the only country that has an insurance program for funded pension plans that are permitted to become underfunded.

The federal regulations of defined benefit plans have a number of provisions that permit insured plans to become underfunded. The severity of the effect of these provisions on the purposive underfunding done by pension-sponsoring firms is unclear. There are costs associated with exploiting these provisions, the primary one being damage to a reputation as a good employer. A firm in financial distress, however, can take actions that increase its potential claim on PBGC.

## Conclusions

Countries have developed different ways of controlling the risks inherent in providing retirement income through private pension plans. They regulate pension provisions directly as well as indirectly through the tax system. They attempt to reduce the likelihood of financial wrongdoing by requiring financial reporting, by maintaining pension law enforcement programs, and by involving workers as trustees. Firms and workers may shift the risks to insurance companies. Several governments have mandated programs for insuring pension benefits, but some of these insurance programs have had financial difficulties of their own.

## NOTES

1. This section is taken largely from Turner (1995).

2. In defined benefit plans, the pension benefit is determined by a formula that usually involves the worker's earnings and tenure. For example, the worker's annual benefit could equal the average of the worker's highest three annual earnings times years of work times a generosity factor of 0.01. Thus, a worker having an average of highest three annual earnings of $50,000 and having worked 30 years would have annual benefits of $15,000.

By contrast, in defined contribution plans, the eventual benefit the worker receives depends on the amount contributed to the plan and the rate of return received on pension plan investments. For example, the worker could have a plan where the employer contributes 5 percent of salary. This amount would be deposited in an account for the employee, along with the investment earnings on the assets in the account At retirement, the worker would have an account balance that he or she could receive as a lump sum or convert to an annuity

3. This chapter does not provide a complete comparison of defined benefit and defined contribution plans, but focuses only on the issue of risk-bearing. This is an important issue in evaluating pension plans, but issues such as the effect of pension plans on worker productivity, job turnover, and retirement age are also important The chapter also does not consider how much risk should be held in defined benefit and defined contribution plans, and who should bear that risk.

4. The number of total participants in defined benefit plans has continued to exceed that in defined contribution plans because of the larger number of beneficiaries in defined benefit plans. There are relatively few beneficiaries in defined contribution plans because generally those beneficiaries receive lump-sum benefits and then are no longer counted as participants

5 See Chang (1991), Clark and McDermed (1990), and Ippolito (1990b).

6. This disagreement is partly due to differences in methodology. Each of the studies that examines this issue directly estimates the portion of the trend away from defined benefit plans due to only one of the two factors: the changing propensity of firms of a given type to offer a plan or the changing composition of types of firms. Each attributes the remaining portion of the trend to the other factor, even though it was not directly estimated. This procedure may overestimate the portion of the trend due to the factor that was not directly estimated (see Chang 1991).

7. It might be better to classify these as hybrid plans in which both benefits and contributions adjust. Some analysts note that the benefits adjust, and then by default call the plans defined contribution plans.

8. Career-average defined benefit plans are those in which the benefit is based on the worker's annual earnings averaged over his or her career.

9. In both defined benefit and defined contribution plans in the United States, workers who have declared bankruptcy have their pension assets protected against the claims of creditors.

10. A related example of implicit contract risk is the decision by some companies to change or eliminate health insurance protection for retirees.

11. The points in this paragraph were made by Light and Perold (1985).

12. In some instances, participants in U.S. defined contribution plans can sue the plan sponsor over poor investment performance. In defined contribution plans where the sponsor directs the investments, the participant could sue if the sponsor did not act prudently in choosing investments. In cases where the participant directs the investment, the participant can sue the sponsor if the sponsor did not prudently consider the investment options offered to participants.

13. The extent of risk-sharing by the government may affect the relative amounts of risk that are borne in defined benefit and defined contribution plans. The higher the personal income tax rate relative to the corporate income tax rate, the greater the risk-sharing with the government in defined contribution plans relative to defined benefit plans.

14. While workers may face risk as to their ability to participate in a pension plan, this analysis focuses only on workers covered by pension plans. It does not consider risks associated with vesting rules, as well as those eliminated by disability and death benefits.

15. Defined contribution plans are always considered to be fully funded.

16. This risk is partially offset because higher interest rates may decrease the value of stocks, bonds, and other assets held in the plan.

17. This argument does not apply to defined benefit multiemployer plans, where job changers who remain within the plan do not suffer portability losses.

18. This point has been suggested by Pesando and Hyatt (1992).

19. Bodie (1990) has argued that integrated pension plans, where decreases in social security benefits would cause increases in pension benefits, protect workers against the risk of adverse changes in social security benefit levels. However, the demographic and economic factors causing the government to reduce social security benefits may also cause firms to reduce their future pension benefits.

20. Pension investments in the Netherlands are determined by a joint employer-employee group rather than employers alone.

21 This section is largely based on Turner (1993).

22. Since almost all 50 states have state-sponsored insurance company guaranty funds, those state funds then become the ultimate guarantor of the pension benefits.

23. A third of the assets in the private pension system are invested through insurance companies. Data are not available on the percentage of defined benefit assets that are insured, but it is probably between 35 and 45 percent. However, only assets that have been used to purchase an insured annuity are exempt from PBGC insurance. The percentage of defined benefit assets in that category is not known. Few plans purchase insured annuities for their workers, but more purchase them for their retirees.

24. Multiemployer plans cover the unionized employees of two or more employers. They are administered by an equal number of trustees representing the union and the employers They are common in industries with a mobile labor force, such as trucking, mining, the building trades, and entertainment.

25 The ceiling is $2,353 per month for benefits payable as a single life annuity at age 65. The maximum guarantee is adjusted if taken in any other form. The ceiling does not apply for beneficiaries who have been receiving benefits for three or more years.

26. If PBGC's decision to terminate a plan is contested, district court approval is required.

27. Assets are recorded at market value.

28. The interest rate used for valuing vested benefits is 80 percent of the thirty-year Treasury bond rate.

# 6
# Pension Financing

Private pension plans control an increasingly large share of world capital markets. Thus, pension financing has become an important aspect of the financial structure of a number of countries. This chapter compares the different ways pension plans are financed and examines statistics on several aspects of pension financing for major private pension systems.

The comparison of institutions for financing private pensions focuses on the risks in each system and the steps taken to reduce them. The discussion extends the treatment of risk in the previous chapter by examining how risks vary under different financing methods.[1]

## Unfunded Systems

Future pension benefits are inherently risky. Funding reduces this risk, but funding levels and methods vary considerably across countries, and some countries have pension plans where no money is set aside in a separate fund.

France has an unfunded pay-as-you-go private pension system that arose from the French experience following World War II. High postwar inflation decimated the value of French pension funds that existed at the time. A national pay-as-you-go system was adopted in part because it is not directly subject to financial market risk.[2] Such a system is subject, however, to demographic risk. Reductions in the fertility rate and increases in life expectancy raise the ratio of retirees to workers.[3]

Book reserve funding is used by most plans in Germany[4] and Austria, by many plans in Japan and Sweden, and by some plans in Italy. With book reserve funding, plan assets are like nontradeable, interest-bearing notes issued by the sponsoring employer to the plan. Book-reserved pension assets are considered in these countries to be invested in the sponsoring firm. These plans are subject to risks facing individual firms, and for this reason countries often require that these plans have some type of insurance protection.

### *Germany*

Germany differs from other countries in the ways that it finances pension benefits. There are four ways that a German pension fund can be financed: book reserve, support funds, pension funds, and direct insurance. The choice among these financing options is made by employers, based in part on their differing tax implications.

The most popular method of financing German pensions is the book reserve method. Under this method, a company establishes a bookkeeping pension liability account in its corporate accounts and claims a tax deduction each year for the increase in pension liabilities. Thus, the company takes an income tax deduction before it makes a cash transaction. Book reserves provide a source of internal financing for corporations. This was particularly popular following World War II, when companies needed to obtain financing and the devastation of the banking industry and financial markets did not allow for external financing for firms. The approach has had lasting popularity, however, and it is currently used by 90 percent of firms with 1,000 or more employees that offer pension plans (table 6.1).

**Table 6.1 Percentage of Large Employers With Different Types of Funding and Benefit Arrangements in Germany, 1990**

| Plan characteristic | Percentage of companies offering benefit plans with the characteristic |
|---|---|
| **Type of funding** | |
| Book reserve | 9.0 |
| Support funds | 34.6 |
| Pension funds | 15.5 |
| Direct insurance | 12.7 |
| **Type of benefit** | |
| Integrated with social security | 10.9 |
| Final pay plan | 47.3 |
| Flat amount plan | 36.4 |
| Defined contribution | 11.8 |

SOURCE: Ahrend, Forster, and Walkiewicz (1990).

NOTE: This table is for firms with 1,000 or more employees. The percentages do not sum to 100 percent because an employer can offer more than one type of plan and because other less important characteristics are not listed.

In calculating book reserves, firms must use a discount rate of 6 percent. The government has proposed raising this to 7 percent to reduce tax deductions and increase tax revenues, but thus far that has not been done (Steinmeyer 1993). The value of book reserves account for 58 percent of the assets accumulated for pensions in Germany (table 6.2).

**Table 6.2 Percentage Distribution of Assets in Different Types of Private Pension Plans in Germany, 1991**

| Type of plan | Percentage of total pension assets that are held by type of plan |
|---|---|
| Book reserves | 58 |
| Private fund | 22 |
| Direct insurance | 11 |
| Support fund | 9 |
| Total | 100 |

SOURCE. Ahrend (1995).

When a firm can take a tax deduction for unfunded pension liabilities, as it can in Japan, Germany, and Austria, it may prefer not to fund, since the pension liabilities, in effect, become a cheap source of borrowing. Although this form of pension finance is widely popular in Germany, it is most advantageous for financially distressed firms. However, it is less advantageous for the workers in such firms because of its riskiness.

The second way of financing German pensions is via a support fund, which is a separate legal entity that may invest pension fund assets. Support funds are financed by transfers from employers. No legal restrictions limit the investment of fund assets. The funds are commonly invested as an interest-bearing loan to the sponsoring company.

The third funding method is the pension fund or "pensionskasse." Such funds are regulated in the same way as insurance companies, with the same investment restrictions. In addition to employers, employees also generally contribute to these funds. Support funds are permitted to make loans to the sponsoring company, but only against collateral and to a limited extent.

A fourth funding method is direct insurance through an insurance company. Since company contributions are taxable income to workers, retirement benefits are tax free if paid as a lump sum, and taxable only to a certain extent if paid as a pension. This approach is most popular with small companies, and is used by 52 percent of small companies that offer pension plans (Ahrend, Forster, and Walkiewicz 1990). They prefer this approach because it is easy to administer and the required payments are predictable. The risks arising from the benefit commitment are borne by the life insurance company.

## Funded Systems

In the United States, the United Kingdom, Canada, and some other countries, all plans receiving preferential tax treatment are required to be funded. The goal of U.S. policy is for all private pension plans eventually to be fully funded. Federal regulations control both the allowable overfunding and underfunding of pension plans.

Statistics on the funding ratios of underfunded plans, however, indicate the ineffectiveness of U.S. funding regulations.[5] In 1988 there were $1.9 billion in unfunded liabilities in plans with termination funding ratios of 10 percent or less.[6]

There are several ways that U.S. plans can become highly underfunded. First, firms can receive a funding waiver from the Internal Revenue Service if they argue that they are temporarily unable to make their required pension contributions. Second, firms with flat rate defined benefit plans create unfunded past service liability every time they raise benefits levels, since the law prohibits them from advance funding for future increases. By contrast, advance funding is allowed in Canada. Third, firms in serious financial trouble sometimes do not make the legally required contributions to their plans.

In the United Kingdom, while contracted-out plans must be fully funded, there are no minimum funding standards for other plans. In 1993, the Pension Law Reform Committee, chaired by Professor Roy Goode, recommended that minimum funding standards be established for all British private-sector pension plans. A governmental study found that 86 percent would meet the proposed standard, but that the

14 percent that did not meet the standard included a significant number of large plans (Cohen 1994a).

In the United Kingdom and Japan, employers can fund private pension plans with money saved by opting out of part of the social security system.[7] In the United States and the United Kingdom, the reverse is also possible as social security payments can be used to reduce pension payments. Through integration with social security, an employer can reduce pension liabilities for low-wage workers.

The amount that can be contributed to overfunded pension plans in the United States is restricted. If a plan's assets exceed 150 percent of its termination liabilities, the firm can no longer make tax-deductible contributions to the plan. Termination liabilities are calculated as if the plan were to terminate immediately. Current wages are used to determine liabilities rather than projected future wages, which more accurately reflect the actual wages of workers when they retire.

In Canada, employer contributions are not tax deductible if the plan has assets 10 percent greater than its liabilities. However, the liabilities are calculated assuming future increases in benefits, and for most plans are less restrictive than under the U.S. funding regulations.

### *Diversification*

In the United States, the United Kingdom, and Japan, most plans are required to reduce portfolio risk by diversifying their asset holdings. The diversification requirement in the United States does not apply to Employee Stock Ownership Plans (ESOPs). ESOPs are similar to plans funded by the book reserve method in that they are undiversified; both types basically invest in a single asset. In the case of ESOPs, the asset held by the plan is corporate equity of the sponsoring firm rather than corporate debt.[8]

The diversification requirement also does not apply to support funds in Germany. A support fund is a legal entity separate from the plan sponsor, but it may lend the entire amount of its assets back to the plan sponsor.

Adequate diversification is not available within the asset markets of some small countries. For example, in Ireland there are thirty stocks that are suitable for pension funds to invest in. Diversification can be achieved by international investments, however.

### *International Investments*

Foreign investments of pension plans increase portfolio diversification, which is especially important in smaller countries that do not have a wide range of industries. Even in large countries, however, it is impossible to diversify away macroeconomic risks. Those risks can be reduced by international investments, since macroeconomic risks are weakly correlated across some countries.

Many countries restrict the foreign asset holdings of their pension plans, which limits the extent those can diversify. They are concerned about pension plans exporting domestic capital through their foreign investments. However, if pension plans reduce their demand for domestic assets, the price of those assets will fall and other domestic investors, as well as foreign investors, will increase their demand for those assets.

In Canada, pensions funds are allowed to invest up to 20 percent of the book value of their assets in foreign securities. In Japan, pension plans can invest up to 30 percent of their assets in foreign denominated securities (including Japanese securities denominated in dollars). The Japanese regulation is in terms of foreign denomination in order to limit the foreign exchange risk that plans can have. There is no fixed percentage limit on the extent of pension investments in foreign securities by U.S. pension plans, but the requirements of diversification and prudence apply. The European Union is considering a directive that would prohibit countries establishing limits on foreign investments by pension funds within the European Union. Since the United Kingdom abolished foreign exchange controls in 1979, British pension funds have been increasing their foreign investments (Minns and Martin 1995).

Foreign investments of pension plans have grown considerably in absolute terms and as a percentage of pension portfolios around the world. In 1993, the world's 300 largest pension funds invested 7 percent of their $2 trillion assets in foreign securities. That percentage is expected to grow to 12 percent by the mid-1990s (Group of Ten 1993).

### *Portfolio Restrictions*

Japan and some other countries limit the percentage of pension portfolios that can be held in corporate equities. In Japan, the limit is that at most 50 percent of the pension portfolio can be invested in domestic and foreign equities. This limit reduces risk in plans that would otherwise have invested more in equities, but also reduces the rate of return on pension portfolios. Such restrictions raise the cost of financing pensions, because higher employer contributions are required to provide a given level of benefits.

The United States, the United Kingdom, Japan, and others limit for some plans the portfolio share held in securities of the sponsoring employer. This is based on concern over conflicts of interest between the employer and plan participants and in an attempt to assure adequate diversification. In the United States and in Spain, no more than 10 percent of the assets of a pension plan can be invested in the sponsoring employer (Ruano 1995). In the United Kingdom, the limit is 5 percent.

In most countries, employers can eliminate financial risk from their pension plans by purchasing insurance company products. Insurance companies frequently are insured by other insurance companies or governmental entities.[9]

## Paying for Pensions

This section analyzes trends in pension financing in nine countries:[10] Australia, Canada, France, Germany, Japan, Netherlands, Switzerland, the United Kingdom and the United States. Reflecting both its large economy and the general requirement that its pensions be fully funded, the United States had nearly 70 percent of world private pension assets in the late 1980s (table 6.3). The countries with the next largest pension assets were Japan and the United Kingdom, both with about 8 percent of world pension assets.

During the 1980s, U.S. private pension assets grew at an average real annual rate of 8 percent.[11] Canada and the Netherlands had similar average real growth rates of their pension assets. Japan's pension assets grew fastest among the nine countries considered at 16 percent. These

**Table 6.3 Total Assets of Private Pension Plans in Selected Countries, 1970-1989 (millions of U.S. dollars)**

| Year | Australia | Canada | France | Germany (FRG) | Japan | Netherlands | Switzerland | United Kingdom | United States |
|---|---|---|---|---|---|---|---|---|---|
| 1970 | -- | -- | 1,244 | -- | -- | 5,032[a] | 4,617 | 10,704 | 149,500 |
| 1975 | -- | -- | 3,782 | 14,681[b] | 6,739[c] | 18,070[a] | 14,478 | 21,422 | 289,600 |
| 1980 | -- | 42,066 | 8,866 | 31,468 | 28,563 | 44,738 | 34,288 | 78,000 | 621,800 |
| 1981 | -- | 44,286 | 7,948 | 29,646 | 36,168 | 40,225 | 31,935 | 79,635 | 659,200 |
| 1982 | -- | 51,761 | 7,443 | 30,248 | 39,639 | 42,842 | 33,530 | 90,695 | 781,600 |
| 1983 | -- | 63,371 | 7,252 | 31,528 | 50,278 | 45,114 | 35,728 | 102,071 | 923,200 |
| 1984 | -- | 65,816 | 7,411 | -- | 60,059 | 44,684 | 33,857 | 108,223 | 994,100 |
| 1985 | 15,362 | 74,173 | 8,238 | -- | 70,805 | 47,548 | -- | 130,980 | 1,186,000 |
| 1986 | 17,158 | 81,927 | 11,859 | -- | 117,412 | 70,038 | -- | 178,954 | 1,339,600 |
| 1987 | -- | 89,741 | 14,022 | 55,636 | 159,219 | 89,183 | 78,222 | 218,579 | 1,436,000 |
| 1988 | -- | 106,246 | 14,755 | -- | 207,434 | 98,529 | -- | 245,844 | 1,745,600 |
| 1989 | -- | 124,432 | 14,486 | -- | 218,681 | 99,710 | -- | 216,973 | 1,926,900 |

SOURCES: Dailey and Turner (1992) and U.S. Department of Labor (1993).

NOTES: Assets for the Netherlands and for the United Kingdom include only noninsured private pension plans. Assets for Germany include support funds, pensionskassen and direct insurance. Book reserves are not included for Germany and Japan.

a. Data are partially estimated by the author.

b Interpolated by the author from data for 1973 and 1978.

c. Data are partially estimated by the author for this year from data available for 1976.

-- Data not available.

growth rate comparisons use assets valued in national currencies and are adjusted for changes in the consumer price level in each country. They are thus unaffected by exchange rate fluctuations or inflation.

Average pension assets per participant indicate the level of pension funding. The figure is low when pension benefits are low, when a pension system is new, or when the pension system is underfunded or unfunded. It is lower in countries with high coverage rates because low-income workers with low benefits are covered in those countries. The United States had pension assets per participant of $28,800 in 1988 (table 6.4).[12] France, with its pay-as-you-go system, had assets of $700 per participant.

The Netherlands had the highest pension assets per participant at $33,100. Canada and the United Kingdom had assets per participant of $29,100 and $27,000. The asset figures for the United Kingdom and the Netherlands, however, are understated because they exclude insured private pension assets. The Government Actuary's Department in the United Kingdom estimates that insured pension assets at the end of 1987 equaled 66 billion pounds, a figure that increases total British pension assets by 50 percent.

Australia and Japan have roughly half the U.S. level of pension assets per participant. Australia's low level reflects its relatively new pension system. Japan's reflects its use of book reserve assets, not included in the figures reported here.

Changes in aggregate private pension assets can be divided into changes in assets per participant and changes in the number of participants. Rapid growth in pension assets in Japan in the 1980s resulted from a large increase in pension assets per participant, up more than 400 percent between 1980-89. While this large increase was due in part to the strong Japanese stock market during that period, the effect of the stock market increase and subsequent decline on the value of pension portfolios was lessened by the limits on pension plan holdings of equities. The large increase in pension assets per participant was also due in part to a move towards funded pensions. In comparison, U.S. pension assets per participant grew 87 percent during the same period.

The percentage of private pension assets held in corporate equities varies considerably across countries. The United States has 26 percent of its pension assets in corporate equities (table 6.5).[13] Switzerland has the lowest level, at 7 percent. The United Kingdom, by comparison,

**Table 6.4 Average Assets of Private Pension Plans per Participant in Selected Countries, 1970-1989 (thousands of U.S. dollars)**

| Year | Australia | Canada | France | Germany (FRG) | Japan | Netherlands | Switzerland | United Kingdom | United States |
|---|---|---|---|---|---|---|---|---|---|
| 1970 | -- | -- | -- | -- | -- | 2.7 | 3.8 | 1.3 | 5.1 |
| 1975 | -- | -- | 0.2 | -- | -- | 8.6 | 10.5 | 3.0 | 8.2 |
| 1980 | -- | -- | 0.4 | -- | 2.4 | 17.5 | 22.6 | 10.6 | 14.8 |
| 1981 | -- | -- | 0.4 | -- | 2.9 | 15.6 | 20.2 | -- | 15.2 |
| 1982 | -- | 15.6 | 0.4 | -- | 3.0 | 16.8 | 20.2 | -- | 17.5 |
| 1983 | -- | -- | 0.4 | -- | 3.7 | 17.7 | 20.4 | 13.4 | 19.7 |
| 1984 | -- | 20.3 | 0.4 | -- | 4.2 | 17.2 | 18.9 | -- | 20.6 |
| 1985 | 14.8 | -- | 0.4 | -- | 4.7 | 17.8 | -- | -- | 24.3 |
| 1986 | 14.5 | 24.0 | 0.6 | -- | 7.5 | 25.3 | -- | -- | 26.9 |
| 1987 | -- | -- | 0.7 | 6.0 | 9.8 | 31.7 | 30.0 | 27.0 | 24.9 |
| 1988 | -- | 29.1 | 0.7 | -- | 12.1 | 34.3 | -- | -- | 28.8 |
| 1989 | -- | -- | 0.7 | -- | 12.1 | 33.1 | -- | -- | 28.3 |

SOURCES: Dailey and Turner (1992) and U.S. Department of Labor (1993).
NOTE: Participant is the total of active participants (workers) and beneficiaries.
-- Data not available.

**Table 6.5 Asset Mix of Private Pension Plans (Noninsured Assets Only) in Selected Countries, 1986-1989 (percent)**

| Type of asset | Australia | Canada | France | Germany (FRG) | Japan | Netherlands | Switzerland | United Kingdom | United States |
|---|---|---|---|---|---|---|---|---|---|
| Stocks | | | | | | | | | |
| Domestic | 30 | 31 | -- | 45 | 26 | 8 | 7 | 56 | 26 |
| Foreign | 11[a] | 6 | -- | [b] | 16[a] | 10 | [b] | 14 | [b] |
| Bonds | | | | | | | | | |
| Domestic | 19 | 34 | 80 | 37 | 38 | 15 | 30 | 8 | 15 |
| Foreign | [a] | 0 | -- | [c] | [a] | 5 | [c] | 0 | [c] |
| Real estate | 6 | 3 | -- | 6 | 0 | 11 | 17 | 11 | -- |
| Mortgages | 0 | 3 | -- | 9 | 0 | 4 | 8 | 0 | -- |
| Loans/private placements | 2 | 0 | -- | 0 | 16[d] | 37 | 17 | 0 | -- |
| Pooled funds[e] | 18 | 10 | -- | 0 | 0 | 0 | 7 | 3 | 19 |
| Cash and short term assets | 12 | 11 | -- | 2 | 0 | 1 | 10 | 6 | 14 |
| Other assets | 2 | 2 | 20 | 1 | 4 | 8 | 4 | 2 | 26 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

| Type of asset | Australia | Canada | France | Germany (FRG) | Japan | Netherlands | Switzerland | United Kingdom | United States |
|---|---|---|---|---|---|---|---|---|---|
| Size of assets included in asset mix (in millions) | | | | | | | | | |
| Local currency | 16,322 | 91,847 | -- | 77,289 | -- | 199,136 | 167,683 | 132,332 | 1,339,600 |
| U.S. dollars | 10,950 | 77,573 | -- | 41,111 | -- | 93,901 | 112,448 | 216,973 | 1,339,600 |
| Date | 1986 | 1989 | -- | 1989 | 1988 | 1989 | 1987 | 1989 | 1986 |

SOURCE: Dailey and Turner (1992).

a. Foreign stocks and foreign bonds are combined.

b. Domestic and foreign stocks are combined.

c. Domestic and foreign bonds are combined.

d. Includes loans and contributions to government investment.

e. Pooled funds includes mutual funds, investment funds, insurance company managed funds and similar vehicles for pooled pension assets.

-- Data not available.

has 70 percent of its private pension assets invested in corporate equities.

Reasons for the variation across countries in the percentage of pension portfolios held in equities have not been studied. Nonetheless, some factors can be identified as probable causes. In the United States, larger pension plans and defined benefit plans have higher proportions of equities in their portfolios than do smaller plans and defined contribution plans. Thus, the mix of plan type across country may have some effect, with the United States having a higher percentage of pension assets in defined contribution plans than some other countries.

The high percentage of pension portfolios held in equities in the United Kingdom is likely due in part to that country having very few domestic corporate bonds in which to invest. It also may be affected by the relatively favorable tax treatment British pensions receive for the corporate equities they hold.

Australia, Japan, the Netherlands, and the United Kingdom have all invested 10 percent or more of their pension assets in foreign corporate equities. Pension plans also may diversify their portfolio risk internationally by investing in domestic companies that export or that have facilities in foreign markets.

All of the countries considered here had more assets in defined benefit plans over this period than in defined contribution plans (Dailey and Turner 1992). Despite rapid growth in U.S. defined contribution plans for more than a decade, 66 percent of pension assets were still in defined benefit plans. In Canada, which experienced slower growth in defined contribution plans, 87 percent of pension assets were in defined benefit plans. In Germany and Japan, nearly all private pension assets were in defined benefit plans.

## Conclusions

Countries have developed different methods for financing private pensions. The underlying financial risks can best be minimized by diversifying the underlying financial base of a plan. This can be done by purchasing insurance products, by holding a diversified portfolio, or by having multiemployer plans. In most countries, employers have a

variety of options for providing pensions. Expanding the range of pension options allows firms and workers more flexibility to meet diverse individual needs.

## NOTES

1. This section is taken largely from Dailey and Turner (1992).

2. All pension systems are subject to the economywide risks facing firms that sponsor pensions.

3. Doescher and Turner (1988) show that this raises the "price" of providing pension benefits.

4. All references to Germany are to West Germany before German reunification, or to that part of Germany following reunification.

5. A funding ratio is the ratio of a pension's assets to its liabilities. Assets are generally valued at market value, but there are different possible measures of liabilities. A commonly used measure is the liabilities that a plan would have if it were to terminate immediately.

6. Figures on unfunded liabilities refer to single employer plans with 100 or more participants.

7. Before the passage of the U.S. Social Security Act in 1935, the Clark amendment would have allowed employers with plans meeting certain criteria to opt out of social security.

8. ESOPs must invest primarily in the stock of the sponsoring employer.

9. In the United States and elsewhere, insurance companies are insured by government agencies or by consortiums of insurance companies.

10. This section is based largely on Dailey and Turner (1992).

11. The averages are geometric means.

12. Participants here include both workers and beneficiaries.

13. This figure is for plans with 100 or more participants. See Papke (1992).

# 7
# Labor Market Issues

To better understand the important role that private pensions play in labor markets, this chapter examines the experience of selected countries concerning pension coverage, portability of pension benefits, and retirement. These three topics are the issues of who is in a pension plan, what happens when they change jobs, and how does their pension plan affect their decision to retire.

## Pension Coverage

Most private pension participants in the world are found in nine countries: Australia, Canada, France, Germany, Japan, the Netherlands, Switzerland, the United Kingdom, and the United States. This section discusses pension coverage in these countries over the period 1970-89.[1] While other countries provide private pensions, and other small countries have high coverage rates, no other country with a voluntary system has a sizable number of participants.

Countries differ in their pension coverage rates in part because of the generosity of their social security systems. The finding that one country has higher private pension coverage than another may simply indicate differing roles for the public and private sectors. It may also indicate differences in the roles of employer-provided and individual plans in those countries. The adequacy of retirement income can only be determined by examining all of its sources.

Private pension coverage rates are basically calculated as the ratio of private pension-covered workers to the private-sector labor force, but they vary depending on the definitions of a pension plan, covered workers, and the relevant labor force. Private pension-covered workers are defined as current employees who are members of a private pension plan.[2] The private-sector labor force includes wage earners and salaried employees of private-sector employers, plus the unemployed. Part-time employees are included to the extent they appear in labor force statistics. Employees of government and all government-owned agencies

and corporations are excluded. Self-employed persons and unpaid family workers are also excluded.

Pension coverage rates differ depending on the categories of workers included. The pension coverage rates considered here for international comparisons include unemployed and part-time workers in the definition of the labor force because excluding them would cause distortions in coverage statistics over the business cycle. Unemployed and part-time workers typically have low pension coverage rates unless coverage is mandated for them. An increase in unemployment among low coverage-rate groups would raise the coverage rate.[3]

A pattern of increasing pension coverage rates since the early 1970s runs across most of the nine countries (table 7.1). In Canada, pension coverage increased only slightly, from 26 percent in 1970 to 29 percent in 1989. By comparison, France and Switzerland had increases in coverage of 20 percentage points or more. They historically have had high coverage rates, and both now have mandatory private pension plans. In France, virtually all workers are covered, including part-time and temporary workers. The Swiss coverage rate of 92 percent is less than 100 percent because employees under age 18, part-time employees with low wages, temporary employees, and the unemployed are not covered.

The Netherlands had the largest increase in coverage among countries without mandatory plans; its coverage rate rose 16 percentage points to 66 percent. The Netherlands is the only country with a voluntary private pension system that covers more than half of the labor force. Their pension system is not entirely voluntary, however. In some industries, firms are required by industrywide agreements to provide pension coverage.

The coverage rate for Japan is for participants in funded plans only; most other full-time career employees are in unfunded severance pay plans.[4] There has been steady growth in the number of participants in funded plans, but that growth includes a shift from unfunded to funded plans.

The United Kingdom is the only country with a major decline in coverage rates during the past 20 years. This decline occurred in the early 1970s, with only a minor decline since then.

Changes in marginal tax rates may have affected coverage in some countries. In the United States, marginal tax rates declined during the

**Table 7.1 Active Participants in Private Pension Plans as a Percentage of the Private Sector Labor Force in Selected Countries, 1970-1989**
**(percent)**

| Year | Australia | Canada | France | Germany (FRG) | Japan | Netherlands | Switzerland | United Kingdom | United States |
|---|---|---|---|---|---|---|---|---|---|
| 1970 | -- | 26 | 80 | -- | 20 | 50 | 46 | 38 | 42 |
| 1975 | -- | 28 | 100 | -- | 29 | 49 | 51 | 32 | 44 |
| 1980 | -- | 29 | 100 | -- | 31 | 59 | 56 | 31 | 45 |
| 1981 | -- | -- | 100 | -- | 32 | 58 | 57 | -- | 45 |
| 1982 | -- | 30 | 100 | -- | 33 | 56 | 61 | -- | 45 |
| 1983 | -- | -- | 100 | -- | 33 | 56 | 65 | 30 | 45 |
| 1984 | -- | 28 | 100 | 44 | 34 | 57 | 66 | -- | 46 |
| 1985 | 20 | -- | 100 | -- | 35 | 59 | -- | -- | 46 |
| 1986 | 22 | 27 | 100 | -- | 36 | 59 | -- | -- | 46 |
| 1987 | 23 | -- | 100 | 42 | 37 | 61 | 92 | 29 | 46 |
| 1988 | 28 | 28 | 100 | -- | 38 | 62 | -- | -- | 45 |
| 1989 | 30 | 29 | 100 | -- | 39 | 66 | -- | -- | 45 |

SOURCE: Dailey and Turner (1992).
NOTE: There are significant differences in the categories of participants included.
-- Data not available.

1980s and appear to have been a negative factor on coverage rates (Reagan and Turner 1995). Women have historically had lower coverage rates than men, and the increasing percentage of the workforce that is female may have had a depressing effect on pension coverage rates. Coverage rates are higher in large firms than in small firms and are higher in manufacturing than in services.

Even among countries with well-developed private pension systems, few provide coverage for a majority of the private sector workforce. Though the level of U.S. pension coverage is frequently a topic of public policy concern, that rate is higher than for the other English-speaking countries. The United Kingdom, Canada, and Australia had coverage rates of 29, 29 and 30 percent in 1989. Starting in 1992, however, all employers in Australia must contribute to a defined contribution plan for their employees.

## Pension Portability

Pension portability refers to arrangements for preserving the retirement benefits of workers who change jobs. An international perspective on pension portability is particularly useful; several countries have policies that greatly reduce pension portability losses, while other countries have done relatively little.

This section focuses on four countries: Canada, Japan, the Netherlands, and the United Kingdom.[5] Each country has a well-developed private pension system where employers voluntarily provide pension benefits. Portability provisions in other countries are summarized.

Pensions in Canada are regulated by provincial governments, with each province having separate standards for its pension plans. Ontario has led in pension reform, with other provinces frequently copying it. For this reason, and because it has 40 percent of the Canadian labor force, Ontario's pension policy is discussed here.

The United Kingdom and Canada both provide tax advantages for individual retirement accounts, which may substitute for an employer-sponsored pension. Those plans are called Personal Pension Plans in the United Kingdom and Registered Retirement Savings Plans in Canada. Workers may use these plans for pension portability, because they

can transfer preretirement distributions from employer-sponsored plans to their individual plan. Also, workers may choose individual plans as a portable alternative to participating in an employer-sponsored plan.

In Canada, the Netherlands and the United Kingdom, defined benefit plans are often contributory—meaning employees as well as employers contribute. This creates portability problems with regard to employee contributions that are not confronted in the United States, where contributory defined benefit plans are rare. In Japan and the Netherlands, almost all plans are defined benefit plans. Canada and the United Kingdom have some defined contribution plans, but they are not as prevalent as in the United States. In defined contribution plans, workers do not lose accrued vested benefits with job change because account balances are unaffected.

### *Pension Vesting*

Pension coverage rates mean little if covered workers do not have a vested right to their benefits. Vesting occurs when a worker has been employed long enough to have earned a legal right to a pension. The countries considered, except Japan, all have mandated minimum vesting (table 7.2).

**Table 7.2 Private Pension Vesting Requirements in Selected Countries, 1994**

| Country | Vesting requirements* |
|---|---|
| Australia | None |
| Canada | 2 years |
| France | Immediate |
| Germany | 10 years |
| Japan | None |
| Netherlands | 1 year |
| Switzerland | Immediate |
| United Kingdom | 2 years |
| United States | 5 years |

*Except as indicated in the text.

The length of time a worker must be employed to vest in the Netherlands, the United Kingdom, and Canada is shorter than in the United States. In the Netherlands, vesting must occur after participating one year in the plan, although participation may be restricted until age 25 or later. The United Kingdom requires vesting after two years' participation, but employees are usually eligible to participate at age 19 after one year of service. The Canadian province of Ontario requires vesting after two years' participation in the plan.

Japan is alone among the nine countries in having no legislated vesting rules, but Japanese pension plans still provide quick vesting.[6] By comparison, plans in the United States frequently required fifteen or more years of participation for vesting before ERISA mandated minimum vesting requirements (Turner 1993a).

Employers in Japan generally require longer service for vesting for employees who quit voluntarily than for employees whom they fire. Fewer than 15 percent of employees are in plans that require more than two years of participation if their separation is employer-initiated. By contrast, over 60 percent of employees are in plans that require more than two years if they quit. Even for long service, lump-sum payments are typically higher if the firm rather than the worker terminates the job.

The cause of separation (voluntary or involuntary) is generally considered in computing pension benefits in Japan. This creates an incentive for employers to induce workers to quit rather than to lay workers off, while employees have the incentive to induce employers to fire them rather than to quit. However, both employers and employees would suffer a loss of reputation by pursuing such strategies, and they are thus constrained from doing so.

Employers in the United States may provide quicker vesting for workers whom they layoff. This is done by providing extra years of service to those workers in computing vesting. This practice is not as prevalent in the United States as it is in Japan.

In Australia, workers must vest immediately for benefits earned under collective bargaining agreements. Employee contributions also must vest immediately. However, there is no mandated vesting requirement for employer-provided benefits accrued outside of collective bargaining agreements.

In Germany, vesting must occur after ten years of participation for workers aged 35 and older, and after twelve years for younger workers. Germany is the only country among the nine considered here that has longer vesting requirements than the United States. Vesting requirements in Germany are particularly unfavorable to workers wishing to change jobs. Alternatively, those rules can be thought of as rewarding to long-tenure workers.

In France, workers vest immediately. In Switzerland, vesting must be immediate for mandatory pension benefits. However, most employers provide additional pension benefits beyond those required and there is no vesting requirement for these additional benefits. In the United States, single-employer plans must provide full vesting after five years or choose a graded vesting schedule that provides full vesting after seven years. Multiemployer plans must provide full vesting after ten years. Most single-employer defined benefit plans provide full vesting after five years, while most single-employer defined contribution plans provide full vesting after two or three years.

There is a trend among countries without vesting requirements to add those requirements. For example, Ireland added vesting requirements in the early 1990s (Hughes 1994). However, no legal vesting provisions exist in Greece, Italy, Luxembourg, Portugal, New Zealand, or Belgium (for self-administered funds) (Jolliffe 1991).

### *Preretirement Indexation*

Workers who change jobs generally suffer a portability loss if their former job provided a defined benefit plan. This loss occurs because the earnings used to calculate workers' retirement benefits usually are frozen in nominal terms at the date of job change. Those earnings, and the benefits they produce, erode in real value over time due to inflation.

When deferred benefits are inflation-indexed, the employer pays for much of the portability loss that otherwise occurs with job change. In the Netherlands, most plans voluntarily index deferred vested benefits. If the pension plan increases benefits or gives cost-of-living adjustments to its retirees, it must grant the same increases to separated workers with deferred pensions. Plans are not required to grant increases to retirees in the Netherlands, but that practice is widespread (Keizer 1991).

In Ireland, for early leavers (workers changing jobs) benefits accruing since January 1, 1991 must be inflation-indexed up to an inflation rate of 4 percent. Perhaps for reasons of simplicity, many firms have voluntarily indexed all benefits of early leavers up to the 4 percent maximum (Hughes 1994).

British law requires pension plans to inflation index deferred vested benefits. Legislation requires indexation up to 5 percent annually, based on increases in retail prices. Because of the caps, the Irish and British systems only partially index benefits most years.[7]

Plans rarely index deferred vested benefits in Canada and the United States. Many pension analysts in these countries believe that indexing past vested benefits would be too costly for plan sponsors, although that is not true in the United Kingdom and the Netherlands.

Japanese Tax-Qualified Pension plans do not index deferred vested benefits. Job changers receive their accrued benefits as a lump-sum payment at job termination. Japan considers lifetime employment with one company as the most desirable career pattern.

### *Portability Clearinghouses*

Plans in the Netherlands transfer deferred vested benefits through five portability clearinghouses called transfer circuits. Most large pension plans choose to participate in a portability clearinghouse. The clearinghouses were established in 1987 by a private-sector initiative under pressure from the government. The Dutch government had indicated that if the private sector did not develop a solution to pension benefit losses for job changers, it would mandate a solution.

Establishing industrywide portability clearinghouses in the Netherlands was simplified by the fact that their pension plans have uniform benefit formulas. Most Dutch defined benefit plans are based on final average salary. It was also simplified by a law that requires all Dutch pension plans to use a 4 percent interest rate for calculating pension liabilities. The clearinghouses require all plans involved to have benefit formulas based on final average salary and years of service. Both insured and noninsured plans can participate. In 1988, 78 percent of employees in a pension plan (including government employees) were in a plan belonging to a portability clearinghouse (Keizer 1991). Workers have the option of leaving their vested rights with the former

employer's pension plan or using a clearinghouse to transfer them to the new employer's plan.

Small pension plans in the Netherlands provide portability differently from large plans. Most small pension plans are insured through the purchase of individual policies under a group arrangement. Job changers may purchase an annuity from an insurance company by transferring the paid-up policy to the former employee.

Key to reducing workers' portability losses through an employer-based system is determining who pays for the losses—the former employer or the new employer. In calculating the transfer payment from the former employer, assumptions about interest rates and wage growth rates strongly affect the calculated value of pension liabilities.

The Netherlands is the only European Union country where the new employer has a liability for the effect of future price increases on pensionable service with a previous employer. In all other countries, the employee loses the effect on previous pensionable service of pay increases from his new employer (Jolliffe 1991).

Japan also has a portability clearinghouse for contracted-out benefits under the Employees' Pension Fund. The clearinghouse is run by the Pension Fund Association, to which contracted-out pension plans must belong. When an employee changes jobs after less than ten years' work for the employer, the relatively small accumulated benefits are transferred to the Pension Fund Association. At the request of a plan, the present value of benefits for employees with ten to fifteen years of work will also be transferred. The amount transferred by the employer to the Pension Fund Association is the present value of benefits based on the nominal career average earnings to the point of the job change. Because the benefits transferred to the clearinghouse are small, some employees who are eligible for benefits at retirement do not claim them.

The actuarial assumptions used in calculating the transfer amount are controlled by the Pension Fund Association. An interest rate of 5.5 percent is used for discounting. Though higher than the rate used in the Netherlands, historically this has been a low discount rate for calculating pension liabilities. Because a low interest rate results in larger liabilities, its use has assured the Pension Fund Association that adequate assets are transferred to it.[8] Once the transfer amount is paid to the Pension Fund Association, the employer has no additional obligation.[9]

Japan also has a portability clearinghouse for small plans (Smaller Enterprise Retirement Allowance Mutual Aid plans). In 1987, however, less than 3 percent of eligible plans used it.

In the United Kingdom, some nationalized industries operate "transfer clubs," where an agreed-upon set of actuarial factors is used to calculate the accrued vested benefit from one plan to another. Few corporate plans have joined these arrangements (Atkins 1991).

A job-changing employee in the United Kingdom may transfer his or her benefit to an approved individual insurance policy. The benefit value must be calculated using a current long-term interest rate. It does not have to consider future pay increases, but does have to consider statutory preretirement indexing.

Portability of service is a feature of the Israeli pension system, because most workers are covered under a single pension plan sponsored by the major labor union. When workers change jobs, they do not lose benefits because they generally do not change pension plans.

### *Preservation of Benefits Versus Preretirement Distributions*

When workers change jobs and receive their pension benefits as a lump sum, often they do not save the funds until retirement. In the United States, this is a major cause of lost retirement income.

In the province of Ontario, Canada, statutorily vested pension benefits generally cannot be received in a preretirement lump-sum distribution. They are locked in, with the requirement that they can only be received as annuity payments during retirement.[10] Exceptions are made for persons with disabilities and for benefits below a low stipulated value. When benefits are only plan-vested, rather than statutorily vested (which may occur when the plan has more rapid vesting than the law requires), such amounts may be refunded if allowed by the plan rules. Employee contributions plus interest that have not resulted in entitlement to a deferred pension when employment ends are also refundable.

Transfers of assets in Canada can be made to a Registered Retirement Savings Plan (RRSP), similar to an Individual Retirement Account in the United States. Assets in a Registered Retirement Savings Plan are locked in with no possibility of withdrawal until retirement age. In theory, assets can be transferred to a new employer's plan,

but most employers will not accept such assets. In addition, if plan rules specify, the present value of the deferred pension can be used to purchase a life annuity from an insurance company. The annuity must not begin payment before the date the plan member would have been eligible for an early retirement pension. A divorced spouse who has received an order under the Family Law Act of 1986 must have the same choices relating to the spouse's benefit as the participant does with respect to his or her benefit.

The Netherlands only permits preretirement lump-sum distributions of the employee's contributions before vesting of employer contributions, transfer of funds to another plan, or emigration.

In the United Kingdom, only unvested contributions can be returned to the job-changing participant.[11] All other benefits are locked in. Thus, after two years of service in a plan (when vesting occurs), employees cannot receive preretirement distributions. Pension law does provide opportunities to the job changer who wishes to transfer funds, however. Preretirement distributions may be transferred to another plan, placed in a Personal Pension Plan, or used to buy back into the national social security system, if the distribution represents contracted-out contributions. They can also be used to purchase an insurance policy or annuity contract. Any member of a pension plan can ask for a transfer value or cash equivalent of his or her accrued pension rights in the plan, if he or she is more than one year from the plan's normal pension age. The trustees of the plan must arrange for the cash equivalent to be transferred to a statutorily approved alternative chosen by the member. This transfer usually occurs at a job change, although it may occur anytime.

The United Kingdom offers two options for portable individual retirement savings. First, private pension plan members are entitled to purchase Free-Standing Additional Voluntary Contributions from an insurance company, provided the combined benefits to which they are entitled do not exceed statutory limits for tax exemption. Free-Standing Additional Voluntary Contributions allow members of employer-sponsored plans to increase their retirement benefits through individual contributions. Such benefits, like benefits in individual account plans, are portable, since they are not tied to an employer. These benefits are available only to participants in an employer plan. The second portability option is that workers covered by a private pension may opt out of their private pension and set up a Personal Pension Plan.

Some British plans reject asset transfers or only accept transfers for employees below a certain age. This is particularly likely where the employer would be forced to subsidize previous service in a salary-related plan. Some plans guarantee indexation of pension rights in line with earnings. If the member has reduced pay in a new job, he or she may decide to retain rights in his previous plan. Someone who changes jobs frequently may wish to use a Personal Pension Plan so as to not change pension plans with each job change.

The United Kingdom offers job changers many pension options because of a political philosophy that highly values individual choice. The more options available, the more serious are the effects of adverse selection. The positive side is that workers can choose benefits that are relatively advantageous to their personal situations. The negative side is that it increases the costs of providing benefits when workers choose the pension arrangements most favorable to their life expectancy or their income. Another problem is that workers may make poorly informed choices or be poorly advised by service providers having a financial stake in the decisions they make.

### *Conclusions*

The Netherlands, the United Kingdom, and Canada have done more than the United States to eliminate portability losses. These countries require short vesting periods and restrict lump-sum distributions. The Netherlands and the United Kingdom index vested benefits for most early leavers.

Japan and the United States statutorily allow virtually unrestricted lump-sum distributions at job change, although defined benefit plans in the United States frequently do not provide the option. In the other countries, retirement benefits are preserved by requiring workers to retain benefits with the previous employer, transfer vested benefits to the new employer, or transfer benefits to a portability vehicle similar to an Individual Retirement Account, where the benefits are locked in until retirement.

## Pensions And Retirement

In most countries, three labor market institutions affect retirement income: social security, employer-provided pensions, and disability programs.[12] Often social security programs and private pensions are not age-neutral, but provide an incentive either to retire early or to delay retirement. The value of retirement wealth can be affected by retiring earlier or later than the "normal" retirement age, or by special provisions such as early retirement bonuses.

As background, this section first surveys the demographic and labor force participation trends that make retirement age an important issue. It then discusses aspects of pension plans that affect the age at which older workers retire.[13]

### *Demographic Trends and Labor Force Participation Rates*

Along with population aging, perhaps the most important change in the labor markets of industrialized nations over the last two decades has been a massive movement among older workers toward early retirement. Across OECD countries, labor force participation rates of males age 55 and older have declined for at least the last twenty years (table 7.3). The levels and downward trends differ among countries, but in all cases the majority of males are now out of the full-time labor force several years before the age of legal entitlement to full social security retirement pensions. For females, the movement is not as strong; it is offset to some extent by the trend for more females to have long-term commitments to the labor force.

While the labor force participation rate of males aged 55-59 declined in every OECD country between 1975 and 1989, there was a larger decline in percentage point terms for males aged 60-64. In most countries, few men remain in the labor force past age 65.[14] Less than 5 percent of men over age 65 are working in the European Community as a whole, with the highest rates in countries with a large agricultural sector (IDS 1993).

Austria provides a dramatic example of the declining labor force participation of older males. That country currently has one of the

lowest labor force participation rates of older males. This is especially true of the age group 60-64, whose rate has fallen below 15 percent, compared to more than 30 percent in most other countries. During the period 1955-1985, the labor force participation rate for this age group fell 58 percentage points (Zweimuller 1991).

**Table 7.3 Labor Force Participation Rates by Sex and Age in Selected Countries, Selected Years, 1970-1991 (percent)**

| Country | Year | Male | | | Female | | |
|---|---|---|---|---|---|---|---|
| | | 55-59 | 60-64 | 65+ | 55-59 | 60-64 | 65+ |
| Australia | 1971 | 88.4 | 75.6 | 22.2 | 28.3 | 16.0 | 4.2 |
| | 1986 | 76.4 | 44.8 | 9.0 | 30.9 | 13.6 | 3.0 |
| Austria | 1971 | 83.7 | 44.9 | 8.0 | 35.8 | 13.2 | 3.2 |
| | 1988 | 65.3 | 14.2 | 1.8 | 24.6 | 5.7 | 0.9 |
| Canada | 1971 | 84.9 | 74.1 | 23.6 | 38.7 | 29.1 | 8.3 |
| | 1986 | 81.3 | 59.9 | 14.6 | 44.7 | 27.5 | 4.7 |
| France | 1975 | 81.8 | 54.6 | 10.7 | 42.1 | 27.9 | 5.0 |
| | 1990 | 68.6 | 18.1 | 2.8 | 46.8 | 16.7 | 1.5 |
| Germany (West) | 1970 | 86.8 | 68.8 | 16.0 | 34.5 | 17.7 | 5.7 |
| | 1988 | 79.8 | 34.5 | 4.9 | 41.1 | 11.1 | 1.8 |
| Japan | 1970 | 94.2 | 85.8 | 54.5 | 53.8 | 43.3 | 19.7 |
| | 1989 | 91.6 | 71.4 | 35.8 | 52.2 | 39.3 | 15.7 |
| Poland | 1970 | 90.9 | 83.0 | 56.4 | 68.1 | 51.1 | 33.0 |
| | 1978 | 81.5 | 62.4 | 34.9 | 57.9 | 37.4 | 19.4 |
| Sweden | 1970 | 88.4 | 75.7 | 15.2 | 41.1 | 25.7 | 3.2 |
| | 1985 | 85.3 | 63.2 | 11.3 | 72.5 | 45.6 | 3.1 |
| United Kingdom | 1971 | 95.1 | 86.4 | 19.4 | 50.7 | 27.8 | 6.4 |
| | 1986 | 80.3 | 53.4 | 7.5 | 51.5 | 18.8 | 2.7 |
| United States | 1970 | 86.8 | 73.0 | 24.8 | 47.4 | 36.1 | 10.0 |
| | 1991 | 79.0 | 54.8 | 15.8 | 55.7 | 35.1 | 8.6 |

SOURCE: U.S Department of Commerce (1993).

In contrast, Japan has a high labor force participation rate for older males. There, 36 percent of men aged 65 and older were in the labor force in 1989. Many male workers retire from their career jobs with a lump-sum pension and move to another, usually lower-paying job for

several years (Schulz, Borowski, and Crown 1991). This pattern of employment is called "bridge employment" in the United States, referring to the subsequent job as a bridge between the career job and retirement. Bridge employment is less prevalent in the United States, but is still opted for by a sizable minority of workers.

In the United Kingdom, the proportion of men aged 60 to 64 in the labor force dropped from 86 percent in 1971 to only 53 percent in 1990. Smaller cross-national differences occur for men age 55-59, with labor force participation rates of 65 percent in Austria and 92 percent in Japan.

Labor force participation rates among older women are much lower than for older males, but the downward trend is less apparent. The propensity for successive cohorts of women to have higher labor force participation rates at younger ages has counteracted a trend for earlier retirement among working women. In fact, the labor force participation rate of women aged 55-59 has increased in a number of countries over the past twenty years.

The rise in unemployment among industrialized nations is well known, and the increase in long-term unemployment for workers aged 55 and over has been substantial. A general deterioration of labor markets, especially in Europe, may be a factor in increased early retirement, as some portion may be involuntary labor force withdrawal, which for older workers is labeled retirement.

The trend toward earlier retirement has been supported by social security and disability policies. In effect, social security and disability programs have become forms of long-term unemployment compensation for some older unemployed workers. A growing number are claiming disability benefits, apparently in response to unemployment. This has occurred particularly in countries, such as the Netherlands, where entitlement to a disability benefit is based on whether the applicant can find suitable work in the prevailing labor market, as well as on his or her physical capability.

### *Retirement Decisions*

Social security and private pensions can be made to affect the age at which workers retire through four mechanisms. First, for pensions, if the wage-pension tradeoff is less than dollar for dollar, a higher level of

benefits raises the real income of the worker, which induces a demand for greater leisure. For social security, workers may receive wealth transfers by receiving generous benefits. Second, the age and conditions of eligibility for benefits can be liberalized. Third, benefits need not be actuarially reduced if a worker retires early, nor raised for late retirees. Finally, if there is an earnings test for receipt of benefits, current benefits may be reduced by the earnings of retirement-eligible persons who continue working.

Age of eligibility for both social security and pension retirement benefits are key parameters that affect the age at which pension-covered workers retire. Because social security benefits are considerably larger than pension benefits for most workers, social security's age of eligibility may have a major effect on the age at which some workers retire. Firms that wish to encourage workers to retire at ages different from the age most favorable under social security must establish incentives in their pensions sufficient to offset the retirement incentives imbedded in social security.

Defined benefit private pension plans typically contain incentives for workers to postpone retirement at least up to the plan's age of eligibility for retirement benefits. Defined contribution plans are less likely to have a minimum age of eligibility, since they pay benefits solely based on the amount in the worker's account. However, some countries set minimum ages at which workers can withdraw money from their defined contribution plans in order to discourage early retirement.

In addition, the generosity of the benefits affects workers' decisions to retire. For example, when firms subsidize benefits at early retirement relative to those received later, and when firms provide limited time special incentives to workers for retirement at the earliest age of eligibility, workers are more likely to be induced to retire.

Rather than describe all features of institutions that affect workers' retirement age in different countries, selected features from various countries are highlighted to indicate the range of practices.

### *Eligibility for Social Security Benefits*

The earliest age at which an individual can receive social security retirement benefits within the European Union ranges from age 60 (men and women in France, Belgium, and Germany; women in

Greece, Italy, and the United Kingdom) to 67 (men and women in Denmark) (Keesing 1992).

Five European Union countries—Germany, Greece, Italy, Portugal, and the United Kingdom—have lower retirement ages for women than men. There is a gradual trend for countries to equalize retirement ages for men and women. Japan has a lower age of eligibility for social security for women than men, but that difference is being phased out, with the age for women's eligibility gradually rising from 55 to 60 by the year 2001. It was age 57 in 1994 (table 7.4).

**Table 7.4 The Earliest Age for Receipt of Social Security Retirement Benefits in Selected Countries, 1994**

| Country | Male | Female |
|---|---|---|
| United States | 62 | 62 |
| Canada | 60 | 60 |
| France | 60 | 60 |
| Germany | 60 | 60 |
| Italy[a] | 61 | 56 |
| Japan | 60 | 57[b] |
| United Kingdom | 65 | 60 |

SOURCE: Aetna/Generali (1993).

a. A December 1992 law increases pensionable age gradually until in the year 2002 it becomes 65 for men and 60 for women.

b. It will gradually be raised to age 60 by the year 2001.

A European Court of Justice decision requires the European countries to have the same retirement ages (and equal benefits) in private pension plans for both men and women. This decision brings pressure on social security systems to adopt the same retirement ages for both sexes as well. The United Kingdom announced that it would gradually raise the social security retirement age for women from 60 to 65, which is the age for men.

In nearly all industrialized countries, the minimum age for retirement in the mid-1990s was lower than when the social security systems were started (see Pilcher, Ramirez, and Swihart 1968). The minimum retirement age has generally been lowered by allowing early retirement with reduced benefits. This permits a more flexible approach to retirement. It raises the cost of a pension system, however.

## *Eligibility for Private Pension Benefits*

### *Age Requirements*

In the province of Ontario, Canada, employer-provided plans cannot set the normal retirement age later than the participant's 66th birthday. Participants may choose to retire at any time within 10 years of the normal retirement age specified in the plan documents. Participants may postpone retirement and continue accruing benefits, but if they choose to receive benefits while continuing to work for the same employer, no future benefits can be accrued (Pension Commission of Ontario 1993).

In Germany, a pension-covered worker receiving an early retirement benefit from social security is legally entitled to early retirement benefits from the private pension as well (Jacobs, Kohli, and Rein 1991).

For personal pension plans that meet qualifying restrictions, the pension can be taken at any age between 50 and 75 in the United Kingdom.[15] For certain workers whose occupations require physical skill, for example cricketers and trapeze artists, the pension may be taken as early as age 40.

### *Tenure Requirements*

In Canada, usually a worker in a defined benefit plan whose employment ends before the minimum age for subsidized early retirement cannot receive those benefits. That practice gives workers an incentive to stay with the firm until the minimum retirement age. The trend in Canada, however, is toward pension plan provisions that favor early retirement (Pesando and Gunderson 1987).

Some firms in Canada encourage early retirement by waiving the early retirement benefit reduction, provided certain age and service criteria are met. In such a case, the retiring employee would receive a pension calculated with the formula used at normal retirement age. Some plans provide unreduced early retirement after thirty years of service, or when an individual reaches age 62. Another possibility is for plans to subsidize the early retirement benefits of long-tenure workers, so that rather than a reduction of 7 percent a year for years before the normal retirement age, which would be roughly fair actuarially, benefits may be reduced only 2 percent a year.

Such provisions selectively encourage early retirement for long-service workers. The existence of such practices suggests that some firms have a target tenure level, as well as age, at which they feel it is optimal for workers to retire.

The theory that firms care about the tenure of their older workers receives support in the United Kingdom, where most pension plans offer early retirement, provided the worker has been employed a minimum number of years. This minimum may differ from that which applies to eligibility for a pension at normal retirement age. Early retirement may require the employer's consent (Haberman 1991).

In Germany, a range of collective agreements between unions and employers makes early retirement possible. For example, older workers in most breweries are permitted to accumulate overtime that can be used as a credit toward years of work required for early retirement (Jacobs, Kohli, and Rein 1991).

In 1988, 47 percent of all Dutch firms with pension plans offered a preretirement option to their employees. These options generally resulted from bargaining between a union and a firm or industry. A large segment of the working population—especially in small firms—had no early retirement option through a pension plan. In 80 percent of the plans, workers needed to have worked at least ten years in the firm or industry and had to be at least 60 years old before they were entitled to benefits. Part-time workers were frequently excluded from eligibility (de Vroom and Blomsma 1991).

*Special Inducements*

An inducement to early retirement used in the United States, Canada, Japan, and the United Kingdom is sometimes called the "open window policy." In this situation, participants are given a limited time in which to take advantage of special early retirement rules. For example, for a three-month period participants may be allowed to retire with no reduction in their pension if they are more than 55 years old and have at least twenty years of service. After three months, the window is closed and the plan reverts to its normal rules (Jobin et al. 1991). Inducements to early retirement are often used by firms as a way to reduce their workforce without resorting to layoffs. In periods of higher unemployment, many Japanese companies offer early retirement packages to their older employees.

While many employers in the United Kingdom use early retirement to manage workforce reduction, there is a trend away from open-access early retirement inducements toward closed-access programs. Closed-access programs are aimed at a particular target population, usually defined by the type of job or specific individuals. Such arrangements to encourage retirement of older workers are used to facilitate organizational and technological change (Laczko and Phillipson 1991). In addition, some pension plans provide for early benefits if the worker is laid off (Haberman 1991). These are permanent features of the pension plans, and thus differ from "open window" policies, which are temporary.

It is sometimes argued that the flexibility of defined benefit plans as a personnel tool for selectively encouraging early retirement is an advantage over defined contribution plans. The generosity of defined contribution plans could also be manipulated in these ways, however, simply by employers making special contributions to those plans. Legal restrictions on the maximum amount that can be contributed to defined contribution plans limit their flexibility for this purpose, but firms with defined contribution plans could also achieve the same goal by offering severance pay.

### *Adjustment of Benefits for Postponed Retirement*

When workers postpone retirement, the annual pension benefit they receive at retirement generally increases. There are four ways in which postponed retirement benefits can be adjusted: (1) the continued accrual of pension benefits, with no actuarial increase of previously accrued benefits; (2) no further accrual, with an actuarial increase of previously accrued benefits; (3) continued accrual, with an actuarial increase of previously accrued benefits; and (4) no further accrual and no actuarial increase.

An actuarially fair increase provides the worker the same lifetime expected present value of benefits for a given number of years of work, regardless of the age at which the worker retires. An actuarially fair benefit increase takes into account three factors when a worker postpones retirement: (1) benefits are received for a shorter period of time, (2) benefits are received at a later date, and (3) the worker has greater risk of dying before receiving benefits.

For demographic groups with a high life expectancy at retirement age, the actuarial adjustment is lower than for groups with low life expectancy because the percentage reduction in the expected period of benefit receipt with a one-year postponement of retirement is relatively low. The actuarial adjustment increases with age because at progressively older ages an additional year of postponed benefits is a progressively larger reduction in the expected period of benefit receipt.

The actuarially fair increase in benefits with postponed retirement is smaller when benefits are indexed for inflation after retirement than when they are not. When benefits are unindexed, the worker compares the benefit he or she could receive at a later age with the amount he or she would have if the benefit had been taken at an earlier age and invested at the market interest rate. The higher the market interest rate, the greater must be the increase in benefits with postponed retirement. Thus, the actuarially fair increase of social security benefits with postponed retirement, which is 6.7 percent between ages 62 and 65 in the United States, is too low for private pension benefits that are not fully indexed.

Whether actuarially fair or not, the adjustment of benefits with postponed retirement presumably will affect the age at which workers retire. Workers with higher than average mortality risk would maximize the lifetime income from their retirement benefits by retiring early.

If there are neither actuarial adjustment nor the continued accrual of benefits, the pension plan delivers a strong incentive for retirement. On the other hand, the greater the increase in benefits with postponed retirement, the greater the incentive will be for workers to postpone retirement.

Provision (1)—the continued accrual of benefits, with no actuarial increase of previously accrued benefits—is the most prevalent in Canada. This degree of accrual creates an incentive for retirement at the early retirement age because of the lack of actuarial increase in benefits to take into account that postponed benefits are received for a shorter period. Provision (3), which would fully compensate workers for the benefits lost due to postponed retirement, is the least common. Provisions (2) and (4) are about equally common (Pesando and Gunderson 1987).

In Germany, it is common for firms to increase benefits by 0.5 percent for each month, or 6 percent per year, of postponed retirement up to the normal retirement age (Ahrend and Walkiewicz 1991). This compares to the 6.7 percent increase per year for postponed social security benefits in the United States for workers ages 62 to 64.

In the United Kingdom, worker contributions to contributory defined benefit plans generally cease at the normal retirement age, and subsequent service does not enter into the calculation of the pension benefit. However, the pension eventually awarded is increased to allow both for the amount of pension foregone during the further service and for the interest earned on the reserves backing the pension during the deferment period (Haberman 1991).

Both employer-provided and personal pensions in the United Kingdom provide for flexibility in retirement. Nearly all (95 percent) of employer-provided pensions allow early retirement (Laczko and Phillipson 1991). However, in both employer-provided and personal pensions, early retirement results in benefit reduction. The extent of the reduction varies according to age, length of service, and, in the case of personal pension plans, the amount contributed. Many defined benefit plans provide enhanced benefits in the case of early retirement due to ill-health.

Virtually all private-sector plans in the United Kingdom base early retirement benefits on accrued service and then apply a reduction factor based on age at retirement. Some plans feature an immediate pension on early retirement based on accrued service and without reduction, but such pensions tend to be available under restricted conditions. For example, the eligibility may be limited to members over age 60 and with a long minimum period of service.

Many plans in the United Kingdom offer a pension at normal retirement based on a formula that incorporates a deduction to allow for the pension benefits to be provided by social security. Many of these plans do not apply this deduction when calculating the pension available on early retirement, but only reduce it when social security commences. In a few plans, the person retiring early can choose to exchange a pension at a certain level for one at a higher rate until social security begins, and then at a lower rate thereafter.

### *Mandatory Retirement*

In some countries, firms that offer pension plans frequently also have mandatory retirement ages. While mandatory retirement because of age is not allowed in the United States and has been banned by Canada in some jurisdictions, it is allowed in Japan, the United Kingdom, and elsewhere. In the United Kingdom, a firm can have different mandatory retirement ages for different classes of workers. For example, one private school has mandatory retirement at age 60 for teachers and at age 65 for maintenance staff.

In Japan, many workers expect lifetime employment with their companies.[16] An important aspect of the lifetime employment system is mandatory retirement. The percentage of employers with a compulsory retirement age of 60 increased from 68 percent in 1988 to 82 percent in 1992 (table 7.5). Employers with a compulsory retirement age of 61 or over only increased from 1.3 percent in 1988 to 2.4 percent in 1992. The government has tried to persuade employers to postpone the compulsory retirement age to 65, but employers have strongly resisted because of the high cost of employing older workers who have received seniority-based wage increases. Japan does not have an Age Discrimination Act that would prevent employers from forcing older workers to retire.

**Table 7.5 Mandatory Retirement Ages in Japan, 1988 and 1992**

| Year | Percent of employers with compulsory retirement at age | | | | | | |
|---|---|---|---|---|---|---|---|
| | 55 | 56 | 57 | 58 | 59 | 60 | 61+ |
| 1988 | 12 | 3.2 | 5.4 | 6.2 | 3.7 | 67.5 | 1.3 |
| 1992 | 9.5 | -- | 3.6 | 2.4 | -- | 82.1 | 2.4 |

SOURCE: Japan Employers' Association.
NOTE: A dash indicates that there were no firms in the survey indicating that response.

In countries where mandatory retirement is allowed, pensions tend to be structured differently with respect to retirement age from countries where it is illegal. In the latter countries, firms that would otherwise have mandatory retirement may adjust the benefit formula so that it more strongly favors early retirement.

At the same time that Japanese firms have increased the age of mandatory retirement, they have increasingly offered early retirement options (Seike and Shimada 1986). By doing so, they may be able, within a voluntary framework, to approximate the retirement age pattern that they formerly achieved through earlier mandatory retirement.

## Conclusions

Countries have developed a wide variety of restrictions and incentives affecting retirement and the employment of older workers. If governments decide they wish either to encourage early retirement or discourage it, they have examples of such policies on which to draw. Around the developed world, labor force participation rates of older men have declined, while participation of older women has been more stable. A country's policies concerning retirement age naturally evolve with changing economic and demographic circumstances. With the aging of populations and the trend toward earlier retirement, several countries have changed their social security programs to encourage employment of older workers. Whether employers will do likewise with their private pension plans, and whether the employment of older workers will increase, remain to be seen.

Private pension plans can affect labor market decisions of workers. The loss of future pension benefits at job change may deter some workers from making otherwise desirable job changes. Many countries have legislated requirements for pension plans to reduce the benefit losses at job change. These include maximum periods for vesting and required indexation of benefits between date of job change and retirement. The ultimate goal of such programs is to assure the adequacy of retirement benefits, which is discussed in the next chapter.

## NOTES

1. The section is drawn largely from Dailey and Turner (1992).

2. For the United States only, the data on covered workers also includes all nonvested plan participants who have left employment in the past year (Nonvested workers have not worked sufficiently long to have a legal right to a pension benefit. Starting with the data for 1988, this requirement is changed to five years.) Plans are required to report these workers on the annual

report to the Internal Revenue Service (Form 5500). Although reliable data on the size of this group are unavailable, it appears to have little effect on U.S. coverage rates.

3. The pension coverage rate statistics considered here were developed by Lorna Dailey of Bedford Research Consultants. For a full description of the methodology and data sources used, see Dailey (1992).

4. The exclusion of those workers from these coverage statistics has been criticized as being inconsistent with the treatment of Germany, where workers in book reserve plans are included in the coverage rate statistics.

5. The section is based largely on Turner (1993), Turner and Dailey (1991), and Andrews (1991). It focuses on portability policies in countries with private pension systems similar to that of the United States. For a discussion of portability in the United States, see Turner (1993) This section does not discuss the issues of pension portability across national borders, which European pension policy analysts are currently discussing because of the creation of a single European labor market (see Jolliffe 1990).

6. For a discussion of portability in Japan, see Murakami (1991).

7. In the United Kingdom, the statutory requirement to revalue vested benefit rights originally existed only for benefit rights that accrued after January 1, 1985. Under the Social Security Act 1990, the requirement now applies to all accrued benefits

8. For a further discussion, see Watanabe, Turner, and Rajnes (1994a).

9. The social security Employees' Pension Insurance program continues to be responsible for indexing benefits by providing a benefit based on the difference between indexed and unindexed earnings.

10. For a discussion of portability in Canada, see Conklin (1991).

11. The following discussion of portability in the United Kingdom is drawn largely from Birmingham (1991).

12. Unemployment compensation programs are another institution that may affect the transition between work and retirement, but they are not considered here.

13. This section is based largely on Dorsey and Turner (1995).

14. Japan is a notable exception.

15. This applies only to personal pensions bought with contributions additional to the contracted-out rebate.

16. The lifetime employment system has been primarily for Japanese male workers.

# 8
# The Adequacy of Retirement Income

The adequacy of pension benefits is the fundamental measure of success of a retirement income system. This chapter considers evidence on the adequacy of retirement income in several countries.

## Japan

In Japan, the social security National Pension provides three types of benefits: (1) an old-age pension, (2) a disability pension, and (3) a survivor's pension. The earliest age at which workers can receive full benefits is 65. The National Pension in 1992 provided average benefits of 35,000 yen a month (about $330, or about $4,000 a year) to beneficiaries age 65 and older. The Employees' Pension Insurance paid average monthly benefits of 151,000 yen in 1992 (about $1,400 a month or $17,000 a year). Thus, in Japan the flat benefit pays about 20 percent of the total social security benefit on average, with the earnings-related benefit providing the remaining 80 percent.

The two benefits combined are higher than the benefits received from social security in most other countries. For example, the average annual social security benefits in the United States in 1993 were $7,300, which is about a third that received in Japan. The maximum social security benefits a U.S. worker retiring at age 65 could receive were less than the average social security benefits received by Japanese workers. These comparisons, however, are affected by the cost-of-living in different countries, so comparisons made solely by adjusting for the exchange rate give only a rough comparison of the standard of living that social security benefits can support.

In Japan, the average amount provided annually by an Employee's Pension Fund plan in 1990 was about $4,500. The average amount provided by a Tax-Qualified plan in 1992 was about $8,100 (Watanabe 1995). This compares with average pensions in the United States in

1989 of $6,400 (Dailey and Turner 1992). However, in the United States, defined benefit pension plans are required to provide survivor's benefits, unless the spouse signs a written statement waiving them, while survivor's benefits are rarely provided in Japan.

## Germany

In Germany, employer-provided pensions make a relatively small contribution to retirement income. The benefits provided by the German social security system are nearly 70 percent of German retirement income. By comparison, for households aged 65 and older in the United States, social security provides about 40 percent of income (Grad 1994). The benefits provided by the German social security system are more than ten times as large as those provided by the private pension system (table 8.1). When the public employer pensions are included, however, the total of employer-provided pension benefits is about a third as large as the benefits provided by social security.

**Table 8.1 Percentage of Retirement Income Received From Different Sources in Germany, 1992**

| Source | Percentage of retirement income |
|---|---|
| Social security | 68.8 |
| Public employer pensions | 14.4 |
| Private employer pensions | 5.3 |
| Other | 11.7 |
| Total | 100.0 |

SOURCE: Schmahl (1994).

## United Kingdom

In the United Kingdom, the economic well-being of retirees has improved considerably over the past thirty years. Pensioners represented 40 percent of the poorest tenth of the population in 1961, but only around 20 percent in 1991. However, when comparing over a

more recent period, an increasing number are living below the poverty threshold, which is half the national average income.[1] Between 1984 and 1991, the number of pensioners in poverty in the United Kingdom rose from 1 million to 3.4 million. This happened in part because the government indexed the flat rate pensions to prices rather than earnings starting in 1980. In 1994, the flat rate pension paid 4,789 pounds per year (about $7,200) to married couples. Strong earnings growth after 1984 thus put more elderly into poverty when measured relative to earnings (Jenkins 1994).

Employer-provided pensions are much more important in the United Kingdom than in Germany; they are similar to those provided by social security. In 1989, the average weekly basic pension from social security was 42 pounds. In 1987, the average weekly pension was 48 pounds from employer-provided plans—57 pounds for plans for public-sector employees and 38 pounds for plans for private-sector employees (apRoberts and Reynaud 1992). However, because only roughly half the labor force is covered by an employer-provided pension, many retirees do not receive that type of benefit.

Table 8.2 presents a slightly different view of retirement income in the United Kingdom, averaging benefit amounts over all household units that receive a retirement pension, and including the earnings-related pension in the measure of social security benefits. The percentage of retirement income from social security has declined over time, but in 1988 still accounted for slightly over half of the income of family units receiving a pension. The percentage of retirement income from occupational pensions has increased considerably, and in 1988 was nearly half as large as that provided by social security.

## United States

Wide differences persist in the economic well-being of older Americans. Such differences occur across age, race, gender, and marital status. While the economic well-being of the aged has improved considerably, the poverty rate for the aged is greater than for other adult age groups.

**Table 8.2 The Percentage of Retirement Income Received From Different Sources in the United Kingdom, 1980, 1984, 1988 (percent and pounds per week in 1988 pounds)**

| Source | 1980 | 1984 | 1988 |
|---|---|---|---|
| Social security | 61% | 61% | 51% |
| | 53.8 | 61.2 | 60.7 |
| Employer-provided pensions | 16% | 18% | 23% |
| | 13.8 | 18.2 | 27.7 |
| Savings income | 11% | 13% | 17% |
| | 10.0 | 12.7 | 20.0 |
| Earnings | 11% | 8% | 8% |
| | 9.9 | 8.2 | 9.7 |
| Total gross income | 100% | 100% | 100% |
| | 87.5 | 100.4 | 118.1 |
| Total net income | 93% | 92% | 90% |
| | 81.3 | 92.3 | 106.3 |

SAMPLE: Family units receiving retirement income.

SOURCE: Family Expenditure Survey, compiled in Daykin (1994).

This section evaluates the adequacy of cash retirement income for U.S. retirees.[2] Special attention is paid to characteristics of retirees whose retirement income may be inadequate.

Even as older Americans have seen their income from earnings decline, their economic status has been improving, both absolutely and relative to the rest of the population. This improvement is largely due to social security, which was enacted in 1935 as the foundation of retirement income in the United States. Though social security is not universal, more than 90 percent of retirees aged 65 and older receive social security benefits, and it is now the most important source of retirement income for most retirees.[3]

As in other developed countries, the system of providing retirement income in the United States is often described as a three-legged stool, meaning that there are three primary sources of retirement income. However, except for white married couples, less than half of all race and marital status groups receive retirement income from all three sources (Grad 1992). Roughly 60 percent of nonmarried males and 70

percent of nonmarried females receive no income from an employer-provided pension.

The probability of pension coverage differs greatly between employment in the public and private sectors. Employer pensions are almost universally provided to federal, state, and local government employees, who are 17 percent of the labor force. Pension coverage is much less common among private-sector workers.

The pattern of pension coverage repeats in the receipt of benefits. In 1992, 92 percent of "aged households" received social security retirement benefits, 32 percent received private pension benefits and 15 percent received a pension based on government employment. "Aged households" refers to a married couple living together where at least one is age 65 or older or to a nonmarried person age 65 or older. The statistics on employer-provided pensions imply that no more than 47 percent of aged households received income from an employer-provided pension. In addition, 67 percent of aged households received income from savings, and 20 percent received earnings from a job (table 8.3).

**Table 8.3 Percentage of Aged Households Receiving Income From Different Sources in the United States, 1962-1992**

| Income source | Percentage of households receiving | | | | |
|---|---|---|---|---|---|
| | 1962 | 1971 | 1980 | 1990 | 1992 |
| Social security | 69 | 87 | 90 | 92 | 92 |
| Private pensions | 9 | 17 | 22 | 30 | 32 |
| Government employee pension | 5 | 6 | 12 | 15 | 15 |
| Savings | 54 | 49 | 66 | 68 | 67 |
| Work | 36 | 31 | 23 | 22 | 20 |

SOURCES: Grad (1992, 1994), Chen (1992).
NOTE: "Aged household" refers to a household where at least one member is age 65 or older.

Another way to look at sources of retirement income is to rank them according to the total dollars they provide. In 1992, the three primary sources of retirement income—social security, asset income, and employer-provided pensions—provided 40, 21, and 19 percent, respectively, of the income of aged households. Earnings from a current job

also accounted for 17 percent of income (Grad 1994). Thus, while earnings from employment are excluded from the image of the retirement income stool, they are nonetheless an important source of income for older Americans.

Only in the highest income quintile is social security not the dominant source of income. It accounts for more than three-fourths of aggregate income for retirees in the lowest two income quintiles. However, the percentage of retirement income provided by social security declined from 39 percent in 1980 to 36 percent in 1990, but jumped to 40 percent in 1992.

The Internal Revenue Code prohibits benefits from a defined benefit plan while a participant is working on the job providing the pension. However, employment earnings are received by 50 percent of married couples age 65 to 69 from jobs taken following retirement from a career job or from a working spouse.[4]

Less than half of older Americans receive retirement income from an employer-provided pension.[5] However, that percentage has grown steadily since the mid-1970s. The percentage of aged households receiving income from an employer-provided pension increases with age for Americans age 55 to 64 as active workers retire, while the percentage of aged households receiving income from an employer-provided pension declines with age for Americans age 65 and older.

A major distinguishing characteristic between the poor and affluent aged is that the poor generally do not receive employer-provided pension benefits, while the affluent do. Pensions are an important supplement to social security for both middle- and upper-income elderly. They accounted for 16 percent of aggregate income for those in the middle-income quintile and 38 percent of income of those in highest-income quintile. In the top-income quintile, 30 percent received benefits from a pension based on government employment, and 45 percent received a pension based on private-sector employment. This compares to 2 percent for a government-sector pension and 5 percent for a private pension in the bottom-income quintile. The top-income quintile of the older population received 57 percent of all employer pension payouts, while the bottom two income quintiles of the older population received only 4 percent.

Even though private pensions are an increasingly important source of retirement income, they are not about to supplant social security as

the major source. In 1992, private pensions were 50 percent or more of retirement income for only 3 percent of aged households. Pension income among the aged that receive it is generally a small proportion of their income. In comparison, social security accounted for 50 percent or more of retirement income for 59 percent of aged households and accounted for 90 percent or more of retirement income for 23 percent of aged households. For households aged 75 and older, social security accounted for 90 percent or more of income for 24 percent.

Traditionally, retirees in the United States have received pension benefits as an annuity, rather than as a lump-sum payment. The receipt of retirement benefits as a lump sum, however, is increasingly common. This trend is at least partly due to the increasing popularity of defined contribution plans. For pension recipients age 60 to 64 in 1989, 60 percent received an annuity only, 29 percent received a lump sum only, and 12 percent received both (Beller and McCarthy 1992).

While the real pension benefits of men have increased, the real pension benefits of women declined during the 1980s. Comparing pensioners who first received private pension benefits in 1978 and 1989, median real benefits of men rose 6 percent, while median real benefits of women fell 17 percent. These changes caused the median benefits of women to fall as a percentage of men's from 47 percent in 1978 to 37 percent in 1989. This fall was not caused by a relative decline in the earnings of women covered by pensions, nor by a decline in their relative job tenure. The median earnings of these women rose from 58 to 65 percent of the median for men. The causes of the fall have not been determined (Beller and McCarthy 1992).

Over the 1980s, real benefits declined in manufacturing industries, while they rose in nonmanufacturing. Analysis by industry indicates that, for reasons not yet deciphered, female pensioners suffered greater losses than males in real pension benefits in the manufacturing sector.

One measure of the adequacy of pension benefit levels is the percentage of a worker's final earnings replaced by the pension. Using this measure, private pensions in the United States provide a median wage replacement rate of 23 percent. Most private pension recipients older than age 62 also receive social security benefits. For them, the median replacement rate for both benefits combined is 66 percent (Beller and McCarthy 1992).

The median private pension wage replacement rate for men was 26 percent, compared to 17 percent for women. The lower replacement rate for women is at least partly due to their shorter job tenure, which occurs in part because women change jobs more frequently than men. However, the combined replacement rate for private pension benefits and social security benefits was higher for women (a median of 63 percent) than for men (59 percent). The explanation for this reversal is that social security provides higher replacement rates for lower-wage workers than for higher-wage workers.

## Comparisons

The percentage of retirement income accounted for by employer-provided pensions varies across countries (table 8.4). In the mid-1980s, it was nearly twice as high in the Netherlands as in the United States. The level in Canada and the United States is about the same. In all countries, single women receive a somewhat smaller percentage of their retirement income from employer-provided pensions than do other elderly households.

**Table 8.4 The Percentage Employer-Provided Pension Benefits Are of Income for Households Aged 65 and Older in Selected Countries, 1985-1987**

| Country | Year | Pension benefits as a percentage of retirement income | |
|---|---|---|---|
| | | All households | Single women |
| Australia | 1985 | 14.0 | 5.4 |
| Canada | 1987 | 11.9 | 9.5 |
| Netherlands | 1987 | 22.1 | 15.5 |
| United Kingdom | 1986 | 14.1 | 9.8 |
| United States | 1986 | 11.3 | 8.7 |

SOURCE: Smeeding, Torrey, and Rainwater (1993).

A comparison of retirement income levels across countries shows that married retired couples in the United States have relatively high

retirement incomes, while older single women fair relatively poorly (Smeeding, Torrey, and Rainwater 1993). The gap between the top and the bottom of the aged income distribution is larger in the United States than in other developed countries. Receipt of pensions is much more prevalent among couples than among singles and among younger households than older.

## Conclusions

There are major differences across gender and marital status groups in the probability of receiving an employer-provided pension. Data for the United States clearly indicate that the image of retirement income as a three-legged stool only applies for white married couples. It does not apply for the majority of the members of all other race and marital status groups. For all other groups, less than 50 percent receive retirement income from an employer-provided pension. Because for most other countries the percentage of the labor force covered by a private pension and the percentage of total retirement income provided by a private pension are at the same level or lower than the United States, it probably also holds that the prevalent image of retirement income as having three parts generally does not apply, except for privileged groups.

## NOTES

1. The poverty threshold in the United States is calculated as three times minimum food expenditures.

2. A complete evaluation of the economic status of the aged would also discuss noncash income, such as the value of government- or employer-provided health insurance or the imputed rental value of owner-occupied housing. When noncash income is also considered, the measured relative economic status of the aged generally improves. Further considerations include the wealth holdings of the elderly and their consumption needs.

3. Civilian employees of the federal government were not covered by social security until January 1, 1984, when coverage was required for those hired after that date. Since 1950, state and local government employees have been covered under social security at the option of the governmental entity for which they work Approximately seven in ten state and local government employees are covered by social security. Those not covered generally have pension plans that substitute for both social security and private pensions.

4. The statistics in this section are taken from Grad (1994).

5. Employer-provided pensions include private pensions and pensions provided by federal, state, and local governments to their employees.

# 9
# Trends in Pensions

Retirement income systems evolve with changes in the economic and demographic environment that shapes them. The trend away from reliance on family and toward reliance on government that marked the middle years of this century, following the Great Depression and the end of World War II, is being replaced by a trend toward greater reliance on private sector individual or employer-provided pension plans. This change is occurring in the United States, Japan, the United Kingdom, and many other countries.

It is useful to examine how policy makers have responded to similar problems in different countries. Pension systems can be highly complex, and sometimes policy makers have a large number of options to consider when facing a particular problem. Policy makers in different countries have developed a great variety of incentives and regulatory structures in an effort to encourage the accrual of adequate private pension benefits and to control the risks that are inherent in such systems.

Cultural differences in attitudes toward savings, work, and retirement may cause pension systems to have different economic effects on the behavior of workers and firms in different countries. For example, cultural differences in family responsibility for the elderly may cause the demand for private pensions to differ across countries. Cultural differences in responsibility to society and its rules may cause differences in the extent to which regulatory safeguards and legal enforcement of pension laws are required across countries. For these reasons, not every aspect of foreign experience is useful in analyzing domestic pension policy issues. Nonetheless, in all countries firms and workers respond to economic incentives imbedded in pension systems.

## A Selective Summary of Pension Trends

First, there appears to be a long-term trend towards greater privatization of retirement income. Chile has a system of retirement income that is nearly entirely privatized, and other countries have adopted partial

versions of its system. The United Kingdom and Japan both allow for partial privatization of their social security systems through an approach they call "contracting out," but which is known in the United States (in the context of health care) as "pay or play." Sweden plans to partially privatize its social security system starting in 1996 by establishing mandatory funded individual accounts. Germany has a privatized system of pension benefit insurance. The United States does not have explicit institutions for privatizing aspects of retirement income, though in the more general sense its tax subsidy for private pensions has the effect of partial privatization. The integration of pension benefits in the United States, however, is a means of de-privatizing retirement income.

Second, the aging of populations in developed countries is raising the cost of social security systems, but it is also making the tax subsidies to support private pension systems more expensive. Presumably in response to cost increases, a number of countries have reduced the generosity of their tax subsidies for pensions. At the same time they have reduced the generosity of their social security systems.

Third, in many countries, there is a trend towards defined contribution plans. In some cases, this is at least partly the result of increasing regulation of defined benefit plans. In other cases, it is the result of government policy mandating the provision of defined contribution plans.

Fourth, more countries are providing insurance or a guarantee of pension benefits. These guarantees usually apply to defined benefit plans, but also apply to defined contribution plans in some countries. However, only two countries—the United States and Japan—insure funded defined benefit plans, and the United States has the only national program that has had an insurance claim for underfunding. Other countries insure book reserve funds against firm bankruptcy. The province of Ontario has a benefit insurance program similar to that of the United States and has had claims against its system.

Fifth, increasingly pension plans are investing in foreign securities. The regulations inhibiting foreign pension investments in some countries have been reduced or eliminated. In other countries, the increase seems to be driven by a realization of the financial benefits afforded by the greater diversification that international investing provides.

Sixth, many countries have taken steps to reduce the loss of benefits suffered by workers who change jobs. Portability has been enhanced by reducing the years required for vesting, and in some countries by indexing (up to a ceiling inflation rate) the benefits of workers leaving a job before retirement age.

Seventh, in most countries with pension systems the coverage rate of workers has increased over the past twenty years. In some countries, this trend has stabilized or perhaps slightly reversed in more recent years.

## Conclusion

This book provides policy makers in various countries with information on a wide range of approaches for resolving pension policy issues. Providing an adequate, secure, and equitable retirement income for all elderly individuals and families should be the goal of every retirement income system. Because resources are limited, accomplishing this goal efficiently is a challenge facing policy makers. A careful analysis of the pension policies and practices of other countries can aid policy makers in their efforts to develop or improve their private pension systems.

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