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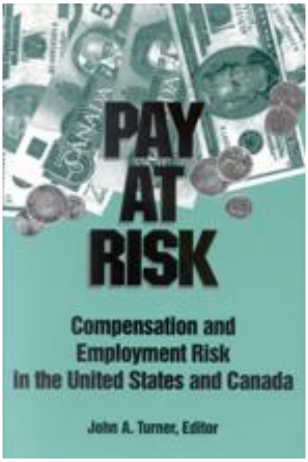

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INTRODUCTION

Financial risk is inherent in pension plans. It is inherent in their financing and in the accrual of pension rights by workers. It must be borne, but that can be done in different ways—by workers, the employer, an insurance company, stockholders and bondholders of the company, the government (taxpayers), or by other employers.

The rules governing the conditions of benefit payments and required contributions determine who bears pension risk. Some rules are explicit, determined by law, collective bargaining agreements, or the pension benefit formula. Others are implicit or are decided by employers, for example, the circumstances under which the firm will provide cost-of-living adjustments to retirement benefits or terminate the pension plan.

Pension risks in funded pension plans arise in part due to macroeconomic risks: nondiversifiable investment risk in financial markets, variability in defined benefit liabilities caused by changing interest rates, and inflation-caused variability in the real value of imperfectly indexed benefits of retirees and in the real value of nominally fixed benefits of job changers. Pension accrual risks for workers arise due to uncertainty in the supply and demand for their labor as well as an uncertain life expectancy.

Pension funds face risks, including political risks arising due to governmental changes in pension regulations. They also face risks due to financial malfeasance by pension fund managers or due to the possibility that the employer will terminate the pension plan in bankruptcy with the plan being insolvent.

Pensions also insure workers against risks. An annuitized pension insures workers against the risks of being unable to work in old age and of outliving one's resources.

Changes in the occupational pension systems in Canada and the United States towards greater reliance on defined contribution plans appear to have shifted risks from employers to workers. The simplest hypothesis for a shift in risk bearing is that the costs of risk bearing by employers have increased. This chapter compares the Canadian and U.S. employer-provided pension systems. While the focus is on the comparison of the two systems, the chapter begins by describing the Canadian system, which is less well-known. Information about the U.S. system is presented as it compares to the Canadian system.

Background

The level of family income in Canada and the United States is roughly equivalent. While average family income is slightly higher (by 2.2 percent) in the United States, median family income is slightly lower (by 4.4 percent), reflecting the greater income inequality in the United States (Wolfson and Murphy 1994).[1]

The elderly in the United States, however, have considerably higher income than they do in Canada—19 percent higher for couples aged 65–74. The mix of income among the elderly also differs. Social security benefits are higher in Canada—6 percent higher for couples aged 65–74, accounting for 40 percent of the income of that group. In comparison, social security benefits account for 31 percent of income for U.S. couples in the same age group. Income from private sources (earnings from working, pensions, and savings) is higher in the United States (Wolfson and Murphy 1994).[2]

The next sections compare the Canadian and U.S. systems of individual and occupational private pension plans and discuss trends in risk bearing. Social security pensions are discussed in Chapter 5.

INDIVIDUAL AND OCCUPATIONAL PENSION PLANS IN CANADA AND THE UNITED STATES

Canadian Pension Plans

In Canada, favorable tax treatment is provided to three types of pension plans: Registered Pension Plans (RPP), Deferred Profit Sharing Plans (DPSP), and Registered Retirement Savings Plans (RRSP). "Registered" refers to federal registration under the Income Tax Act of a plan by a plan sponsor. The term "registered" is the Canadian equivalent to the U.S. term "qualified," which refers to pension plans that qualify for preferential tax treatment under the U.S. Internal Revenue Code. Registered Pension Plans include plans for both private and public sector employees. They are employer-sponsored plans and include both defined benefit and defined contribution plans. Registered Deferred Profit Sharing plans are little used.

Canadian pensions cover 43.4 percent of all employed (government and private sector) workers (45.3 percent of men and 41.1 percent of women). The pension coverage rate for employed workers in the private sector is 31 percent (39 percent for men and 21 percent for women). The coverage rate in the public sector is nearly 100 percent for both men and women. At the beginning of 1996, 48 percent of the members of occupational pension plans were public sector employees, a percentage that has grown over time.

In recent years, the pension coverage rate has been stable. The percentage of the total workforce (including the unemployed) belonging to an employer-provided pension plan ranged from 35 to 37 percent between 1983 and 1993. However, by 1996, participation in employer-provided pension plans was 3 percent lower than the peak in 1992 (Payne 1997). The drop in RPP participation is entirely due to a decline in the participation of men. Layoffs in manufacturing, transportation, and construction, traditionally high coverage industries, explain part of the drop in male pension coverage. Between 1984 and 1994, the percentage of employed women covered by employer-sponsored pension plans increased from 37 to 42 percent, while the percentage of employed men covered fell from 55 to 47 percent. In contrast, the percentage of workers contributing to individual account plans

(RRSPs) almost doubled, growing from 18 percent in 1983 to 35 percent in 1993 (Statistics Canada 1996).

In each year in the early 1990s, about half of Canadian employed workers contributed to at least one of the two most commonly used types of pension plans. Over the period 1991–1993, about 60 percent of employed workers contributed in at least one of the three years. About 40 percent contributed in all three years (Maser 1995). Contributions to RRSPs are voluntary and workers need not contribute each year. Almost half of the participants from 1991 to 1993 contributed in only one or two of the three years. In contrast, most members belonging to an employer-sponsored RPP participated each year because RPP membership is generally compulsory for workers covered by a plan. While access to RPPs is limited because many employers do not offer them, all workers with employment earnings are eligible to save through an RRSP. Most RPP members have the option of adding to their pension savings with RRSP contributions.

The contribution limit to a RRSP is reduced by the previous year's contribution to a pension plan. This feature penalizes job changers who lose pension coverage. They cannot make a full RRSP contribution for a year because they are limited by their previous year's participation in an RPP.

In Canada, RPPs are commonly integrated with social security (the Quebec/Canada Pension Plan). Integration with Old Age Security (OAS) benefits is not permitted in some provinces. Integration means that the RPP benefits are offset by the worker's social security benefits. Among public sector pension participants, 90 percent are in integrated plans. Nearly 80 percent of private sector defined benefit plan members have integrated benefits. By reducing the occupational pension benefits of lower wage workers, integration offsets the progressivity of social security.

Until recently, Canada had a policy of providing tax relief for pension contributions on income up to 2.5 times the average wage. It has, however, frozen the nominal maximum earnings that can receive tax relief so that it is expected that the maximum earnings receiving tax relief will be approximately two times the average wage by 2006. This change will increase the overall progressivity of the retirement income system by reducing the tax subsidy going to high earners.

Most public sector pension plans for government workers provide generous benefits, based on final average earnings, and require members to contribute towards their benefits. These plans usually grant generous survivor benefits and index for inflation. By contrast, private sector plans usually are less generous.

Canadian Pension Regulation

For constitutional reasons, with the exception of applicable tax provisions, occupational pensions are generally regulated by the provincial governments. This causes regional differences in pension regulation. However, certain occupations fall under federal jurisdiction, including the federal public service, the armed forces, the Royal Canadian Mounted Police, and a number of sectors of national importance (e.g., banks, railways, airlines, and communication companies). Pension plans for employees in these categories are regulated directly by the federal government in Ottawa.

A major factor discouraging establishment of new plans in Canada is the complexity of pension laws. The Pension Benefits Acts are detailed and differ among the 11 government authorities (10 provinces plus federal). Laws designed to reduce risks to workers have become so expensive for employers to comply with that they may be counterproductive. Some employers have switched their defined benefit pension plans to money purchase (defined contribution) plans or have terminated them in favor of group RRSPs.

When a pension plan covers members in more than one province, the laws of each province apply to the members in that province. Likewise, if an employee has accrued benefits for work in more than one province, the laws of each province apply to the benefits accrued within that province, even for work within a single plan. Although U.S. pension law is complex, and is thought to be a factor in discouraging small firms from establishing defined benefit plans, the variation across provinces in Canada is an aspect of complexity not faced in the United States. Canadian federal and provincial regulators have made little progress towards uniform legislation.

The Pension Benefits Acts in the different provinces allow an employer to set up pension plans for distinct classes of employees (or to refrain from doing so). They, however, give all employees within a class for which a plan exists the right to join after two years of service (one year in Quebec). Part-time workers must be allowed to participate in the pension plan for their class, provided their earnings exceed a minimum amount. This treatment of part-time workers is more favorable than in the United States where plan sponsors may, and generally do, exclude part-time workers (working less than 1,000 hours a year) from their pension plans. The two-year vesting requirement is also more liberal than in the United States, where the requirement is five years. In these two respects—part-time workers and vesting—Canadian pension plans provide greater protection of workers than do U.S. plans. In the chapter on social security, it was similarly noted that Canadian workers with low service receive more favorable treatment from the social security system.

Employees' representatives have argued that pension contributions are deferred pay that should not be forfeited if the member dies. In line with this philosophy, some of the provincial Pension Benefits Acts provide for benefits to survivors in the case of preretirement death. In some provinces, the spouse of a member who dies in service after vesting is entitled to the full value of the member's deferred pension. In other provinces, the spouse must receive at least 60 percent of the value of the member's pension.

Private Pension Plans in the United States

Private pension plans in the United States have traditionally been predominantly defined benefit plans, but that situation has changed. In 1975, 72 percent of the assets in private sector employer-provided pension plans were in defined benefit plans. By 1996, that percentage fell to 51 percent, a decline on average of one percentage point per year over the 21-year period (U.S. Department of Labor 2000). Projecting the trend to the year 2000, less than half of pension assets in the United States were in defined benefit plans at the turn of the century.

The trend has been even more dramatic for participants. In 1975, 71 percent of active participants in pension plans were in defined benefit plans, roughly the same percentage as for assets. By 1996, only 34 percent of active participants were in defined benefit plans. The number of active participants in defined benefit plans has declined from a high of 30.2 million in 1984 to 23.3 million in 1996.

The growth of 401(k) plans has played a major role in the growth of defined contribution plans and the decline in defined benefit plans. 401(k) plans are defined contribution plans where employees as well as employers can make tax deductible contributions. These plans are named after the section of the Internal Revenue Code that enabled them. For other types of defined contribution plans, as well as for defined benefit plans, employees' contributions in the United States are not tax deductible.

A related trend is the growth of cash balance plans. Cash balance plans are one of the major innovations in pensions that occurred during the 1990s. Few firms sponsored them before the early 1990s, but a 1999 survey indicated that 19 percent of all Fortune 1000 firms sponsored them at the end of the decade (U.S. General Accounting Office 2000). These plans are legally classified as defined benefit plans because the value of promised benefits is not based on the value of actual plan assets, but they incorporate features of defined contribution plans. Each worker has a hypothetical account to which hypothetical contributions and hypothetical interest payments are credited.

From the perspective of workers, each worker has an individual account with an account balance. Each period, the employer contributes to the account on behalf of the worker. In these respects, cash balance plans are exactly like defined contribution plans. In cash balance plans, workers know the amount in the account, making it much easier to understand than traditional defined benefit plans, where it is difficult to determine the value of benefits accrued in mid career. For this reason, cash balance plans are like traditional defined contribution plans in that the benefits are portable for job changers.

In a typical defined benefit plan, workers face risks associated with the wage payments in their final years of work. Under a typical defined contribution plan, these risks are reduced because the benefit is based on wages over the entire career. In this respect, cash balance plans are like defined contribution plans.

Each period, interest is credited to the account. The interest rate may be guaranteed at a fixed level or may vary with the rate on a particular asset, such as 30-year Treasury bills. To the extent that the crediting rate varies with financial market conditions, workers bear financial market risk on their cash balance accounts, as do workers with defined contribution plans.

When interest rates vary, that causes capital gains or losses on holdings of bonds due to associated changes in bond prices. This type of financial market risk is not inherently an aspect of cash balance plans, and in this respect differs from defined contribution plans. However, as they are currently governed by pension regulation, the lump sum payment a worker would receive at termination may vary due to changes in interest rates because the lump-sum payment is calculated as the present value of the expected benefit at retirement. When the expected benefit at retirement is determined by a crediting rate that differs from the rate used to discount future benefits, workers will bear financial market risk due to capital gains of losses caused by interest rate changes on the present value of their pension benefits. In cash balance plans, workers may face interest rate risk at the time of retirement if they wish to annuitize their account balance. This risk is typical of defined contribution plans.

As well as participating in employer-provided plans, workers may also establish Individual Retirement Accounts for themselves. However, these plans are of little consequence for most workers because of the low maximum allowable annual contribution of $2,000.

Nearly half of all U.S. private sector employees participate in a retirement plan, and pension costs average 4.3 percent of payroll for plan sponsors (U.S. Chamber of Commerce 1992). In 1993, 49 percent of all wage and salary workers were covered by a pension plan. The coverage rate was 43 percent in the private sector and 77 percent in the public sector. Public sector pension participants accounted for about a quarter (27 percent) of all pension participants (U.S. Department of Labor 1994), far less than in Canada (48 percent).

THE TAX TREATMENT OF PENSIONS IN CANADA AND THE UNITED STATES

By providing favorable tax treatment to pensions as compared with other assets, Canadian and U.S. tax policies encourage firms to offer pension plans. Because of their proximity and the similarities in income and culture, it might be thought that the tax policy toward pensions of the two neighbors would be similar. In fact, important differences exist that may cause differences in their private pension systems.

In both Canada and the United States, the tax treatment of pensions from the employer perspective is the same. Employer contributions to a pension plan are treated similarly to wages—both are tax deductible under the corporate income tax. Investment earnings in pension funds accumulate tax free. Pension assets and liabilities are not taxed.[3]

Workers are not taxed at the time their employer contributes to a pension fund on their behalf. All distributions from pension funds to workers are taxable under the personal income tax. In Canada, retirees receive an annual tax credit for the first Can.$1,000 of pension income. Pension distributions in both countries are not subject to the social security payroll tax. Worker contributions are treated differently in the two countries, and are discussed later.

The tax system affects the role of pensions in the compensation of workers.[4] We examine how the tax treatment of pensions affects three aspects of pensions relating to risk bearing: 1) pension coverage rates, 2) the generosity of pension benefits, and 3) defined benefit versus defined contribution plans.[5]

Pension Coverage

The pension coverage rate is the percentage of the workforce participating in a pension plan. While the concept is simple, the ways coverage is measured differ considerably, producing wide variation in statistics.

Empirical comparisons of private sector workers in Canada and the United States are difficult because the distinction between the private sector and public sector is not as clear in Canada as it is in the United States. It appears that some public sector Canadian workers who work for institutions such as universities, hospitals, and public corporations (such as Air Canada), rather than traditional government bureaucracies, respond in household surveys that they are private sector workers. Because of this apparent misreporting, Canadian data for the entire workforce are more reliable than data that attempt to separate out private sector workers. However, because the public sector is relatively larger in Canada and because pension coverage rates are considerably higher in the public than the private sector, empirical comparisons across the two countries are difficult. In sum, the coverage rate for the entire workforce has the advantage that it indicates the percentage of the workforce in the two countries that has an employer-provided pension that supplements social security. It has the disadvantage that it is influenced by government policy concerning the relative size of the public sector.

Dailey and Turner (1992) attempted to measure private pension coverage on a comparable basis for Canada and the United States. That study found that, for many years, the private pension coverage rate has been about 50 percent higher in the United States than in Canada. Since 1975, the pension coverage rate for full-time private sector workers has varied between 28 and 30 percent in Canada, while it has varied between 44 and 46 percent in the United States.

Several problems cause those figures to overstate the difference in private sector coverage rates between the two countries. Since 1990 Statistics Canada has stated that it was not possible to accurately determine private sector pension coverage rates in Canada because of difficulties in determining who was in the private sector and that previous figures underestimated pension coverage. In addition, the U.S. figures are overstated because the Canadian figures are for the entire labor force, including the unemployed, while the U.S. figures are for wage and salary workers, excluding the unemployed. Adjusting for these problems, based on a subjective assessment of the magnitude of their effects, it would still appear that the private sector pension coverage rate was at least 5 percentage points higher in the United States.

Because of high coverage rates in the public sector and a higher relative amount of workers in the public sector, coverage rates for all workers, public and private sector, are higher in Canada for all income levels except the lowest, where the rate is marginally lower in Canada (Table 6.1). The coverage rates are 10–20 percentage points higher in the middle income categories, while the difference is only 4 percentage points in the highest income category.

The pension coverage of males has been declining in both Canada and the United States, while that of females has been increasing, presumably due to the increasing lifetime labor force participation of females. While in both countries the overall pension coverage rate has been fairly stable, in both it appears from the decline in male pension

Table 6.1 Pension Coverage Rates, by Income, All Workers (%)

Earnings (U.S.$)	Canada (1989)	United States (1993)
1 – 14,999	27	28
15,000 – 22,499	59	48
22,500 – 29,999	72	52
30,000 – 44,999	82	62
45,000 or more	73	69

SOURCE: Canada—Frenken and Maser (1992, p. 29); United States—unpublished tabulations from Current Population Survey Special Pension Supplement, 1993.

coverage rate that, holding constant employee work patterns, the probability of occupational pension coverage has decreased.

There has been a trend towards defined contribution plans in both countries. In Canada the membership in defined contribution plans increased from 8.4 percent of plan members in 1990 to 10.0 percent at the beginning of 1995.

Marginal income tax rates

In both countries, pension coverage rates increase with income, presumably at least partially because tax rates increase with income, but also because preferential tax treatment is worth more to individuals with high marginal income tax rates. If an individual's marginal income tax rate is the same in the preretirement and postretirement periods, then—in both Canada and the United States—the individual earns the pretax rate of return on pension saving. This occurs because the investment earnings on pension funds are untaxed. The incentive that the tax system provides for participating in a pension is thus higher with higher marginal income tax rates. The "wedge" between the pretax and the after-tax rate of return is higher in Canada for most workers because income tax rates are higher in Canada and the top rates are reached at lower levels of income.

Provincial tax rates differ in Canada but to a lesser extent than do state income tax rates (Alpert, Shoven, and Whalley 1992). About 40 percent of Canadian employees work in the province of Ontario, and thus Ontario is a major component of the Canadian experience. In 1996, the maximum tax rate—federal plus provincial—was 53 percent in Ontario (Table 6.2). This maximum rate was reached at a taxable income of $49,990. (Unless indicated otherwise, all amounts are expressed in U.S. dollars, at the exchange rate of U.S.$0.75 per Can.$1)

Marginal federal income tax rates were reduced in both countries during the 1980s. In Canada, the top rate was reduced from 65 percent in 1980 to 29 percent in 1987. It should be noted, however, that provincial income tax rates are much higher than state income tax rates. For this reason, comparing only marginal federal tax rates is misleading because the federal-provincial split of income tax is far different in Canada than the federal-state split is in the United States.

The highest marginal U.S. income tax rate on federal personal income taxes was 80 percent in 1980. The Tax Reform Act of 1986 reduced the top federal rate on wealthiest households to 28 percent. The highest rate was 33 percent and applied for some middle income taxpayers. Marginal tax rates have since risen. In 1994, the highest marginal federal income tax rate was 39.6 percent and applied to families with income above $250,000 (Table 6.2). In addition, taxpayers are liable for state income tax, which in some states reaches as high as 11 percent. Thus, the highest marginal income tax rate in the United

Table 6.2 Marginal Federal Plus Provincial or State Income Tax Rates in Canada and the United States[a] (%)

Family taxable income (U.S.$)	Canada (Province of Ontario)	United States (national average)
0 – 22,750	(up to) 27	19
22,750 – 55,100	(up to) 53	33
55,100 – 115,000	53	36
115,000 – 250,000	53	42
250,000 or more	53	46

[a] Provincial income tax rates are much higher in Canada than are state income tax rates in the United States. The average state income tax rates are calculated from the CPS Special Pension Supplement, April 1993 for the 1992 tax year. For the income brackets in the table, they are, respectively, 3.8%, 4.6%, 5.1%, and 5.9%. Because of top coding of income in the data, there is no income reported greater than $250,000. The average state income tax rate for the preceding category is used for the top income category in this table.

States (state plus federal rates) is currently 51 percent, but only the top few percent of families pay that rate. Workers with family income of $50,000 would pay, on average, a marginal tax rate (federal plus state) of about 33 percent and thus have marginal tax rates about 20 percentage points lower than in Canada.[6]

These comparisons do not include social security taxes. Social security is largely funded through general revenues in Canada, while it is funded by a payroll tax in the United States. When social security taxes are included, the share of social security and personal income taxes in GNP in 1987 was 18.0 percent in Canada and 19.5 percent in the United States (Wilson 1992). The social security payroll tax rate in Canada in 1999 was 7.0 percent, shared equally by employers and employees, compared to 12.4 percent in the United States. However, to the extent social security benefits are related to earnings, some workers may view the true social security tax rate as being lower than the statutory rate (Burkhauser and Turner 1985).

Empirical studies in the United States have shown that higher marginal income tax rates encourage the provision of pensions. In their study of pension coverage in 1979, 1988, and 1993, Reagan and Turner (1997) found that, on average, a one percentage point increase in marginal income tax rates increases pension coverage rates by 0.4 percentage points.[7] This finding suggests that, based solely on marginal income tax rates, pension coverage would be roughly 5–7 percentage points higher in Canada than in the United States.

Income tax progressivity

As well as being affected by the level of marginal income tax rates, the tax incentive for pensions is greater, with greater progressivity of the tax system. Workers generally have lower income in retirement than while working. With a more progressive tax system, the greater the reduction in income during retirement, the lower the marginal tax rate paid on pension benefits.

Because the highest marginal rate starts at a much lower income in Canada, marginal rates are more "compressed." It might therefore appear that higher income Canadians are less likely than Americans to face lower marginal rates in their retirement years than while working. In the United States, however, the tax system is also not very progressive but for a different reason. The top marginal bracket begins at a high income level, and a single marginal rate covers a wide range of the distribution of income. Reagan and Turner (1997) found, in their regression sample of males aged 21–55 in 1979, that the mean marginal tax rate (federal plus state) was 32 percent with a standard deviation of 13 percentage points. These figures had declined in 1993 to a marginal rate of 25 percent with a standard deviation of 9 percentage points. Thus, neither the Canadian nor the U.S. tax system is very progressive.

Tax subsidies for high-income workers

To examine further coverage rate differences between the two countries, we focus separately on the tax treatment of high- and low-income workers. The centerpiece of the 1991 tax reform in Canada is the establishment of a comprehensive limit to tax-assisted pension saving. All workers are permitted to contribute the lesser of 18 percent of their earned income (in the previous calendar year) or a maximum dollar amount (if lower) to a RRSP.

For individuals with relatively high incomes, the tax assistance provided to pension savings is considerably higher in the United States. In the late 1990s, the maximum compensation that could be used for calculating pension benefits that receive preferential tax treatment was more than twice as high in the United States than Canada.[8]

Some benefits consultants have argued that a low ceiling on compensation used for calculating pension benefits reduces the incentive for employers to provide pensions because the personal benefit to high-income employers is reduced. This argument is most likely to be valid for the owners of successful small firms, where the owner may weigh the amount that he or she can accumulate in a pension versus the cost of providing pensions to his or her employees. If this argument is valid, it may partially explain why pension coverage appears to be lower in the private sector in Canada than in the United States.

Beginning in 1984 in the United States, some higher income taxpayers have faced an implicit tax on their pension benefits in addition to the personal income tax. Up to 50 percent of social security benefits could be included in taxable income for persons with adjusted gross income plus certain nontaxable income above $25,000 for individuals and $32,000 for married couples. Under the 1993 Omnibus Budget Reconciliation Act, a two-tier tax liability was established, so that the proportion of benefits for retirees with income in the second-tier range was increased to 85 percent. Thus, at the margin for some workers, increases in pension benefits are taxed at the worker's marginal tax rate and cause the worker's social security benefits to become taxable. Eighteen percent of families with social security benefits pay taxes on those benefits, but more than half of families in the eighth, ninth, and tenth deciles are taxed (Pattison 1994). The net result is that many higher income workers pay an implicit tax on pension benefits of 20 to 40 percent due to the taxation of their social security benefits.

In sum, high-income workers in Canada face a greater tax incentive to invest in tax-sheltered assets than they do in the United States. However, the amount they can shelter through pensions is lower.

Implicit taxes on low-income workers

In addition to explicit taxes, implicit taxes may also reduce the net receipt of pension benefits. For Canadians with low lifetime earnings, the income-tested component of the social security system discourages participation in an employer-sponsored pension plan. All Canadians aged 65 and over, independent of their work history, receive a small flat rate OAS benefit. Canadians with no other source of income also receive income-tested benefits from the Guaranteed Income Supplement (GIS). For each dollar of retirement income above the flat rate OAS benefits, GIS benefits are reduced by 50 cents.

The maximum pension payable from the earnings-related component of Canada's public retirement system, the Canada Pension Plan (CPP), was based on maximum preretirement earnings of Can.$37,400 a year in 1999. An individual receiving the maximum CPP benefit would still qualify for partial GIS benefits if the individual had no other retirement income than the flat rate OAS benefits. So, too, would individuals not entitled to the maximum CPP benefit.

The net result is that Canadians with low lifetime earnings face a 50 percent tax rate on private pension income during retirement, in addition to federal and provincial income taxes. These public pension provisions, in effect since 1966, provide a strong disincentive for low-income workers to participate in an employer-sponsored pension plan.[9] A similar disincentive exists in the United States due to the income testing for eligibility for Supplemental Security Income, but that program only effects very low income workers.

Individual pension plans

The Canadian government has set contribution limits for money purchase plans and RRSP equivalent to the limits for defined benefit plans. The federal tax rules treat employers and employees the same, regardless of the type of pension plan.

A primary objective of the Canadian tax treatment of pensions is to provide equitable tax assistance for retirement, regardless of whether a worker participates in a company-sponsored pension plan or in an individual account pension plan. In Canada, workers setting up RRSPs can access approximately the same amount of tax assistance as do workers participating in employer-provided plans.

In the United States, no attempt has been made to equalize the treatment between employer-sponsored plans and individual plans. Employers in the United States have a near monopoly in the provision of tax-favored pension benefits. Since 1981, the maximum an individual can deduct for contributions to an Individual Retirement Account (IRA) has been frozen at $2,000.[10] Inflation has more than halved the real value of this tax deduction. The amount that can be contributed to personal pension plans is only a small percentage of what can be contributed to employer sponsored plans, while in Canada the amounts are equal.

Registered Retirement Savings Plans also enjoy other advantages over IRAs. Since tax reform in 1990, failure to contribute to a RRSP by the deadline does not cause the deduction to be lost. Unused contribution amounts may be carried forward, subject to a seven-year limit, and deducted when made. No such carry-forward provision exists for IRAs.

Since 1990, there is no tax advantage to participating in an employer-provided plan since an equal amount could be contributed to an RRSP. This change should cause a reduction in pension coverage rates in Canada, with employer-provided plans being replaced by individual account plans. However, a study of data previous to that change found no negative relationship between the amount of employer-provided pension assets held by an individual and their RRSP assets (Venti and Wise 1994). In 1987, for example, 37 percent of tax filers who contributed to a pension plan also contributed to an RRSP versus only

16 percent of tax filers who did not contribute to a pension plan (Frenken 1990).

Summary

In sum, the higher marginal income tax rates in Canada would—other things equal—cause pension coverage rates to be roughly 5–7 percentage points higher than in the United States. This effect may be offset somewhat by higher social security tax rates in the United States. An explanation for relatively lower pension coverage rates at lower income levels is that the income-tested provisions of the Canadian social security system place an implicit tax of 50 percent on the pension benefits of workers with low lifetime earnings.

Other explanations

Other factors besides taxes affect pension coverage. Social security is moderately more generous in Canada than in the United States, which would lower pension benefit levels and probably also pension coverage rates in Canada. The United States, through nondiscrimination rules, requires employers that offer pensions to offer them to most of their full-time employees. This regulation is one way that public policy attempts to expand coverage. Canada has no such regulation.

Since 1987 in most provinces in Canada, pension benefits are locked in after vesting, and workers cannot access those benefits until retirement. In the United States, workers can take a lump sum distribution from their pension plan when they change jobs if the plan permits it. It has been argued in the United States that prohibiting preretirement lump sum distributions would reduce pension coverage because it would reduce the flexibility that workers have to use those funds for nonretirement purposes.

The Generosity of Pension Plans

While pension coverage measures one dimension of the extent that pension plans provide an element of risk bearing concerning retirement income, the generosity of pension plans measures another dimension. One measure of pension plan generosity is the level of pension benefits being paid to current retirees. The level of pension benefits, however, does not directly measure the generosity of pension benefit formulas because other factors also affect benefit levels. For example, if a pension system is immature, workers having participated in it for less than their full career, it will pay lower retirement benefits than an equally generous system that is fully mature. While it is not evident that the Canadian and U.S. pension systems differ in their maturities, such a difference could cause average benefit levels to differ.

Canadian private pension plans have been slightly less generous than U.S. private plans in the level of benefits they provide. Canadian pensions in the late 1980s provided slightly less and U.S. pensions provided slightly more than $6,000 in annual benefits (Dailey and Turner 1992).

Canada and the United States differ considerably in the maximum amount that a worker can save through the pension system. In Canada, the maximum percentage of earnings that a worker can save is lower and, as indicated earlier, the maximum earnings that can be used in determining pension benefits is much lower.

The maximum limit in Canada for contributions to a defined contribution plan is 18 percent of worker earnings. In Canada, the maximum benefit for a defined benefit plan is the lesser of $45,185 per year or 70 percent of the participants earnings in the three highest years.

Both the defined contribution and defined benefit limits are higher in the United States. The maximum contributions to a defined contribution plan in 1997 was 25 percent of earnings for most workers, and for workers earning more than $120,000 a year it was $30,000. For a defined benefit plan, the maximum benefit was the lesser of $125,000 a year or 100 percent of the participant's average compensation for his or her three highest-earnings years. For high-income workers, the maximum pension benefit in Canada is less than half as large as in the United States.

The lower maximum contributions and benefits in Canada, however, may be of little economic significance if few workers are constrained by the limits. The difference is most likely to be constraining for older workers and higher income workers who, because of the ceiling on social security benefits, are more likely to wish to save a relatively large fraction of their income for retirement.

If the 18 percent maximum is not a binding constraint in that most workers save less, the higher marginal income tax rates in Canada would encourage middle income workers to save more in pensions than they do in the United States.

Defined Benefit versus Defined Contribution Plans

An employer's first decision when considering pension risk is whether to provide a defined benefit or defined contribution plan or both. In both the United States and Canada, defined contribution plans have grown at the expense of defined benefit plans.

In the United States, there has been a major shift from defined benefit plans towards defined contribution plans. While the number of active participants in defined benefit plans was nearly 4 million lower in 1995 than in 1975, the number in defined contribution plans grew by 31 million, due to the growth of 401(k) plans (U.S. Department of Labor 2000).

There has also been a trend towards defined contribution plans in Canada, but the trend has been much weaker. Between 1982 and 1995, for example, the percentage of pension participants who belonged to money purchase plans rose from 5.3 percent to 10.0 percent, while the percentage who belonged to defined benefit plans declined from 93.7 to 88.6 percent.[11]

If defined benefit plan assets in the United States were the same percentage of pension assets in 1995 that they were in 1975, there would have been $500 billion less in defined contribution assets and the same amount more in defined benefit assets. This works out to be roughly $6,000 less in defined benefit assets per participant in the private pension system. Because of backloading of defined benefit pensions and the accrual of benefits with greater job tenure, this number would be higher for older workers and lower for younger workers. If the implicit insurance premium that firms charge workers for providing defined benefit plans rather than defined contribution plans were a couple of percentage points of assets, older workers covered by defined benefit plans have lost several hundred dollars a year in implicit insurance value from the switch from defined benefit to defined contribution plans.

In defined contribution plans, workers bear market risk to the extent that the plans are invested in risky assets. In defined benefit plans, workers bear firm specific risks relating to the viability of the firm. In financially strong firms, defined contribution plans are riskier for workers than defined benefit plans. By switching from defined benefit to defined contribution plans in this situation, the firm is transferring risk from the shareholders to the workers. The workers should be willing to bear this risk if they are compensated for it. It is likely, however, that shareholders have a greater capacity for risk bearing than do workers. Shareholders can diversify firm specific risk more easily (by investing in other firms) than can workers, for whom firm specific risk to earnings affects a large part of income-producing capacity.

Clark and McDermed (1990) ascribe most of the shift towards defined contribution plans in the United States to changes in pension policy that have made defined contribution plans relatively less costly to provide than defined benefit plans. Gustman and Steinmeier (1992), however, argue that the dominant factor has been structural changes in the economy—the relative decline in traditionally strong defined benefit sectors of unionized and manufacturing employment. Both factors have doubtlessly played a role, with their relative importance being less clear.

It is commonly thought that defined contribution plans, where investment risk work is borne by the worker, entail greater risk to workers than do defined benefit plans, where investment risk is borne by the employer. The comparison is more complex, however. Inflation risk may be lower in defined contribution plans than in defined benefit plans that do not provide postretirement cost-of-living adjustments, which is frequently the case in small defined benefit plans. Workers may bear some investment risk in defined benefit plans if those plans adjust their generosity or are more likely to provide cost-of-living adjustments when they have favorable investment returns.[12]

The loss of a job has more serious consequences with regard to defined benefit pension benefits for an older worker than it does for a younger worker. Because defined benefit pensions are based on the worker's terminal nominal earnings in most plans, a worker who loses his job in his late 40s suffers a large loss in future pension benefits because inflation erodes the real value of his earnings used to calculate his pension benefits. Mobile workers bear less job-change risk in defined contribution plans than in defined benefit plans because, once vested, the value of future benefits is not reduced by job change in defined contribution plans while, with the exception of cash benefit plans, it generally is in defined benefit plans (Turner 1993).

Tax reform in Canada, implemented in 1990, seeks to "level the playing field" with regard to the tax assistance provided to pension saving in different types of plans. The maximum amount of tax assistance provided to members of employer-sponsored defined benefit and defined contribution plans, as well as to RRSPs, is intended to be equal. Further, through the introduction of a new carry-forward provision, individuals are provided with greater flexibility in the timing of RRSP contributions. This provision was enacted to give defined contribution plans the flexibility afforded defined benefit plans because firms who sponsor defined benefit plans can make retroactive enrichments of their plans.

In Canada, the 18 percent maximum allowable contribution to a defined contribution plan was chosen because it is roughly equivalent to the defined benefit limit. The defined benefit limit is 2 percent of final earnings per year of service, with a maximum of 70 percent of highest earnings (Wyatt 1990).

In the United States, the defined benefit limit does not vary with years of service, as it does in Canada. The maximum benefit that can be received from a defined contribution plan, in both Canada and the United States, necessarily increases with service because the maximum benefit is based on the accumulation of contributions and investment earnings over time. Because the U.S. limit does not vary with service, short-service workers in the United States can receive higher benefits through a defined benefit plan than they can through a defined contribution plan. For long-service workers, the situation is the reverse.

Within its lower contribution limits, Canada allows individuals greater flexibility in the timing of their contributions. In Canada, an individual's unused contribution allowance in each year is carried forward indefinitely for use in subsequent years, subject to certain dollar limits. Similarly, contributions not deductible in the year in which they are paid may be deducted in subsequent years.

In the United States, contributions not deductible in the year paid are subject to a 10 percent excise tax. Before 1987, a credit carry-forward was available when an employer's contributions to a profit sharing plan were less than the maximum allowed (McGill and Grubbs 1989, p. 652). That carry-forward is no longer available. Flexibility is provided, however, by the higher limit on contributions, so it is not clear which system effectively provides the greater flexibility.

In the United States, employee contributions are only tax deductible for defined contribution plans, and then only for contributions to 401(k) plans. This feature of the tax code may favor these plans. In Canada, employee contributions are tax deductible to defined benefit plans as well as defined contribution plans.

The tax benefit of overfunding defined benefit plans

In assessing why employers might prefer defined benefit rather than defined contribution plans, financial economists (Tepper 1981; Black 1980) have drawn attention to the tax advantages to shareholders of overfunding such plans. In the United States, the Omnibus Reconciliation Act of 1987 (OBRA) reduced the desirability of defined benefit plans relative to defined contribution plans by reducing the amount that could be contributed to overfunded defined benefit plans (Ippolito 1990).

Under the OBRA rules, employer contributions are not tax deductible if the plan is overfunded by 50 percent on a termination basis. This reduced the flexibility firms have in managing defined benefit plans, and it reduced the amount that can be sheltered from tax. Termination liabilities are calculated as if the plan were to terminate immediately. For plans with a typical age structure of workers, these liabilities are considerably less than the liabilities calculated assuming that the plan will continue in existence. Those liabilities for ongoing plans recognize that currently accruing benefits are based on future wages, in final average pay plans. Under the OBRA rules, many defined benefit plans are not able to contribute sufficient amounts to a pension plan to cover the current accrual of liabilities. This creates a tax disadvantage for defined benefit plans because, by comparison, firms can contribute equal to the full current accrual of liabilities in defined contribution plans.

In Canada, too, the tax authorities seek to limit the amount of overfunding in defined benefit plans. However, the restrictions are less onerous than those in the United States. In Canada, employer contributions are tax deductible so long as the surplus in the plan is no more than 10 percent of actual plan liabilities or twice the annual value of current service contributions. However, the plan's liabilities are not valued on a termination basis for the purpose of this calculation. If the plan has a history of cost-of-living or similar adjustments, these may be taken into account in determining the plan's liability if it is reasonable to assume that such adjustments will continue. These adjustments would include, for example, *ad hoc* increases for pensioners and increases in accrued benefits under career average earnings plans and flat benefit plans. In Canada, a potentially more important constraint on the extent of overfunding is the uncertainty that may exist as to the ownership of surplus assets.

Summary

In Canada, an effort has been made to equalize the treatment of defined benefit and defined contribution plans. As a result, employee contributions are tax deductible for both defined benefit and defined contribution plans, while they are only tax deductible to one type of defined contribution plan in the United States. Defined benefit plans also receive more favorable tax treatment in Canada than they do in the United States in terms of allowable maximum funding. Greater flexibility is allowed for contributions to defined contribution plans in Canada than in the United States in order to try to equalize the degree of flexibility that employers and employees have to contribute to both types of plans. On balance, tax policy in Canada is relatively more favorable to defined benefit plans than it is in the United States. Perhaps, in part for that reason, defined benefit plans are relatively more prevalent in Canada.

COMPARISON OF THE RISK BEARING ASPECTS OF THE CANADIAN AND U.S. OCCUPATIONAL PENSION SYSTEMS

The Canadian and U.S. pension systems can be compared in terms of several aspects of risk bearing.

Early Retirement Insurance

Many defined benefit RPP beneficiaries in Canada who take early retirement receive a supplementary benefit, called a bridging benefit, from the time of retirement until age 65 (Frenken 1995). This type of benefit is also provided by some U.S. defined benefit plans, but it is not available from defined contribution plans in either country.

Pension Insurance

The use of pension insurance is a major difference between the pension systems of Canada and the United States. The United States insures defined benefit pension benefits through the Pension Benefit Guaranty Corporation (PBGC). Canada, with the exception of one province (Ontario), does not insure pension benefits. Does this difference imply that defined benefit pension benefits are less risky in the United States? Not necessarily, because Canada reduces pension benefit risks through regulations that assure that defined benefit plans will be adequately funded.

Ontario's Pension Benefit Guaranty Fund (PBGF) became operational in 1983, to cover part of accrued benefits of private defined benefit plans. Premiums initially consisted of 0.2 percent of the unfunded liability reported by the sponsor. Policymakers realized this was a poor measure of the risk to the insurance fund. Ontario subsequently modified the premium structure to include an annual charge of Can.$1 per active participant or beneficiary and a sliding scale for the annual risk-adjusted component. The scale increases to 1.5 percent of unfunded liabilities for larger unfunded liabilities. Unlike the maximum benefit guaranteed by the PBGC in the United States, which is price indexed, the maximum guaranteed benefit of Can.$1,000 per month has not been increased since the program's inception and thus has considerably eroded in real value due to inflation. The maximum guaranteed benefit is now about one-third the level of the maximum guaranteed benefit in the United States. In addition, there are qualifying restrictions that do not apply in the United States. A terminated worker must be at least 45 years old with 10 years of service when terminated to be covered by the insurance. For active employees, their sum of age and years of service must total more than 55.

The PBGC in the United States acts like a pension safety net for most participants in defined benefit plans. It prevents the devastating loss of pension benefits that occurred in the early 1970s with the bankruptcy of some firms. Often, firms that have become bankrupt and have defined benefit pensions have underfunded their pensions. Underfunding formerly was a concern for workers in firms that were financially weak. The PBGC provides workers with the assurance that payment of their pension is no longer entirely dependent on their employer's financial health.

The PBGC does not guarantee all benefits, and most workers do not receive what they would have received from their plan had it continued in existence. It guarantees what it considers to be basic benefits. These include the vested benefits of people age 65 and older that have been in effect for five years or longer—up to a limit, which increases each year with inflation. In 1995, the annual limit was $30,886 for workers age 65. The cap is lower for younger workers. Other guaranteed benefits include survivor's annuity benefits.

Legislative reforms were enacted in 1994 in the Retirement Protection Act. While there once was concern about adequacy of the funding of PBGC, with the legislative changes that have improved both PBGC's funding and the funding of the plans it insures, it has sufficient assets to cover anticipated benefit payments for many years.

CONCLUSIONS

It appears that, in both Canada and the United States, the probability of pension coverage given worker characteristics has declined, indicating that risk sharing through pensions has declined. Furthermore, defined benefit coverage has declined and defined contribution coverage has increased in both countries. These changes have increased the risks borne by long-term employees but have decreased the risk for job-changing employees. In the United States, most defined benefit plan participants are covered by pension benefit insurance, which is not the case in Canada. Overall, it appears that risk bearing has increased for workers in both Canada and the United States due to changes in the occupational pension systems in the two countries.

Notes

1. This study used the 1988 purchasing power parity of Can.$1 equals U.S.$0.80. We use the slightly lower value of U.S.$0.75 for making comparisons.
2. The lower average social security benefits in the United States may arise in part because more older Americans are working and not receiving social security benefits.
3. In the United States, premium payments to the Pension Benefit Guaranty Corporation are based on the unfunded liabilities of pension plans. This is also true for the Guarantee Fund in Ontario. We are not considering these levies as taxes.
4. Generally, a tax policy affecting a worker's decisions distorts economic activity from what it would have been without taxes. However, in a system with multiple taxes, one aspect of taxation may correct distortions introduced by another aspect. The optimality of pension tax policy in terms of creating or correcting distortions is not discussed here (Ippolito 1990).
5. We thus do not discuss, for example, the effects of taxation of pensions on income distribution, government revenues, or the capital market.
6. The higher marginal personal income taxes in Canada are reflected in personal income taxes being about 25 percent larger as a percentage of GNP in Canada than in the United States (Wilson 1992).
7. The marginal effect is probably lower at higher tax rates. See also Woodbury (1983), Woodbury and Bettinger (1991), and Woodbury and Huang (1991).
8. An explanation for the more favorable tax treatment for pensions of high-income workers in the United States than in Canada may be that, with its higher income inequality, there are relatively more high-income workers in the United States, and therefore they presumably have more political power.
9. This issue has important implications, as well, for public policy. In Canada, the fact that pension coverage is far from universal is often cited by critics as proof of the inadequacy of the private pension system and the need, therefore, to expand the public pension system or to mandate private pension coverage. (In 1995, 45.3 percent of males and 44.1 percent of females who were paid workers belonged to an occupational pension plan [Statistics Canada 1996].) However, the absence of universal coverage is perhaps best seen as a statement about workers' revealed preferences rather than as a "failure" of the private pension system.

   The introduction of a mandatory private pension plan—inclusive of part-time as well as full-time workers—is likely to reduce the lifetime resources available to those with low lifetime earnings. The incidence of employer contributions to a mandatory private pension plan (if it is not retroactive) is likely to fall ultimately on the employee. Workers, including those with low lifetime earnings, will be required to allocate a larger fraction of their lifetime earnings to provide for their retirement years. On one hand, this will gradually reduce the likelihood of future claims on income-tested programs such as GIS. On the other hand, by forcing persons with low lifetime earnings to provide a larger share of their own retirement incomes, this proposal may redistribute income away from those with low lifetime earnings.

In this context, two facts merit note. First, persons whose current earnings are low are less likely to be members of occupational pension plans. To the extent that current earnings are positively correlated with lifetime earnings, this fact suggests that those with low lifetime earnings are less likely to be covered by an occupational pension plan. Second, Canadians with low current incomes generally choose not to contribute to RRSPs. Given the low value to them of the tax subsidy associated with RRSP contributions together with the likelihood that they would be substituting their own savings for retirement for benefits available from income-tested public programs, this decision is probably rational.

10. The amount is $2,500 for a worker whose spouse does not also contribute to an IRA.
11. These figures do not add to 100 percent due to the presence of "composite and other plans."
12. For a discussion of how participants in defined benefit plans may bear at least some of the investment risk of the pension fund, see Hyatt and Pesando (1997). In a unionized firm, for example, poor fund performance may require the employer to make additional plan contributions. In this event, the employer may seek wage or other concessions in the next round of collective bargaining.

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