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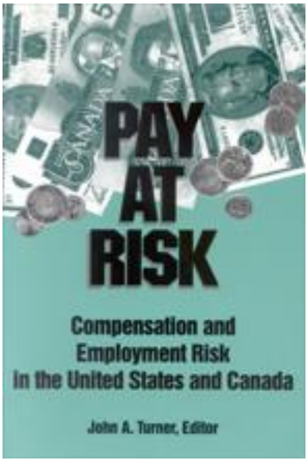

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5
Risk Sharing through Social Security Retirement Income Systems

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Risk bearing by workers is reduced by risk sharing through social security. The social security programs in Canada and the United States provide social insurance that reduces risk bearing by workers and their families. Perhaps because of societal differences between the two countries concerning views as to the role of government, the Canadian and U.S. programs differ in ways that affect the amount of risk workers bear.

Being tied to employment, social security contributions by employers for employees are part of employee compensation. The employer and employee share of contributions together equal 6 percent of covered wages in Canada, where social security is partially financed by general revenue. In the United States, which relies primarily on payroll tax financing, equal contributions by employers and employees total 12.4 percent of covered wages.

The compensation value to workers of social security and occupational pension plans is measured not by contributions, however, because they may bear little relationship to ultimate benefits. Rather, the value is measured by the increase in the actuarial present value of future benefits that occurs due to having worked. This value historically has been far greater than the value of contributions, but the difference has diminished considerably over time and has reversed for some high-wage workers in the United States.

While most analyses of retirement benefits focus on the expected level of pension benefits, the riskiness of retirement benefits and their risk-bearing aspects are also important to workers. A simple measure of the riskiness of retirement benefits is the variability in their real value. The riskiness is affected by factors affecting the accrual of real pension benefits up to retirement and by factors affecting the variability in the real value of benefits once benefit payments have started.

Retirement benefits are subject to a number of risks affecting the probability of receipt and the level of benefits. For example, workers in a job covered by social security or an occupational pension do not necessarily receive a pension when they retire. In social security and in occupational plans, retirees will not receive benefits if they have not worked long enough to qualify.

Ultimately, the simple measure of the riskiness of retirement benefits is inadequate because the riskiness of retirement benefits cannot be determined in isolation. Financial theory indicates that risk can be considered only in the context of the total portfolio held by the retiree or worker. The correlation of pension risk with other risks the worker faces should be considered. To the extent that retirement benefit risks are positively correlated with job risks, the effects of the retirement benefit risks are more serious. To the extent that retirement benefit risks offset job-related risks, the variability in retirement benefits plays an insurance role.

The primary income-producing asset of most workers is their job, which often has risks that are positively correlated with the risks of an occupational pension plan, if one is provided. For example, traditional pension plans tend to reward longevity on a job and thus any factor that increases the risk of losing one's job also adversely affects the value of the pension. Social security, however, is an important part of the wealth portfolio of most workers and is structured so as to offset job-related risks, for example, by allowing workers to exclude periods of low earnings when calculating benefit levels.

RISK BEARING IN RETIREMENT INCOME SYSTEMS

Retirement pension plans are either defined benefit or defined contribution. A defined benefit plan determines the benefit payable by applying a formula to the worker's years of service and earnings. Frequently, the benefit is based on an average of the worker's highest three or five years of earnings. A defined contribution plan, by contrast, is like a mutual fund account. The account balance is determined by employer and employee contributions and the investment earnings on those contributions. The social security systems in both Canada and the United States use a pay-as-you-go or partially funded defined benefit plan for the majority of benefits, tying benefits to wage-indexed average wages over the worker's lifetime.

In structuring social security systems, a trade-off occurs between providing incentives and providing risk bearing. When perfectly tied to wages, social security benefits can be considered to be a wage supplement, but no risk bearing by social security is provided because the variability in workers' compensation is unchanged. Risk bearing by social security can be provided by making the benefit formula progressive, with higher wage workers receiving less generous benefits relative to their wages. Income redistribution can be considered an aspect of risk bearing concerning income-related risks.

Workers face a number of different risks, including wage risk and longevity risk, that social security may alleviate. The remainder of this section considers effects of social security on various types of risk bearing by workers.

Wage Risk

Workers face risks in the level of their wages over their life cycles. Unanticipated changes in labor market conditions they face cause risk to wage income. This risk occurs both through variation in wage rates and work hours.

Early Retirement Risk

As a result of risks in the later part of working life, including unemployment and poor health, social security early retirement benefits have been offered.

For workers with a life expectancy shorter than the actuarial life expectancy, early retirement benefits provided with an actuarial reduction for taking them early are more generous in terms of lifetime present value than are normal retirement benefits available at a later age. This feature of defined benefit social security insures an initial benefit level to employees who are unable to work past early retirement.

Longevity Risk

Workers who do not annuitize their assets risk outliving their assets. Social security programs in both Canada and the United States insure against this risk by providing annuities rather than lump sum benefits.

Demographic Risk

Pay-as-you-go social security plans face demographic risk due to an increasing old-age dependency ratio raising the cost of providing retirement benefits. However, changes in the percentage of the elderly population can be predicted fairly accurately years in advance, and thus could be considered cost factors rather than risk factors. Only unexpected changes would be risk factors.

Inflation Risk

Inflation risk affects the initial real value of benefits and the value of benefits in payment to retirees. Both the Canadian and U.S. social security systems protect against inflation risk during retirement by providing cost-of-living adjustments.

Political Risk

Workers face political risk with respect to their retirement benefits because the government can change the value of their benefits at any time. While social security systems are evolving institutions in both Canada and the United States, the political risk is relatively small because of the stability of the governmental systems and the ability of the social security systems to foresee potential future problems and propose solutions far in advance.

SOCIAL SECURITY IN CANADA

The social security programs in Canada are relatively young. Because provision of old-age benefits was not considered to fall under the constitutional authority granted the Canadian government, the Canadian Constitution was amended in 1951 to allow the government to provide pensions for the elderly under the Old Age Security Act. It was amended again in 1964 to authorize the inclusion of survivor and disability benefits in the Canada Pension Plan (CPP), which became effective on January 1, 1966. At that time, the province of Quebec exercised its constitutional right to opt out of the national plan and set up the Quebec Pension Plan (QPP). The Quebec plan is similar to the CPP, which applies in the other nine provinces. There is full portability between the CPP and the QPP.

Canada provides public pensions through a combination of three national programs: the Old Age Security (OAS), the Guaranteed Income Supplement (GIS), Spouse's Allowance, and the Canada or Quebec Pension Plans. The OAS pension provides a universal demogrant (flat benefit) to all persons aged 65 and over who have lived in Canada at least 10 years, with benefits increasing for up to 40 years of residence after age 18. The benefit is financed from general revenues and equals approximately 15 percent of the lifetime average (wage-indexed) wage of the average worker, with a higher percentage for lower income workers. These benefits increase quarterly during retirement for changes in the cost of living.

The GIS and Spouse's Allowance programs provide benefits subject to an income test, also for people aged 65 and older who are recipients of an OAS pension. The monthly benefit depends on marital status and income. Even though it is income tested, the GIS is not a poverty program like the Supplemental Security Income program in the United States. Approximately 40 percent of the elderly who receive an OAS benefit also receive a GIS benefit (Tamagno 1996). Above a certain income level, the GIS benefit is reduced $1 for every $2 in income.

The Spouse's Allowance may be paid to the spouse of an OAS pensioner, or to a widow or widower, who is between the ages of 60 and 64 and who has lived in Canada for at least 10 years after age 18. The Spouse's Allowance stops when the person becomes eligible for an OAS pension at age 65. The GIS and Spouse's Allowance are financed out of general revenue.

The U.S. retirement income system is generally characterized as having three tiers—social security, private pensions, and private savings. If the Canadian retirement income system is analyzed in the same way, it can be thought of as having four tiers. The OAS and the GIS together form one tier that does not have a direct counterpart in the United States. These programs are distinct from U.S. social security benefits as a source of retirement income and as a retirement income tier in that neither benefits are tied to the number of years worked or to previous contributions.

The CPP and QPP provide earnings-related benefits for those who contributed during their working lives and represent the second tier of the Canadian retirement income system. They are a less important source of benefits than are social security benefits in the United States because they are supplemented by OAS and GIS benefits. The benefits from the C/QPP are linked to the individual's average lifetime covered earnings, and the payroll tax supporting these programs only applies to income up to the national average wage, which was Can.$37,400 in 1999.

This low ceiling on taxable income limits the amount of redistribution that can occur through this program because it limits the social security contribution liability of upper income workers. An explanation for the relatively low ceiling on social security taxable earnings relates to the fact that social security was developed relatively late in Canada. At the time it was developed, many high-income workers had occupational pension plans, and Canadian policymakers did not want the social security system to displace those plans.

The CPP replaces 25 percent of the worker's average lifetime earnings for persons whose earnings are less than or equal to the average industrial wage, compared with 40 percent for social security in the United States. For higher earners, the replacement rate is progressively lower in both countries.

The Canadian programs provide a survivor benefit to surviving spouses but do not provide a spouse benefit while both husband and wife are alive. The OAS benefit, which is provided to all retirees individually rather than on a family basis, corresponds in function to the spouse benefit in the U.S. social security system. Participation in the C/QPP is compulsory for all workers with earned income between the ages of 18 and 70, whether employed or self-employed, including government workers. This pension may be taken as early as age 60 in reduced amount or may be deferred until age 70 with an increased benefit to compensate for postponed receipt.

Income below a low level is exempted from the social security payroll tax for all workers. The exemption does not affect the earnings level used to calculate benefits. The exemption thus adds an element of progressivity not present in the U.S. system because it reduces the average tax rate for low wage workers more than it does for high-wage workers.

When the CPP "matures," or has existed long enough to cover a worker's entire career from age 18 to age 65, Canadians will be allowed to drop 7 of their nonworking or low income years between ages 18 and 65 (or 15 percent of the years between age 18 and the age at which CPP benefits are first received, if younger than 65) when calculating benefits. Up to that point, workers can drop 15 percent of their working years after 1965 or after age 18, whichever occurred later. This feature provides insurance against periods of unemployment or downward wage fluctuations for low-wage workers who start working at age 18. The drop-out years for workers with graduate education who start working at age 25 are entirely taken by their education, leaving them no drop out years during their working career. Unemployment is less likely to occur for those workers, however.

Contributors can also exclude time out of the workforce caring for children under age seven, with no limit on the number of years excluded. These drop-out years particularly help women because regulations make it difficult for men to qualify.

The third tier of the Canadian retirement income system is formed by the occupational pension system and the individual, voluntary, tax-assisted plans known as Registered Retirement Savings Plans (RRSPs) (which are similar to Individual Retirement Accounts in the United States. The fourth tier is personal savings. In both countries, the labor market earnings of households with retirement age workers could be thought of as an additional tier.

Table 5.1 shows the relative importance of Canadian social security benefits at different levels of worker income. The total public pension upon retirement at age 65 for a single person is roughly 46 percent of earnings at the average level of earnings for a full career worker, more for lower income workers and less for higher income workers. Because the OAS benefits, GIS, and Spouse's Allowances are not

Table 5.1 Retirement Income from Government Programs, 1993 (Can.$)[a]

Employment income prior to retirement (Can.$)	OAS	GIS	C/QPP	Total	Employment income (%)
0	4,547	5,404		9,951	
5,000	4,547	4,779	1,250	10,576	212
10,000	4,547	4,154	2,500	11,201	112
15,000	4,547	3,529	3,750	11,826	79
20,000	4,547	2,904	5,000	12,451	62
25,000	4,547	2,279	6,250	13,076	52
30,000	4,547	1,654	7,500	13,701	46

SOURCE: Maser (1995).

[a] Prior to age 65, persons with very low employment income could also receive social assistance benefits. This would lower the total income replacement rate. This table shows approximate annual amounts based on rates in January 1993 that a 65-year-old single person could expect to receive from these public programs. These amounts assume the individual has no other income, meets the residency requirements for full OAS benefits, and has contributed the required time to the C/QPP.

related to preretirement earnings, they are relatively more important for low-income workers. Public pension benefits are fairly flat, increasing little with preretirement income, because OAS benefits do not increase with income, and CPP benefits are modest, capped, and effectively subject to the GIS tax-back (Gunderson, Hyatt, and Pesando 1996). Canada ties retirement benefits less to the preretirement earnings of workers than does the United States.

A special tax, introduced in 1989, applies on OAS and Family Allowance benefits for individuals above a threshold income (approximately Can.$52,000 in 1996, indexed). This tax, derogatorily called a "clawback," is levied at a 15 percent rate on income up to the income level that results in complete elimination of the benefit. The clawback does not apply to C/QPP benefits because these have presumably been paid for by contributions of individuals and their employers. The clawback only affects the top 5 percent of retirees by income (Tamagno 1996).

SOCIAL SECURITY IN THE UNITED STATES

Social security in the United States is financed by a payroll tax levied equally on employers and employees up to a ceiling on earnings that currently covers all earnings of most workers. In 1999, the Old-Age, Survivors and Disability Insurance (OASDI) tax rate was 6.2 percent each for employer and employee on annual earnings up to U.S.$72,600, with no exemption amount, versus 2.8 percent each for Canada Pension Plan contributions on earnings up to Can.$37,400 (U.S.$24,290). Thus, higher income workers pay considerably more through the social security tax in the United States than they do in Canada, both because of a higher tax rate and because more of their earnings are subject to the tax. This difference is offset to some extent by the progressivity of the Canadian income tax system and the use of general revenue financing for an important part of Canadian social security benefits—the first-tier benefits.

Benefits in the United States are based on wage-indexed average earnings over the highest 35 years of earnings. Early retirement old-age benefits (at a reduced rate) are available at age 62, compared with 60 in Canada. Benefits are progressive, being higher relative to preretirement earnings for low-income beneficiaries. Benefits after retirement are price indexed, and an earnings test applies up to age 65 to receive benefits. Spouse benefits equal to 50 percent of the retired worker's benefit are provided to spouses who have never worked or whose earnings provide a benefit less than that received as a spouse benefit. This benefit is available at 65 and is reduced for earlier receipt, with the earliest age being 60.

The United States does not have a separate universal demogrant, like the OAS, that is unrelated to work. It does, however, have a minimum benefit for long-term workers. It also does not have an income-tested supplement like the GIS, but it does have a narrower income-tested benefits program through the anti-poverty Supplemental Security Income (SSI) program.

While differing in important ways, the United States and Canada have basically similar retirement income systems. Rather than having a generous public plan that provides retirees most of their retirement income, as do countries in southern Europe, both have diversified retirement income systems with modest social security benefits that leave room for occupational pensions for higher income workers. Both the Canadian and U.S. social security systems provide a low replacement rate (the ratio of the retiree's benefits to his or her previous earnings) compared with most other OECD countries.

COMPARISON OF RISK SHARING IN THE CANADIAN AND U.S. SOCIAL SECURITY SYSTEMS

Risk sharing in the Canadian and U.S. social security systems can be compared along various aspects of retirement income risk.

Income Replacement

One aspect of retirement income risk is income replacement risk. The social security systems in the two countries can be compared in terms of the income replacement rates they provide. Table 5.2 shows calculated replacement rates provided by social security to workers at different levels of preretirement earnings in both countries. Compared with the United States, social security benefits in Canada are more progressive, being more generous for low-income workers and less generous for high-income workers.

Gunderson, Hyatt, and Pesando (1996) have compared the relative importance within total retirement income of different sources of retirement income in Canada and the United States. The social security component of total retirement income is roughly the same in the two countries, as are the income replacement rates provided by social security to median income workers.

Early Retirement Risk

Workers risk being forced to retire earlier than they had planned. Forced early retirement might arise due to layoffs or poor health. Social security protects against this risk by providing early retirement benefits. The U.S. social security system allows workers to retire at age 62, but benefits are reduced roughly 20 percent from those receivable at age 65. For workers with a life expectancy equal to the popula-

Table 5.2 Income Replaced by Social Security in the United States and Canada

Individual's earnings preretirement (U.S.$)	U.S. replacement rate (%)	Canadian replacement rate (%)
6,450	79	130
12,900	57	71
19,350	50	51
25,800	46	42
51,600	27	21
129,000	11	8

SOURCE: Gunderson, Hyatt, and Pesando (1996).

tion average, this is an actuarially fair reduction in benefits. Workers whose early retirement is due to health factors that cause them to have a shortened life expectancy gain lifetime benefits by having the early retirement option, because, for them, the lifetime value of benefits received at age 62 exceeds that of benefits received starting at age 65.

The Canadian social security system provides better early retirement insurance than does the U.S. system. In Canada, benefits are reduced slightly less at age 62 (18 percent) than in the United States (20 percent). Also, the minimum age at which benefits could be received from the CPP was reduced from 65 to 60 in 1987, so that early retirement benefits can be received two years earlier in Canada than in the United States. If workers could freely borrow against their future social security benefits, or consume other forms of wealth before the minimum age for social security receipt, the age at which those benefits could be received would not matter. Because most workers have little financial assets at retirement, many are liquidity constrained and the earliest age at which social security benefits can be received does affect their consumption and their age at retirement.

Insurance Against Low Earnings Years

Workers face the risk that they will have years of low earnings that will reduce their retirement benefits. Social security can protect against this risk by calculating benefits in a way so that a few years of low earnings will have little negative effect on retirement benefits. Both the Canadian and U.S. social security systems allow workers to exclude some low earnings years from consideration in determining benefits. For workers who suffer a loss in earnings during a period, this provision protects their social security benefits from being reduced by that loss. In the United States, social security benefits for retired workers are based on the highest 35 years of earnings. Workers with more than 35 years of earnings may exclude their lowest years. Thus, someone starting work at age 18 and working to 62 would have 44 years of work and 9 drop-out years. Someone starting at age 22 would have 40 years of work and 5 drop-out years.

In Canada, full career workers eventually will be able to exclude their 7 lowest years of earnings (or 15 percent of their working years, whichever is lower), counting all years from age 18 to age 65. Thus, for current lower income workers who start working at age 18 and retire at age 62, the Canadian system provides fewer drop-out years (6.6 vs. 9), providing less protection against periods of low earnings. For someone starting work at age 22, the pattern is reversed (6 vs. 5).

Progressivity

Progressivity in the social security program provides an element of insurance in that it insures against low income. In a progressive social security system, workers with low income pay lower taxes relative to their income and/or receive higher benefits after tax relative to their income than do workers with higher income.

Progressivity in taxes

In both Canada and the United States, there is a maximum on taxable earnings. Workers earning above the maximum in a year pay no social security taxes on earnings above the maximum. However, earnings above the maximum also do not count in computing social security benefits. In Canada, the maximum level of earnings is much lower than in the United States. This by itself would make the system less progressive in terms of tax payments. However, the exclusion of the first Can.$3,500 of earnings from social security taxes is a progressive feature of the tax support for social security in Canada.

Also, in Canada roughly one-third of the old-age benefits are supported through general revenues. General revenues are a more progressive source of taxes than are social security taxes because of the higher tax rates that apply to higher earners. Thus, overall, it appears that the Canadian system is more progressive in its tax structure supporting social security financing.

Progressivity in benefits

Workers in Canada are eligible to receive social security benefits if they have made one year of contributions. The requirement in the United States is a minimum of 10 years of contributions. Thus, the Canadian system is much more favorable to low tenure workers. In Canada, the first-tier benefits are also a progressive feature because they are unrelated to earnings.

In the United States, the social security benefit formula is progressive. To calculate benefits, the worker's average wage is first calculated, indexing for the growth in average wages. Then, a formula is applied that yields a higher replacement rate for lower average wages. This formula yields a progressive benefit structure when viewing benefits on an annual basis.

The progressivity is offset to some extent by differences in life expectancy associated with lifetime income. Lower income workers tend to have lower life expectancy and thus to receive benefits for fewer years. However, they are also more likely to receive disability and survivor benefits. The net effect of their lower life expectancy on benefit progressivity is an unresolved empirical question.

In Canada, benefits are also related to average wages indexed for the growth in wages. However, the benefits are a flat percentage of average wages varying with years worked but not income, with no progressivity in the earnings-related benefit. Overall, as indicated in Table 5.2, benefits are more progressive in Canada than in the United States.

Taxation of benefits

In both Canada and the United States, benefits of higher income beneficiaries are taxed under the personal income tax, providing an additional element of progressivity in the social security systems. In the United States, the taxation of social security benefits only applies for higher income households. In Canada, the tax applies to all beneficiaries with taxable income. Through provisions in the Canadian income tax system, however, such as the income-tested tax credit for persons aged 65 and over, low-income pensioners do not pay tax on their benefits. In Canada, there is also the "clawback" tax of benefits, which is a surtax on OAS benefits that currently only affects the highest income retirees.

Indexation of Benefits

Indexation of benefits provides insurance against inflation during retirement. Both Canada and the United States provide full annual price indexation of benefits starting at retirement. Canada provides quarterly indexation of benefits for OAS benefits. When inflation is low, the difference between quarterly and annual indexation is unimportant, but Canada provides better protection against inflation in periods of high inflation than does the United States.

Survivor's Benefits

In Canada, a surviving spouse can receive a disability or retirement benefit in addition to an age-dependent survivor's benefit. For a surviving spouse age 65 or older, the survivor's benefit equals 60 percent of the CPP benefit of the deceased. However, an individual receiving combined benefits can receive no more than the maximum retirement benefit.

Survivor's benefits are more generous in Canada than in the United States for women who have worked, but less generous for women who never worked outside the home. In Canada, a surviving wife who had never worked outside the home would continue to receive her OAS benefit while that of her husband ends at his death. Thus, she would receive 50 percent of the OAS benefits they both received while her husband was alive. In addition, she would receive 60 percent of the CPP benefit of her husband. She would thus receive between 50 and 60 percent of the benefit received by her and her husband while he was alive. The exact percentage depends on the level of his CPP benefit. A U.S. woman who had never worked would receive 67 percent of the joint benefit received by herself and her husband while he was alive.

A Canadian wife with earnings exactly equal that of her spouse would continue to receive her own CPP and OAS benefits plus 60 percent of her husband's CPP benefit. The percentage she receives of the benefits they received while both were alive depends on the income level of the family, being higher for lower income levels, but would be somewhat higher than 50 percent of their joint benefit. The comparable U.S. woman would receive 50 percent of the joint benefit received by her and her husband while he was alive.

CONCLUSIONS

Both the Canadian and U.S. social security systems have features that reduce the risk bearing of workers with respect to their future retirement income. While in some ways the U.S. system provides greater protection (e.g., for widows who have not worked outside the home), overall it appears the Canadian system provides greater insurance against income risks through its earlier retirement age and greater progressivity of financing and benefits. It is also more favorable to short tenure workers. For most women it provides more generous survivors protection.

References

Gunderson, Morley, Douglas Hyatt, and James E. Pesando. 1996. "Public Pension Plans in the United States and Canada." Prepared for the W.E. Upjohn Insitute Conference on Employee Benefits, Labor Costs, and Labor Markets in Canada and the United States, November 4–6, 1994.

Maser, Karen. 1995. "Who's Saving for Retirement?" *Perspectives on Labour and Income* 7(Winter): 14–19.

Tamagno, Edward. 1996. *Safeguarding Canada's Pension System.* Ottawa: Human Resources Development Canada (Government of Canada).

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