Issue Brief

Lessons for Private Sector Retirement Security from Australia, Canada, and the Netherlands

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ABOUT NIRS

The National Institute on Retirement Security is a non-profit research institute established to contribute to informed policy making by fostering a deep understanding of the value of retirement security to employees, employers, and the economy as a whole. NIRS works to fulfill this mission through research, education, and outreach programs that are national in scope.

EXECUTIVE SUMMARY

In the United States (U.S.) private sector, low rates of retirement plan coverage and the large-scale shift from defined benefit (DB) pensions to defined contribution (DC), 401(k)-style individual investment accounts have resulted in almost all retirement funding, investment, and longevity risks being borne by workers.[1] This has resulted in pronounced retirement income insecurity for a majority of the workforce. Some characterize this shift as an unavoidable response to current demographic trends and economic uncertainty. However, other advanced countries have endeavored to both meet these challenges and provide relatively broad retirement income security through their combined social security and employer-sponsored retirement systems.

This paper provides international perspectives on retirement security by outlining social security and universal, quasi-universal, and voluntary employer-provided retirement plans in Australia, Canada, and the Netherlands. These countries have levels of development similar to the U.S., and have established retirement income systems that are recognized for their high quality in terms of adequacy, sustainability, and integrity. The goal of this paper is to assess the level of security and risk provided by each country's retirement system through the layers of income replacement provided by government, employer, and individual programs. In addition, this paper highlights key issues and lessons for consideration by U.S. policymakers and stakeholders.

The paper finds that while the level of risk borne by employees varies across the three countries' retirement income systems, risks are pooled among workers or offset by employers and government to a greater extent than in the U.S. In none of these three countries does the average worker individually bear all of the risks related to saving and investing to produce a level of retirement plan income that, combined with social security, provides a basic standard of living.

- All three countries provide relatively higher retirement income for low- and middle-wage workers through their social security and universal/quasi-universal employer plans combined than does the U.S.

- In Australia and the Netherlands, universal or quasi-universal employer-sponsored programs provide a substantial supplement to social security income.

- Australia's universal workplace retirement system, the Superannuation Guarantee, is a DC system in which workers bear investment risk individually. However, the success of the system is based largely on nearly universal coverage and high mandatory employer contributions, which are now a gross 9 percent of pay (7.65 percent net after taxes) and will rise incrementally to a gross 12 percent of pay in 2019.

- Netherlands' DB-centered system, funded primarily by employers, is the centerpiece of a national retirement income system that provides some of the highest income replacement rates among wealthy nations. Employers are shifting market and longevity risks toward employees through the increased use of hybrid plans, but employees bear those risks as a group and intergenerationally, not as individuals.

- While Canada has a *voluntary*, DB-centered employer-sponsored retirement benefit system with lower coverage than the Australian and Dutch systems, it has a highly progressive, two-part social security system that replaces over 70 percent of lifetime average wage-indexed earnings for low-income workers and about 50 percent for median-income workers.

The ongoing experiences of these countries in designing and adjusting their retirement systems provide potential lessons for U.S. policymakers for private sector retirement security.

- Australia, after reviewing problems with its decentralized Superannuation Guarantee system, is carefully setting standards for default funds, fee disclosure, and financial advice.

- The Netherlands has developed innovative hybrid workplace retirement plans, called Collective Defined Contribution Plans, which are DC plans from the perspective of employers, but are hybrid DB plans from the perspective of employees.

- In Canada and the Netherlands, employee contributions to DB plans, not just DC plans, are tax deductible. This may be a factor in the relative strength of DB plans in those countries.

In drawing lessons from abroad, it is important to understand how the retirement system of each country functions in the context of a particular set of national institutions, policies, and cultural norms.

- For instance, industry councils made up of unions and employers play a role, in industry-level benefit setting and the governance of workplace retirement plans in Australia and the Netherlands. They are also tied to large industry and multiemployer plans that benefit from economies of scale.

- All three countries have social security programs that are at least partially means-tested and funded at least in part by general revenue. Moreover, Canada and Australia have means-tested social security programs that broadly cover low- and middle-income workers and only reduce benefits significantly for high-income workers. This is in contrast to the means-tested, general revenue funded Supplemental Security Income program in the U.S., which is generally classified as "welfare" rather than social insurance.

- All three countries are addressing the effects of increased longevity, and currently have reforms in place that are changing important aspects of their systems. These include scheduled increases in social security benefit eligibility age and incentives to work longer. Social security spending is projected to grow at a faster pace in these countries than in the U.S., where benefits are less generous and where significant benefit reductions have been enacted.

INTRODUCTION

Domestic and cross-national policy debates about the sustainability and adequacy of social security and employer-sponsored retirement plans—both defined benefit (DB) and defined contribution (DC)—in the context of population aging are causing policymakers to focus attention on retirement income system reform. In particular, employers and governments have shifted more financial risk onto workers and retirees in response to the cost challenges created by an aging population, particularly in workplace based retirement benefits.

At the same time, it is important to understand qualitative differences among nations in the distribution of retirement income related risks and funding responsibility. In the United States (U.S.) private sector, low rates of retirement plan coverage and the large-scale shift from DB pensions to DC accounts have resulted in almost all of the funding, investment, and longevity risks being borne by workers, creating pronounced retirement income insecurity for a majority of the workforce.[2] Some characterize this shift as an unavoidable response to current demographic trends and economic uncertainty. However, other advanced countries have endeavored to both meet these challenges and provide relatively broad retirement income security through their combined social security and employer-sponsored retirement systems.

This paper provides international perspectives on retirement security by outlining the layers of income replacement provided by social security programs and universal, quasi-universal, and voluntary workplace retirement plans in Australia, Canada, and the Netherlands. Our goal is to assess the level of security and risk provided by each country's retirement system. Specifically, this paper compares and contrasts across the three countries:

- how DC savings programs and DB pensions articulate with social security,
- the distribution of funding responsibility, financial risk, and longevity risk, and
- retirement income outcomes.

In addition, this paper highlights key issues and lessons for consideration by U.S. policymakers and stakeholders. In identifying lessons, it is important to keep in mind that each country's retirement income system is the product of its culture, history, and political system, so that some features may work differently in these countries than in the U.S.

Australia, Canada and the Netherlands have similar levels of development to the U.S., and have established retirement income systems that are recognized for their high quality in terms of adequacy, sustainability, and integrity.[3] Sustainability refers to the ability to finance future social security benefits without an increase in the payroll tax rate used to finance them. This paper does not consider the financing of government health care benefit programs for older persons.

These systems also have significant differences. The Australian system relies on a means-tested social security program that provides a basic level of income, and a universal employer-funded DC system (the Superannuation Guarantee) that—when it matures—will provide most retirement income. The Netherlands has a basic social security benefit and a quasi-mandatory DB pension system, with some hybrid components, that provides the majority of retirement income. Canada has a two-tier social security system that provides the majority of retirement income for the average worker and a voluntary employer retirement system that has less extensive coverage.

A key finding of this paper is that, while the level of risk borne by employees varies across the three countries' retirement income systems, in none of these does the average worker bear, as an individual, all of the risks related to saving and investing to produce basic retirement income as is the case in the U.S. private sector. Rather, each country pools or offsets a significant share of the risks for employees through a distinct configuration of social security and workplace retirement plans to provide broad retirement income security. Australia, Canada and the Netherlands thus might provide valuable lessons for the U.S.

This paper is organized as follows. The next section provides a high-level comparison of the retirement income systems and their retirement income outcomes in the three countries. That section is followed by case studies that lay out the specificities of each country's retirement system in greater detail. The conclusion reflects on key lessons from the experiences of Australia, Canada, and the Netherlands.

I. COMPARISON OF RETIREMENT INCOME SYSTEMS IN AUSTRALIA, CANADA, AND THE NETHERLANDS

This section first describes the retirement income systems of the three countries in a comparative overview. It then presents income statistics that measure the outcomes of the systems. Most tables also include U.S. data to serve as a reference point for U.S. readers.

Notably, the retirement systems of Australia, Canada and the Netherlands differ in the degree of collectivism versus individualism—that is, the degree to which risk is shared by individuals in groups or is borne by other parties (governments or employers), versus the degree to which risk is borne individually by workers without the benefit of risk pooling or risk transfers to other parties. Among the three countries, Australia has the most individualistic retirement income system, with mandatory, predominantly DC workplace retirement plans. Canada has predominantly DB workplace pensions in which employers bear most of the risk, though DC plans also play a role, particularly in the private sector. The Netherlands has the most collectivist of the three systems, with predominantly DB workplace retirement plans—including hybrid plans in which individuals bear a modicum of risk—and few individual account DC plans.

Despite these significant differences, the three countries have relatively good outcomes in terms of retirement income, broad coverage of the workforce, and low-wage earners in particular experiencing high replacement rates from employer-sponsored retirement plans and social security benefits combined.

Comparing National Retirement Income Systems: Overview

The U.S. retirement income system is often characterized as a three legged stool made up of Social Security, employer-sponsored retirement plans, and voluntary savings. Social Security provides benefits based on years of work and earnings, and is financed by a payroll tax. Workplace retirement plans are provided voluntarily by employers.

Employer-provided plans in the U.S. traditionally were DB pensions, and those plans still predominate in the public sector. In the private sector, however, DC plans, particularly 401(k) plans, now predominate; moreover, nearly half of private employees do not have retirement plan access through their employer.[4] Finally, workers generally need to supplement Social

Table 1. Structure of Retirement Income Systems

Pillar	Description	Plan Type	Financing
0	Noncontributory Social Security	DB	General Revenue
1	Mandatory Social Security	DB	Payroll Tax
2	Mandatory Workplace Retirement Plan	Generally DC	Employer and/or Employee Contributions
3	Voluntary Workplace Retirement Plan or Voluntary Contribution to Mandatory Workplace Retirement Plan	DB or DC; If DC, Can be Group or Individual Plan	Generally Employee Contributions
4	Private Voluntary Savings	Not Employer-Sponsored	Employee Contributions

Source: World Bank (1994).

Security and a workplace retirement plan, if they have one, with voluntary savings. In practice, the relative size of each "leg" depends largely on income, with low-income retirees relying almost entirely on Social Security, middle-income retirees relying mostly on Social Security supplemented by workplace retirement plans, and only high-income retirees drawing income from Social Security, workplace retirement plans, and private wealth in roughly equal measure.

While a three-part description summarizes the U.S. retirement income system, a five-part description (five pillars) better captures the structure of retirement income systems in the international context (**Table 1**):[5]

- The zero pillar, a non-contributory social security program with widespread coverage, funded out of general revenue.
- The first pillar, a traditional social security (i.e., old age social insurance) program to which workers and/or employers contribute.
- The second pillar, a mandatory pension system, generally administered through the workplace. This is typically a DC system, but may involve DB pensions, or hybrid plans that combine features of both DB and DC plans.
- The third pillar, voluntary employer-provided retirement plans.
- The fourth pillar, voluntary private savings.

Even this expanded framework is not sufficient to capture all the differences in retirement income systems. Benefits can be based on years of contributions (flat rate), on earnings and years of service (DB), or accumulated contributions and investment earnings (DC). Benefits can be provided by government, employers, or financial institutions. The benefits can provide high replacement rates of pre-retirement earnings or lower replacement rates. Based on the source of benefits, systems can place relatively little or relatively great reliance on financial markets. Risks can be borne by workers and retirees or by employers, government or financial institutions.

The three countries differ in the number and types of pillars in their retirement income systems (**Table 2**). In effect, Australia and the Netherlands have three-pillar systems, while Canada

Table 2. **Pillars of National Retirement Income Systems**

Pillar	Australia	Canada	Netherlands	United States
0 - General Revenue	Yes - Age Pension	Yes - Old Age Security	No	No
1 - Payroll Tax Financing	No	Yes - Canada Pension Plan/ Quebec Pension Plan	Yes - AOW (National Old Age Pensions)	Yes - Old Age and Survivors Insurance
2 - Mandatory Workplace Retirement Plan	Superannuation Guarantee (DC)	No	Quasi-Mandatory Workplace Retirement Plan (DB)	No
3 - Voluntary Employer Provided Workplace Retirement Plans	Yes, but relatively unimportant	Yes - DB and DC; Employer-Sponsored and Individual Plans	Yes, but relatively unimportant	Yes - Predominantly DC Employer-Sponsored Plans
4 - Voluntary Individual Savings	Yes	Yes	Yes	Yes

Source: Authors' compilation.

Table 3. **Overview of National Social Security Systems, 2013**

Social Security Feature	Australia	Canada	Netherlands	United States
Social Security Tax Rate (Combined Employer and Employee)	None	9.9%	17.9%	12.4%
Annual Ceiling for Payroll Taxable Earnings ($US)	NA	$51,100	$43,400	$113,700
Social Security Benefit Eligibility Age (Earliest Age at Which Benefits Can be Received)	65	CPP/QPP: 60 OAS: 65	65 + 1 Month	62
Legislated Increases in the Social Security Benefit Eligibility Age (Year Change Fully Phased In)	67 (2023)	CPP/QPP: No change OAS: 67 (2029)	67 (2023)	No change; benefit reduction as Normal Retirement Age increases to 67 by 2027
Social Security Funding	General revenue, pay-as-you-go	CPP/QPP: Payroll tax, pay-as-you-go with partial advance funding through trust fund OAS: general revenue, pay-as-you-go	Payroll tax and general revenue, pay-as-you-go	Payroll tax and taxation of benefits, pay-as-you-go with partial advance funding through trust fund
Social Security Benefit Formula	Flat rate benefit, years of residency requirement, means-tested	CPP/QPP: Earnings-related benefit OAS: Flat rate benefit, years of residency requirement	Flat rate, based on years in Netherlands	Earnings-related benefit
Projected Sustainability of Social Security with Current Payroll Tax Rate	Sustainable	Sustainable	Sustainable	Insufficient funding

Source: Authors' compilation.
Note: NA means Not Applicable.

has a four-pillar system. Australia does not have a contributory social security program (pillar 1) and its voluntary pension system (pillar 3) is relatively unimportant. Canada does not have a mandatory pension system (pillar 2). The Netherlands does not have a non-contributory social security program (pillar 0) and has a relatively unimportant voluntary pension system (pillar 3). Its pillar 1 contributory social security program is supplemented by general revenue.

Social Security

While all three countries have sustainable social security systems with the current level of funding, these systems differ considerably in how they are funded and how their benefits are structured (**Table 3**). One notable aspect is that Australia and the Netherlands do not provide an earnings-related benefit through social security. Rather, the benefits are flat rate, meaning they are related to number of years in residence in the country or have a minimum years of residence requirement. In addition, the benefits in Australia are means-tested, meaning that benefits phase out at higher income levels.

Significantly, all three countries use general revenue to some extent for social security financing. Australia uses general revenue financing for its pay-as-you-go Age Pension system. Canada uses general revenue financing for its pay-as-you-go Old Age Security system, and payroll tax financing for its Canada Pension Plan and Quebec Pension Plan, which are partially pay-as-you-go and partially advance funded. The Dutch AOW (National Old Age Pensions) relies mostly on payroll tax financing, supplemented by general revenue funding, in a pay-as-you-go system. Canada is the only country of the three to have a two-part social security system, with a general revenue funded part and a payroll tax funded part.

Table 4 shows actual and projected spending on social security as a percentage of Gross Domestic Product (GDP) from 2000 to 2050, as calculated by the U.S. Government Accountability Office.[6] Reflecting future increases in old-age dependency ratios—i.e., the ratio of retirees to workers—spending as a percentage of GDP is projected to increase in the three countries, as well as the U.S., though at considerably different rates. In 2000, Australia spent 3.0 percent of GDP, compared to 5.1 percent for Canada and 5.2 percent for the Netherlands. By 2050, the figures are projected to be 4.6 percent for Australia, 10.9 percent for Canada and 10.0 percent for the Netherlands. Thus, the projected difference between Australia and Canada will grow from 2.1 percent of GDP to 5.4 percent of GDP. The low projected government spending in Australia reflects the role of mandatory employer-provided workplace retirement plans in conjunction with means and asset tests for social security.

Mandatory, Quasi-mandatory, and Voluntary Retirement Plans

The structure of workplace retirement plans, the extent of their coverage, and the relative importance of the retirement

Table 4. **Spending on Social Security as a Percentage of GDP, 2000 to 2050**

Spending or Projected Spending	Australia	Canada	Netherlands	United States
Spending in 2000	3.0%	5.2%	5.2%	4.4%
Projected Spending in 2050	4.6%	10.9%	10.0%	6.2%
Percentage Point Increase in Projected Spending as a Percent of GDP	1.6	5.8	4.8	1.8

Source: U.S. Government Accountability Office (2005).
Note: Projected spending data are based on GAO calculations.

income provided by these plans vary significantly among the three countries (**Table 5**). Australia and the Netherlands both use industry-wide workplace retirement plans, which reduce administrative costs through economies of scale. They also facilitate workers changing jobs within the industry by eliminating benefit losses for job changers. These workplace retirement plans are mandatory in Australia and quasi-mandatory in the Netherlands, meaning that for Dutch employers they are mandatory under industry-wide agreements. In contrast, the employer-sponsored system in Canada is voluntary at the firm level. Consequently, the Australian and Dutch systems have a high coverage rate (95 percent), while less than half of workers in Canada are covered.

In all three countries, employee contributions to DB pensions and DC plans are tax deductible. In the U.S., by comparison, private sector employee contributions to DB pensions are not tax deductible. All three countries have well-developed systems of pension regulation, as rated by an international survey on the regulation of risks in the workplace retirement systems.[7]

Table 5. **Overview of National Workplace Retirement Systems**

	Australia Superannuation Guarantee	Canada Workplace Retirement Plans	Netherlands Workplace Retirement Plans	United States Workplace Retirement Plans
Coverage Rate (Share of Workforce)	95%	32%	95%	40%
Degree of Compulsion	Mandatory	Voluntary	Quasi-Mandatory	Voluntary
Predominant Plan Type	DC	Final Pay DB	Average Pay DB; With a Move Toward DC (Employer Perspective) - DB (Employee Perspective) Hybrid	DC
Primary Source of Retirement Benefits?	Yes	No	Yes	No
Role of Voluntary Individual Account Workplace Retirement Plans	Minor	Important Part of Voluntary Workplace Retirement System	Minor	Dominant Part of Voluntary Workplace Retirement System
Employee Contributions Tax Deductible?	No, but Taxed at Reduced Rates	Yes	Yes	No for DB Yes for DC

Source: Author's compilations.

In addition, major stakeholders—employers, industry organizations, and employees—play different roles in each country's workplace retirement system (**Table 6**). Industry-wide funds play a major role in both Australia and the Netherlands, but not in Canada. The employee's role is limited in Australia, while in Canada employees have more of a role, both in contributing to their workplace retirement plans and in establishing individual workplace retirement plans.

Table 6. **Major Stakeholder Roles in National Workplace Retirement Systems**

Stakeholder	Australia	Canada	Netherlands	United States
Employer	Primary Contributor to Mandatory Workplace Retirement Plans	Sponsor and Contributor to Voluntary Workplace Retirement Plans	Contributor to Industry-Wide Plans	Sponsor and Contributor to Voluntary Workplace Retirement Plans
Industry-Wide Funds	Major Role	--	Major Role	--
Employee	Chooses Fund	Contributes to Employer-Sponsored Plans, Establishes Individual Plans	Contributes to Fund	Contributes to Employer-Sponsored Plans

Source: Authors' compilation.

Table 7. **Gross Replacement Rates from Social Security and Mandatory Workplace Retirement Plans, if Applicable, by Earning Level**

	Australia		Canada	Netherlands	United States	OECD Average
	Men	Women				
Median Earner	52.6%	50.1%	48.5%	89.1%	42.3%	60.6%
Low (50% of mean earnings)	73.3%	70.8%	76.6%	93.0%	51.7%	72.1%
Middle (100% of mean earnings)	47.3%	44.8%	44.4%	88.1%	39.4%	67.8%
High (150% of mean earnings)	38.6%	36.1%	29.6%	86.5%	35.3%	62.0%

Source: Adapted from OECD (2011).
Note: Values are percentage of gross wage-indexed lifetime average earnings. Data for Canada and the United States, which do not have mandatory workplace retirement plans, are forsocial security only.

Retirement Income Outcomes

The retirement income systems of all three countries provide income replacement rates significantly higher than most Organisation for Economic Co-operation and Development (OECD) countries, including the U.S.

Table 7 shows gross replacement rates from social security and workplace retirement plans for workers at different earnings levels. It includes both mandatory and quasi-mandatory workplace programs, but not voluntary plans.[8] Gross replacement rates are benefits as a percentage of wage-indexed, lifetime average earnings. The gross replacement rates in the Netherlands are higher at all levels of income than in the other two countries. All three countries, however, do a good job in providing retirement benefits to lower-income workers when viewed in comparison to the average for all member countries of the OECD.

One measure of how well retirement income systems protect low earners is the percentage of the older population with incomes below 50 percent of national median income. **Table 8** shows this indicator for the three countries for the population age 65 and older, disaggregated by age group, gender, and marital status.[9] For all of these groups, Netherlands has the lowest percentage of the population receiving less than 50 percent of median income. Older persons in Canada and the Netherlands are less likely than the general population to have less than 50 percent of median income. By contrast, in Australia the older population fares considerably worse in this regard than does the younger population.

Current retirement income statistics are inherently backward-looking, especially with regard to the effect of workplace and private retirement savings programs. Outcomes for current workers are likely to be different. For instance, Australia's older adult income statistics are likely to improve as its mandatory DC system fully matures.

Table 8 also shows that in Australia and Canada among the population age 65 and older, particular demographic groups fare worse than others. In both countries, singles fare considerably worse than couples. Also, women fare worse than men, but not by as large a difference. In this regard again, the Netherlands performs well, with minor differences between singles and couples and between men and women.

We now discuss each of the three countries individually.

Table 8. **Share of Older Persons with Less than 50 Percent of Median Household Disposable Income**

Age Group	Australia	Canada	Netherlands	United States
All Ages	12.4%	12.0%	7.7%	17.1%
Age 65+	26.9%	5.9%	2.1%	22.4%
Singles	49.9%	16.2%	2.6%	41.3%
Couples	17.7%	3.9%	2.3%	17.3%
Women	28.9%	8.1%	2.4%	26.8%
Men	24.6%	3.1%	1.7%	18.5%
Age 66-74	26.1%	5.2%	2.2%	20.0%
Age 75+	28.3%	6.8%	2.0%	27.4%

Source: Adapted from OECD (2011).

II. AUSTRALIA

Compared to the U.S. and other developed countries, Australia has a retirement income system that involves relatively low government spending and high private savings rates inclusive of employer contributions.[10] The main elements of its retirement income system are a noncontributory social security program funded out of general revenue and a mandatory, predominantly DC workplace retirement system funded by employers. This system provides relatively income high replacement for low-wage workers and modest income replacement for middle-wage workers.[11]

Social Security

Australia does not have an earnings-related social security program. Its social security program, called the Age Pension, provides flat benefits requiring at least 10 years in residence in Australia and is means-tested against both income and assets. While in the U.S. means-tested benefits, such as Supplemental Security Income (SSI), are only received by low-income persons, the Australian Age Pension provides benefits to most older persons, with only upper-income persons not receiving benefits.

The Age Pension is funded out of general tax revenue. Thus, income redistribution within the retirement income system occurs through a program financed out of general revenues, rather than a program financed by a payroll tax. People with income below a certain amount receive a full Age Pension payment from the government, with that payment being reduced and then eliminated at higher income levels. As the Superannuation Guarantee system matures, more individuals will either not receive the Age Pension or will receive smaller amounts.

Benefits. Retirees do not need any history of work to receive benefits from the Age Pension. Eligibility is determined by reaching the eligibility age, being resident in Australia for 10 years, and qualifying under the asset and income tests. About half of retirees receive a full pension, a quarter receive a reduced pension, and a quarter receive no pension because of their high income and assets.[12]

The means-testing in the system causes adverse incentives which distort the decisions made by workers. Because the asset test does not include housing, the system provides an incentive for Australians to invest (or over-invest) in housing. In addition, the asset test provides an incentive for Australians to retire early, take a lump sum benefit from their mandatory workplace retirement plan, and spend down the resulting assets so that they can qualify for a full Age Pension.

The benefit eligibility age for the Age Pension is rising over time. Currently, men can receive benefits at age 65. The benefits eligibility age for women has gradually increased over the past several years, to age 65 on July 1, 2013, on par with men. Beginning in 2017, the age for both men and women will rise until it reaches 67 on July 1, 2023.[13]

The maximum benefit provided by the Age Pension as of September 1, 2012 was A$20,142 for a single person and A$30,368 for a couple. (Australian dollars, A$, are roughly equivalent in value to U.S. dollars.) The Age Pension is taxable, but due to a variety of rebates, those receiving an unreduced benefit generally do not pay any income tax.[14] People with higher income and assets in retirement receive a reduced Age Pension.

The Age Pension benefit is sufficient to nearly meet the modest lifestyle needs of typical retirees. **Table 9** shows budget standards for a modest and comfortable lifestyle in Australia as of 2012, as indicated by the Association of Superannuation Funds of Australia (ASFA). Based on a typical retiree at age 65, these budget standards are widely used in Australia as an indicator of adequacy of retirement income.[15] The table also

Table 9. **Australian Age Pension Benefit Compared to Measures of Adequate Retirement Income**

(Australian Dollars)

	Modest Lifestyle Single	Modest Lifestyle Couple	Comfortable Lifestyle Single	Comfortable Lifestyle Couple
Yearly Total	$22,585	$32,555	$41,186	$56,339
Age Pension	$20,142	$30,368	$20,142	$30,368
Difference from Age Pension	$2,443	$2,187	$21,044	$25,971

Source: Clare (2013).

shows the maximum annual benefit of the Age Pension as of September 2012.[16] The maximum benefit covers all but approximately A$2,200 and A$2,400 of the modest lifestyle budgets for couples and singles, respectively.

Sustainability. The Australian Government regularly assesses the fiscal sustainability of the Age Pension, reporting the results in the Intergenerational Report (IGR). This report evaluates the long-term sustainability of policies over 40 years, including the impacts of demographic change.

In the fiscal year 2009-10 budget, the Government announced increases to Age Pension benefits, particularly for single persons. These increases were introduced along with measures designed to offset their costs. The budget saving measures included a gradual rise in the qualifying age for the Age Pension from age 65 to age 67, as described above.

Mandatory Retirement Savings Plans

Australia has a mandatory workplace retirement system that covers nearly all employed workers. The system is called the Superannuation Guarantee. The term superannuation is used in Australia to refer to workplace retirement plans. The system facilitates broad-based accumulation of retirement wealth and consists mostly of DC plans. It also functions as a privatized Age Pension system for high earners who accumulate substantial balances, given that social security benefits phase out for retirees with high incomes.

Financing. Employers make mandatory contributions to SG on behalf of their workers. Employee contributions are voluntary. This mandatory retirement savings system began in 1992, starting with a minimum employer contribution requirement of 3 percent. A schedule of future increases in the contribution was also set, which peaked at 9 percent of earnings as of July 1, 2002. Because Superannuation contributions are taxed at a 15 percent rate when they are made, the 9 percent contribution level only equates to a 7.65 percent savings rate for workers who do not qualify for a tax rebate.

Since launching the program, the Australian government has determined that the contribution rate of 9 percent is insufficient to provide an adequate retirement benefit, and established a schedule for further increases. The increase in mandatory employer contributions starts with a 0.25 percentage point increase in the 2013-2014 fiscal year, and then a 0.25 percentage point increase in 2014-2015. For the following 5 fiscal years, the rate will increase by 0.5 percentage points a year until it reaches 12 percent in July 2019.

With this increase in contribution rates, future Superannuation Guarantee benefits will rise. An effect of this increase in benefits is that it will reduce the number of people receiving a full Age Pension. Thus, the increase in contribution rates will offset to some extent the increase in government spending on the Age Pension that is projected to occur due to the projected increase in life expectancy.

The taxation of workplace retirement plans in Australia differs from that in the U.S. In Australia, most participants in DC plans are taxed at reduced rates on their contributions and investment earnings. Employer contributions are tax deductible business expenses. Employer contributions are not counted as part of an individual's taxable income. Instead, they are reported as a separate non-taxed item. However, a 15 percent tax is deducted from the contributions. Individuals with less than A$37,000 income receive a refund of taxes deducted from employer Superannuation contributions made on their behalf (up to a maximum refund of A$500) starting in July 2012. The money goes back into their accounts.

In addition, to encourage employees to make voluntary contributions, the government provides a matching contribution of up to A$500 for workers earning between A$33,516 and A$48,516 a year. For lower earners, the government provides a tax rebate of up to A$500 a year, with no contribution required.[17]

Benefits, whether paid out as a lump sum or as monthly payments, are tax free when received at age 60 or older. By comparison, the U.S. tax treatment of most types of workplace retirement plans is exempt contributions, exempt investment earnings, and taxed benefits.[18]

Coverage. The Superannuation Guarantee system covers nearly all workers. It excludes from mandatory participation workers earning less than A$450 a calendar month, part-time workers age 18 or less, and workers age 70 or older. In order to encourage older workers to continue working and increase their retirement savings, employers will be required to contribute for workers 70 and older beginning July 2013. Participation by the self-employed is not mandatory, and around 30 percent of the self-employed make voluntary contributions. Some contractors who might be regarded as self-employed are also covered through an extended definition of employee.[19]

Employer-provided DB plans have declined in importance over time in Australia. Currently, about 10 percent of workplace retirement plan participants are in DB plans, but most of those plans are closed to new members. In the long term, it appears that the system will be almost entirely a DC system, with the participants bearing all the financial market risk and employers bearing primary funding responsibility.[20]

Investments. The Superannuation Guarantee system has over A$1 trillion in assets.[21] Since 2005, employees generally have been able to choose the investment fund for their Superannuation Guarantee contributions, and can select from a broad range of funds. However, many employers and multiemployer plans choose a default fund that receives contributions unless the employee actively chooses another fund.

In 2010, a commission organized by the Australian government to study the Superannuation Guarantee system released its report, which is known as the "Cooper Report".[22] The report addressed weaknesses in the Superannuation Guarantee System and made recommendations for improvement. It noted problems with some of the default investments—such as high fees—and lack of transparency in financial disclosures, and set out new standards for default investments and financial disclosures. The commission determined that while having a financially literate population as a long term goal would be desirable with respect to the investment decisions required of participants in the system, shorter term issues could not be resolved through financial education. Instead, it based its recommendation for a low-cost, more heavily regulated system on the principle that not all Australians are able or want to be involved in investment selection.[23]

Following the Cooper Report, Australia has given special policy attention to default investments by creating "MySuper," a set of investment options that meet certain standards. Starting in 2014, in order to be categorized as a MySuper product, default investments must include diversification of investments and standardized disclosure of fees, among other requirements. The requirements do not include a maximum level on permissible fees, however. Target date funds, which automatically shift asset allocation from stocks to bonds as a worker's retirement date approaches and which are a commonly used default in the U.S., have not gained popularity in Australia.[24]

Financial Advice. To help DC plan participants and other investors make good investment decisions, Australia is implementing legislation to improve the quality of financial advice.[25] The Future of Financial Advice (FoFA) reform takes effect in July 2013. By eliminating commissions for advisers, such as commissions from the sale of particular mutual funds, the reform eliminates a key conflict of interest. When advisers recommend a financial product, they will have the duty to recommend the product that is in the best interest of their client, not merely suitable for the client. This is known as a fiduciary standard. The reform also attempts to improve the transparency of fees by requiring advisers to renew their fee agreement with clients every two years. However, receiving professional financial advice is not mandatory, and relatively few workers take advantage of it.

Benefits. Benefits can be taken as early as age 55, but if benefits are taken at age 60 or later, they are received tax free. Benefits can be taken as a lump sum, an annuity, a phased withdrawal, or some combination of these options. In 2012, half of retirees took their benefits as a lump sum. Of the remaining half, nearly all chose a phased withdrawal, with the choice of an annuity being rare.[26] Thus, the Superannuation Guarantee system does not provide retirees with longevity insurance, i.e., insurance against outliving one's resources.

Voluntary Workplace Retirement Plan Contributions

Voluntary contributions to workplace retirement plans come from a number of sources. Employers (usually large companies and governments) sometimes contribute a larger amount than the law requires for mandatory workplace retirement plans. Employees can contribute up to A$25,000 under a reduced tax rate through salary reductions, called salary sacrifice, but only about 20 percent of participants do so, with those mainly being higher earners.[27] The maximum tax-preferenced contribution has been reduced in recent years, though it remains substantial. Participants can contribute after tax, subject to a contribution cap of A$150,000 a year or A$450,000 in a three year period. In addition, for low-income persons the government matches after-tax contributions up to A$500 a year.

In summary, like most countries, the retirement income system in Australia is a work in progress, with recent reforms raising the level of mandatory savings for retirement, raising retirement ages in recognition of increased longevity, and improving the quality of financial advice by reducing conflicts of interest among advisers.

III. CANADA

Canada has succeeded in developing a retirement income system that results in relatively low levels of old-age poverty. Canada has a four-pillar system that consists of social security benefits financed out of general revenues, payroll tax financed social security benefits, voluntary employer-provided retirement plans consisting mostly of DB pensions, and private savings. The two-part, progressive social security system provides relatively high income replacement for low- to middle-income workers.

Social Security

The Canadian social security system has two key components. The payroll tax funded portion (Canada Pension Plan, or CPP) provides benefits based on a worker's earnings, while Old Age Security (OAS), funded out of general revenue, provides flat rate benefits based on years of residence in Canada. Most workers are eligible to receive both types of benefits at the same time.

The social security programs in Canada are more progressive than in the U.S. The benefits provided are more generous for low-income workers and less generous for high-income workers. They are also more progressive on the financing side because roughly one-third of total benefits are financed by general revenues in the context of a highly progressive income tax structure, rather than by payroll taxes which are capped at modest earnings levels. Also enhancing the progressivity of the program, contributions to CPP are not tax deductible, but contributors receive a tax credit at the lowest tax rate. Benefits are fully taxable under the income tax.

Canada Pension Plan. CPP is the main social security program for Canada, except for the province of Québec, which maintains a similar plan, the Québec Pension Plan (QPP).

The CPP is funded by payroll taxes, with excess revenues deposited in a trust fund. The CPP Investment Board manages trust fund assets, currently totaling C$183 billion, in a diversified portfolio. The Chief Actuary for the CPP projects that contributions will exceed benefit payments until 2021, at which time the investment earnings from the CPP trust fund will be needed to help finance benefit payments.[28] However, no future increases in payroll tax rates are anticipated.

The target replacement rate for benefits from this plan is 25 percent of average lifetime earnings, with earnings indexed to the growth in average earnings. When combined with the Old Age Security and Guaranteed Income Supplement programs, described below, the social security replacement rate is about 50 percent. Benefits in payment are indexed to prices, so the purchasing power of benefits is maintained throughout retirement and is not eroded by inflation. For people earning above the average, the replacement rate falls with increasing earnings.

Benefits are financed by contributions of 4.95 percent of pay by both employees and employers (a total of 9.9 percent). These contribution rates are not comparable, however, to those in other countries that rely solely or primarily on payroll tax financing of social security, like the U.S. This is because a substantial part of government-provided old age benefits is provided through general revenue financing, described later in this section.

The ceiling on payroll taxable earnings is relatively low compared to the U.S., being slightly above average earnings,[29] whereas the ceiling in the U.S. is more than twice average earnings. Contributions are levied on income between a base amount of C$3,500 and C$51,100 (both for 2013). (The Canadian dollar, C$, is roughly equivalent in value to the U.S. dollar.) The minimum level is frozen at C$3,500, while the maximum level is adjusted each year based on increases in the average wage. The low ceiling on earnings constrains the extent of redistribution through the CPP.

In calculating lifetime average annual earnings for the purpose of determining benefits, CPP drops out a certain number of years with low or zero earnings between age 18 and the year benefits are claimed. The percentage of earning years that can be dropped out is being increased from 15 percent in 2011 to 17 percent in 2014, causing the number of years that can be dropped to rise from 7 to 8 years. This arrangement provides workers a form of insurance against their earnings-related benefit from being reduced by low-earnings years, including periods of unemployment and caring for children under age 7.

In an effort to reduce barriers to work for older workers and to increase incentives, the government is implementing (from 2011 to 2016) a series of changes to the CPP. These changes include a reduction in benefits for workers who retire before age 65 and an increase in benefits for workers who delay retirement past age 65, up to age 70.[30]

Retirement from work is not required for receiving benefits from the CPP. Previously, once a worker claimed social security benefits, he or she stopped paying social security contributions on further earnings, as did the employer. Since the beginning of 2012, workers aged 60 to 64 and their employers have been required to continue paying contributions toward a special benefit program, called the Post-Retirement Benefit. Workers age 65 to 70 may voluntarily decide to continue paying contributions in order to receive enhanced benefits, in which case their employer must also contribute. Workers aged 70 or older do not make social security contributions.

The CPP benefit formula provides greater insurance against low-earnings years for low-wage workers and a greater increase in benefits for postponed retirement than does the Social Security benefit formula in the U.S.

Old Age Security. Most Canadians age 65 or older are eligible for OAS, which is financed out of general revenue. The eligibility age will gradually be raised to age 67 over the years 2023 to 2029. Benefits from this program are based on years of residence in Canada, with a reduction in benefits for persons receiving high income in retirement. Benefits are reduced ("clawed back") for persons with income between C$70,000 and C$110,000 (approximately). About 5 percent of recipients have their benefits reduced. Benefit rights are accumulated at the rate of 2.5 percent of full benefits for every year of residence in Canada from age 18, up to a maximum of 40 years. A minimum of 10 years of residence is required for benefit eligibility.

The flat rate benefits from OAS replace a higher percentage of pre-retirement earnings for persons with lower wages.[31] In 2012, for an earner making C$40,000 the benefits were 26 percent of wage-indexed lifetime average earnings.

Guaranteed Income Supplement. Canada also provides a means-tested program, called the Guaranteed Income Supplement (GIS), to persons age 65 or older. (For persons age 60-64, the Low-Income Allowance provides a means-tested benefit.)[32] Eligibility for this program will also rise to age 67 by 2029. GIS benefits are reduced or "clawed back" at rates of 50 percent or greater on all taxable income other than the basic OAS benefit. This means-tested benefit is not an anti-poverty benefit received by only a small percentage of the older population. Rather, the benefit is received by about a third of Canadians age 65 or older.[33] That percentage has declined over time. In the 1990s, 40 percent of persons age 65 and older receiving the OAS benefit also received the GIS benefit.[34] The OAS and GIS are paid out of general revenues and together cost approximately 1 percent of GDP.[35]

The replacement rates provided by the OAS and GIS will decline over time due to the structure of the indexing of the plans. For a person with C$40,000 in pre-retirement income in 2012, the gross replacement rate for those two programs was about 30 percent. Thus the combined replacement rate for these programs and the CPP is over 50 percent. This compares to a replacement for average earners of about 40 percent in the US. By 2052, in Canada the replacement rate for a person with comparable salary relative to the salaries projected for that time would have a replacement rate of 38 percent, due to a combined roughly 17 percentage point reduction in the replacement rate provided by the OAS and GIS.[36]

Employer-Provided Workplace Retirement Plans

For workers with average and higher incomes, the income from Canada's social security plans must be supplemented by work-based workplace retirement plans and savings in order to provide an adequate income in retirement. Less than half of workers are enrolled in employer-provided workplace retirement plans, which are primarily DB, but which are increasingly shifting towards DC plan design. A study for the province of Ontario in 2006 found that overall coverage of the labor force was about 35 percent, with the coverage rate in the public sector at about 80 percent and the coverage rate in the private sector at about 25 percent. Among covered workers, 80 percent were in DB plans and 20 percent were in DC plans. However, DB plans are more prevalent in the public sector than in the private sector.[37] In 2006, in the private sector DB plans covered 73 percent of plan participants in Canada, while DC plans covered 27 percent.[38]

Canada provides favorable tax treatment to two types of employer-sponsored retirement plans: Registered Pension Plans (RPPs) and Deferred Profit Sharing Plans (DPSPs). The latter type is rare. Most RPPs have been DB pensions, but employers have begun to shift towards DC plans. The share of RPP members covered by a DC plan increased from 8 percent in 1990 to 26 percent in 2011.[39]

Private workplace retirement plan coverage is provided by an estimated 7,000 private DB plans and an estimated 8,000 DC plans to an estimated 4.5 million and 0.8 million members, respectively. DB assets exceed C$550 billion, while DC assets represent an estimated C$50 billion.[40] Because the DC statistics do not include Group RRSPs, which are individual retirement savings accounts administered through the workplace,[41] they understate the coverage of employer-provided DC plans. In 2008, 50 percent of employed Canadian tax filers participated in a private retirement savings plan, including individual account plans that individuals established. The share of employed tax filers participating in an employer-sponsored retirement plan was 32 percent.[42]

RPPs are commonly integrated with the CPP social security program, meaning that RPP benefits are offset by CPP benefits. Integration with OAS is not permitted in some provinces.

In Canada, the federal tax authority regulates workplace retirement plans concerning their tax treatment. Both employee and employer contributions to workplace retirement plans are tax deductible, and employees generally contribute. In contrast, private sector employees in the U.S. cannot contribute to DB plans on a tax deductible basis. Employer and employee tax deductible contributions to DC plans in Canada are subject to a combined limit of C$22,970 (for 2012).[43] However, employers can contribute as much as needed to fund DB plans. By comparison, combined annual limits for employer and employee contributions to DC plans for 2013 for the U.S. are $51,000, allowing for greater potential accumulation.[44]

Workplace retirement plans are also regulated at the provincial level concerning the conduct of plan sponsors and pension service providers. Some plans in federally regulated industries, such as airlines and banks, are not subject to provincial regulation but are subject to further federal regulation. Only the Province of Ontario has the Pension Benefits Guarantee Fund, which insures private sector DB plans.

A continuing challenge to the Canadian retirement system is that Canadians are working fewer years to pay for a longer retirement period. Between 1970 and 2009, the percentage of life spent working declined from about 60 percent to 45 percent. This occurred as the result of delayed entry into the workforce, a decline in the average retirement age from 65 to 60, and an increase in life expectancy.[45] Recent reforms encourage workers to work longer as a way of strengthening the retirement income system. Further reforms will be needed in the future to offset declining replacement rates that are projected from some benefits programs.

IV. NETHERLANDS

The Dutch retirement income system consists of the following three pillars: the social security system, the quasi-universal workplace retirement system, and savings and personal retirement plans that individuals can arrange on their own.[46] Some people receive benefits only from social security, while most people who have worked receive benefits from both social security and employer-provided retirement plans, and some people also receive benefits from personal retirement plans.

Social Security

The social security program in the Netherlands, called AOW (National Old Age Pensions), provides a basic level of income in retirement. Its benefit is linked to the national minimum wage. The benefit is not related to individual earnings, and is thus more generous relative to earnings for persons with lower earnings. Each member of a married couples or couple living together receives 50 percent of the minimum wage, or approximately €700 a month. Older persons living alone receive 70 percent of the minimum wage, or approximately €1,000 a month. (At 2013 exchange rates, €1, or one euro, is worth about $1.30).

The old-age benefit is payable in 2013 at age 65 and one month, rising to age 67 in 2023. Its level is based on the number of years of residence in the Netherlands between the ages of 15 and 65. Benefits are reduced by 2 percent a year for each year not living in the Netherlands. The beneficiary can receive social security payments and still continue working. A means-tested benefit is also available, with qualification for the benefit based on income and assets. Benefits are adjusted twice a year based on changes in the legal minimum wage. In comparison to most other countries in Europe, the social security plan provides a relatively small part of retirement income.

The benefits are financed on a pay-as-you-go basis. Workers contribute 17.9 percent of covered earnings for old-age benefits and 1.1 percent of covered earnings for survivor benefits. In 2012, the maximum covered earnings were €33,346 ($43,300). Employers do not contribute. The government also provides a subsidy out of general revenues, so that everyone paying taxes, including retirees, participates in the financing of the system.

Workplace Retirement Plans

The Netherlands has a commitment to broad workplace retirement plan coverage and strong plan funding. Within that context, since the year 2000, dramatic changes have occurred in the workplace retirement system. Before the stock market downturn in 2000-2001, most plans were final salary DB plans in which employers bore most of the risk. Since 2001, employers have modified the workplace retirement plans they provide, shifting risks to employees.

Initially, some risk was shifted to employees when employers converted from final salary DB plans to career average benefit plans, with the indexing of career average wages—to account for inflation—contingent on pension investment performance. This conversion occurred not only for new accruals but also for benefit rights already accrued. In the early 2000s, roughly one-third of DB plans were final average pay plans.[47] By the end of 2008, 87 percent of workers participating in workplace retirement plans were in career average DB plans.[48] As of 2012, most DB plans based benefits on career average earnings, with only one percent of DB plans basing benefits on final average earnings.[49]

Career average DB plans in the Netherlands typically have an accrual rate for future benefits of between 1.75 percent and 2.25 percent of career average earnings for each year of service for retirement at age 65. The Dutch government, however, has reduced the maximum allowable accrual to 2.15 percent of average pay for retirement at age 67 starting in 2014. This is actuarially equivalent to 1.84 percent of average pay for retirement at age 65.

Most private sector workplace retirement plans are integrated with the social security system, and have had a target replacement rate for combined social security and workplace retirement benefits that was 70 percent of final pay for a career of 40 years of work.[50] More recently, the target has been set at 70 percent of average pay, with that rate being achieved after a full career of work. The reduction in the maximum accrual rate will make it more difficult for workers to achieve that target.

Coverage. Approximately 95 percent of employed workers in the Netherlands are covered by an employment-based retirement plan, largely due to industry-wide agreements mandating such plans. Participation in industry-wide retirement plans becomes mandatory if social partners (the employer and employee organizations) in an industry request the Ministry of Social Affairs and Employment to make participation mandatory. As of 2012, 90 percent of workplace retirement plan assets were DB assets.[51]

Industry-Wide Plans. About 80 percent of employees are covered by industry-wide plans. An advantage of these plans is that employees can change jobs within the industry and continue within the same plan. Because of the size of these plans, they are able to benefit from economies of scale in management and to have relatively low administrative costs. Companies that are not covered by an industry-wide pension plan can choose to offer a corporate pension plan or a pension plan managed by an insurance company.

The level of fees charged for managing investments can have an important effect on the level of pension benefits. Legislation that took effect in 2010 allows small pension plans in different industries and subject to different collective bargaining agreements to merge in order to take advantage of the cost efficiencies of economies of scale. These multiemployer plans presumably will be able to have lower costs per euro accumulated in their funds due to their greater size. Each of the member funds is required to have an employee trustee and an employer trustee on the multiemployer fund governing board.

Collective Defined Contribution Plans. The movement toward collective DC plans in response to new corporate reporting requirements and financial market volatility shifted more risk from employers to employees. Starting in 2005, companies listed on the stock market were required to use the International Financial Reporting Standards. Under these accounting reporting rules, companies offering a DB plan are required to report the funding status of that plan on their annual report. This requirement does not apply to industry-wide pension funds. The stock market decline in 2007-2008 further motivated employers to reduce the financial market risks they were bearing in pension plans. At the same time, Dutch firms have been reluctant to switch to individual investment accounts because of a long tradition of collective bearing of risk.

Consequently, employers offering company pension plans have begun to shift toward collective DC plans. This shift has not occurred for industry-wide pension funds. Collective DC plans are hybrid plans combining features of DB and DC plans. While they are labeled as DC plans in the Netherlands, they would be considered DB plans in the U.S.[52] This is because workers do not have individual accounts; benefits are based on the worker's career average earnings and number of years of participation in the plan. Furthermore, although these plans shift certain risks to employees and retirees, these risks are pooled across workers and spread over time, rather than borne individually.

Employers and employees both contribute to collective DC plans. These contributions are tax deductible. The contribution rate for employers for accrued benefits is fixed, and contribution rate changes resulting from renegotiation cannot be based on the funded status of the plan or the rate of return it has received.[53] Higher contribution rates can be negotiated to cover higher costs of providing future benefits, for example due to increases in life expectancy. Thus, the future contributions of the employer are independent of past performance. However, employers share in risks that cause volatility of costs for newly accruing benefit rights. Thus, when life expectancy increases, the increase in costs of providing benefits for past years of service is borne entirely by the workers, while the increase in costs of providing future benefits can be shared with employers.

Although the investment and longevity risks are transferred to the participants, they are not borne individually. The longevity risks can be diversified across the pool of participants. The investment risks can be diversified over time. These risks are not contingent on the individual's retirement date, as is the case for an individual account. The investment risks can be diversified across generations of workers retiring at different dates.

An advantage of this type of hybrid arrangement over an individual account is that investments are pooled and, due to economies of scale, investment fees are considerably lower. The plan can take a long-term outlook on investments, and it can share investment risks across generations of workers. For these reasons, collective DC plans can maintain a portfolio that is largely invested in equities, while a participant with an individual account would likely find it desirable to gradually move the portfolio into bonds as retirement approached. Also, employees do not have the responsibility of making investment decisions for an individual account. Another advantage compared to traditional DC plans is that employees in collective DC plans do not bear interest rate risk when receiving annuitized benefits because their benefits are determined by a benefit formula.

With a collective DC plan, compared to a traditional DC plan, a participant's initial benefit is less affected by whether that person retires during a decline in financial markets or during a period of surging financial markets. However, uncertainty for workers as to indexation lasts into retirement because it is tied to the outcomes in financial markets.

Funding. DB plans in the Netherlands are required to maintain a minimum funding ratio of 105 percent. Many plans fell below this level as a result of the recession in the late 2000s and low interest rates caused by the Euro crisis. In many plans, the employee contribution rate is increased if the funding ratio falls below 105 percent. If the funding level cannot recover to 105 percent in three years with this change, then benefits in payment are reduced. In 2013, a large number of pension funds had to reduce benefits in payment for the first time. This is a form of intergenerational risk sharing in that both workers and retirees absorb the costs of sub-par investment returns.

In addition, the pension fund must hold financial buffers, which allow the funds to withstand financial downturns. The size of each fund's buffer depends on the amount of risk in the pension portfolio. Including the buffers, for most pension funds the minimum funding ratio is about 125 percent.

In 2010, the social partners in the Netherlands agreed to a new risk sharing mechanism for DB pensions, which is called "soft real rights." Under this proposal, financial market risks are borne to a greater extent by younger workers than older workers. The effect of a financial market downturn on future benefits is smoothed over a ten-year period, reducing the impact on workers who are less than ten years from retirement.[54] The Dutch government is planning to introduce a new pension law in 2014 allowing pension funds to adopt this new risk sharing mechanism.

Retirement and Benefits. For all types of workplace retirement plans, benefits must be received as an inflation-indexed annuity. The tax deduction of pension contributions is only permitted when benefits are received as an annuity. Thus, workplace retirement plans in the Netherlands provide protection against longevity risk.

Employers may offer the option of part-time retirement. With this arrangement, a person works part-time and receives a partial retirement benefit. The continued work leads to increased future benefits.[55] There is also the possibility (within limits established by law) of workers receiving a higher benefit for early retirement and a lower benefit if retirement is postponed.

Voluntary early retirement benefits used to be common in the Netherlands, facilitating retirement between age 60 and 65, but as of 2006 new accrual in these plans are no longer tax deductible, in a policy move to encourage postponed retirement.

In summary, the employer-provided workplace pension system in the Netherlands has changed over time. But unlike in many countries, DC plans still play a relatively minor role in the retirement income system in the Netherlands. Rather, the shift has been towards DB or hybrid plan designs that involve a greater amount of risk being borne by workers than is the case in traditional final salary DB plans.

CONCLUSIONS

The retirement income systems in Australia, Canada and the Netherlands all have similarities with that of the U.S., but they also have important differences that provide an opportunity for lessons to be learned. Importantly, all three countries are relatively successful in providing basic retirement income security for a majority of its workforce through social security and workplace retirement plans combined. While the level of risk borne by employees varies across the three countries' retirement income systems, risks are pooled among workers or offset by employers and government to a greater extent than in the U.S. In none of these three countries do workers individually bear all of the risks related to saving and investing to produce a level of retirement plan income that, combined with social security, provides an adequate standard of living for the typical worker.

This is accomplished differently in each country, which has its own configuration of social security and workplace retirement systems. All three countries have sustainable social security programs that use general revenue to some extent and are not projected to need increased funding, but these vary widely in funding and benefit structure. They also have very different employer-sponsored retirement systems.

Australia has a general revenue funded social security system alongside a mandatory employer-funded DC retirement system. Australia's universal workplace retirement system, the Superannuation Guarantee, is a DC system in which workers bear investment and longevity risks individually, but employers bear primary funding responsibility. Significantly, the success of the system is based largely on nearly universal coverage and high mandatory employer contributions, which are now a gross 9 percent of pay (7.65 percent net after taxes) and will rise incrementally to a gross 12 percent of pay in 2019.

In the Netherlands, a social security system financed primarily by payroll taxes provides modest benefits. However, the centerpiece of the national retirement income system is a quasi-universal employer-sponsored retirement system, funded primarily by employers and consisting mostly of DB and hybrid pensions. Consequently, the Dutch system provides some of the highest income replacement rates across income groups among OECD countries—roughly 90 percent of wage-indexed lifetime average earnings. While employers are shifting market and longevity risks toward employees through the increased use of hybrid plans, employees bear those risks as a group and intergenerationally, not as individuals.

While Canada has a *voluntary*, DB-centered workplace retirement benefit system with significantly lower coverage than the Australian and Dutch systems, it has a highly progressive social security system. Consisting of two parts—a general revenue financed benefit tied to years of residence and a payroll tax financed benefit tied to earnings—the Canadian social security system replaces over 70 percent of lifetime average wage-indexed earnings for low-income workers and about 50 percent for median-income workers.

The ongoing experiences of these countries in designing and adjusting their retirement systems also provide potential lessons for U.S. policymakers. Australia, after reviewing key problems with its decentralized Superannuation Guarantee system, is carefully setting standards for default funds, fee disclosure, and financial advice. The Netherlands has developed innovative hybrid workplace retirement plans, called Collective Defined Contribution Plans, which are DC plans from the perspective of employers, but are hybrid DB plans from the perspective of employees. In Canada and the Netherlands, employee contributions to DB plans, not just DC plans, are tax deductible. This may be a factor in the relative strength of DB plans in those countries. In contrast, employees in the U.S. cannot contribute to private sector DB pensions on a tax-advantaged basis.

However, in drawing lessons from abroad, it is important to understand how the retirement system of each country functions in the context of a particular set of existing national institutions, policies, and cultural norms. For instance, industry councils that comprise unions and employers play a role in Australia and the Netherlands in industry-level benefit setting and the governance of workplace retirement plans. They are also tied to large industry and multiemployer plans that benefit from economies of scale.

Another example relates to the fact that all three countries have social security programs that are at least partly means-tested and involve some form of general revenue financing, with or without payroll tax financing. While social security plays a small role in the Netherlands, where the employer pension system provides most retirement income, the Canadian and Australian means-tested social security programs broadly cover low- and middle-income workers and only reduce benefits significantly for high-income workers. This is in contrast to the means-tested, general revenue funded Supplemental Security Income program in the U.S., which serves very low-income seniors and people with disabilities and is generally classified as "welfare" rather than social insurance. This difference stems from divergent trajectories of welfare state formation.

Finally, all three countries are addressing the effects of increased longevity and currently have reforms in place that are changing important aspects of their systems, such as scheduled increases in social security benefit eligibility age and incentives to work longer. Social security spending is projected to grow at a faster pace in these countries than in the U.S., where benefits are less generous and where significant benefit reductions have been enacted.

In conclusion, Australia, Canada, and the Netherlands may offer important lessons for policymakers and stakeholders in the U.S., where nearly half of workers are at risk for not being able to meet basic expenses in retirement.[56] All countries are in the process of adjusting to demographic challenges to their retirement systems. Nonetheless, Australia, Canada, and the Netherlands illustrate how key risks faced by workers in saving and investing for retirement income can be mitigated or shared—to a significantly greater degree than in the U.S.—so that layers of income from social security, workplace retirement plans, and private savings together provide broad retirement income security.

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