THE ADEQUACY OF THE RETIREMENT INCOME SYSTEM FOR RETIRED MIDDLE-INCOME CANADIANS

ANDERSON EDO EBHOMIELEN
Master of Managerial Psychology, University of Lagos, 2012

A thesis submitted
in partial fulfilment of the requirements for the degree of

MASTER OF ARTS

in

POLITICAL SCIENCE

Department of Political Science
University of Lethbridge
LETHBRIDGE, ALBERTA, CANADA

THE ADEQUACY OF RETIREMENT INCOME SYSTEM FOR RETIRED MIDDLE-INCOME CANADIANS

ANDERSON EDO EBHOMIELEN

Date of Defense: May 3, 2022

Dr. Geoffrey Hale	Professor	Ph.D.
Dr. Yale D. Belanger	Professor	Ph.D.
Thesis Co-Supervisors		
Dr. Alan Siaroff	Professor	Ph.D.
Thesis Examination Committee Member		
Dr. John von Heyking	Professor	Ph.D.
Chair, Thesis Examination Committee		

DEDICATION

I want to dedicate this thesis to my Lord and Saviour, Jesus Christ, my wife – Nosa Ebhomielen, my children (Anderson-Junior, Jayden, Jeffrey, and Judah). Also, to my father, mother, and friends who made this journey a huge success.

ABSTRACT

Lower-income retired Canadians in income quintile one are well taken care of by the government's income support system, while upper-income Canadians (income quintile five) typically have adequate income and investments in retirement. However, this thesis established that middle-income Canadians in income quintiles two, three, and four rely on a mix of retirement income sources to achieve sustainable pre-retirement living standards. Data analyses were used to determine the adequacy of the retirement income system. The thesis focused on selected periods of 2000, 2005, 2010, 2015, and 2018 and compared the performance of the RIS in Canada and across the selected provinces of British Columbia, Alberta, Ontario, Quebec, and Nova Scotia. This thesis established that the RIS is adequate for middle-income Canadians. Employment income during retirement has no significant relationship with the Gross Replacement Rate (GRR). The thesis confirmed that the RIS achieved its objectives through the various retirement income sources.

ACKNOWLEDGEMENTS

My most profound appreciation goes to my supervisor, Professor Geoffrey Hale, for his guidance, directions, support, and encouragement, making this thesis possible. My warmest gratitude goes to Professor Yale Belanger and Professor Alan Siaroff, my committee members, for their intellectual contributions and faith in me and inspiring me to complete this thesis. Also, my special thanks go to Nonso Monwuba for his assistance and suggestions.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

LIST OF ABBREVIATIONS

CPP	Canada Pension Plan
DB	Defined Benefits
DC	Defined Contributions
GIS	Guaranteed Income Supplement
GRR	Gross Replacement Rate
LAD	Longitudinal Administrative Data
NRR	Net Replacement Rate
OAS	Old Age Security
QPP	Quebec Pension Plan
Q1	Quintile One
Q2	Quintile Two
Q3	Quintile Three
Q4	Quintile Four
Q5	Quintile Five
RIS	Retirement Income System
RPP	Registered Pension Plan
RRSP	Registered Retirement Saving Plan
RSP	Retirement Savings Plan
TFSA	Tax-Free Savings Account

CHAPTER ONE: INTRODUCTION

The two primary objectives of Canada's Retirement Income System (RIS) are to eliminate or reduce poverty for older Canadians and to enhance their ability to maintain their standards of living as they move from employment to retirement. Processes to achieve these goals are reflected in the three pillars of the RIS. All three pillars contribute to seniors' income security and income replacement. The first pillar, which provides a basic, taxpayer-financed income for most Canadians, includes Old Age Security (OAS) and the Guaranteed Income Supplement (GIS). The second pillar is composed of the Canada Pension Plan (CPP) and Quebec Pension Plan (QPP): a social insurance program financed by mandatory contributions based on employment income. These first two pillars are also referred to as the public retirement income system. The third pillar is made up of employer-sponsored Registered Pension Plans (RPP), tax-supported retirement and other savings income, and other private savings, and investment income. Private savings and investments include tax-assisted and non-tax-assisted savings. Tax-assisted savings comprise Registered Retirement Savings Plans (RRSP) and Tax-Free Savings Accounts (TFSA), although the latter may be used for purposes beyond retirement income. Non-tax assisted savings are sometimes referred to as the fourth pillar of the RIS. They include various savings and investment platforms available to an individual, such as personal savings accounts, stocks, bonds, and other investment opportunities such as mutual funds in the financial sector of the economy, or other income such as rental properties and other business income.

Retirement may be defined in many ways. Some authors liken it to a process, and others refer to it as an event. Retirement as a process may involve a stage-by-stage

planning of retirement and adjusting to changes in consumption and earnings to maintain pre-retirement living standards. It may also reflect a continuum ranging from the involuntary displacement of older workers through gradual disengagement from the paid labour force to the choice of pursuing gainful employment as a transition from full-time career employment to full retirement. However, retirement as an event involves attaining a pre-determined retirement age**,** often tied to eligibility for pension benefits, whether provided by government agencies or employer pension plans. Historically, some Western industrial countries, including Canada, have set a 'national retirement age' of 65 linked to entitlements to public benefits, which is the nominal retirement age in the absence of mandatory retirement age**.**

This thesis focuses on determining the adequacy of the RIS for Canadians of retirement age of 65 years and above because it is the age where older Canadians are eligible for retirement income supports such as OAS and GIS. It is also the age where CPP benefits are actuarially increased if a Canadian retires beyond age 65. Some Canadians may retire before age 65, but their CPP benefits will be actuarially reduced, and they will not be eligible for the OAS and GIS benefits until age 65. As a result, age 65 is where most Canadians receive public income supports and unreduced CPP benefits. In particular, it will assess the income replacement capacity of the RIS for Canadians 65 and older and the relationship between replacement rates and seniors' ongoing engagement in the paid labour force**.** However, as some seniors are still employed or looking for work and some are in the labour force delaying their retirement to save enough for retirement or pay off household debt, the thesis will also explore the extent of

pension inequality: the discrepancies of access to and quality of pension plans for different segments of the labour force.

Baldwin (2020) defines retirement income "adequacy" as the relative capacity of the three pillars of the RIS to replace pre-retirement income and sustain Canadians' pre-retirement standard of living when they retire. The degree of income replacement becomes the determining factor of the post-retirement standard of living. Standard measures of retirement income, and its relative adequacy, are the Gross Replacement Rate (GRR) and the Net Replacement Rate (NRR) (Kesselman 2010; Cross 2014). The GRR is the ratio of total retirement income to total pre-retirement income. The NRR focuses on personal consumption: the ratio of personal or household disposable income in retirement to pre-retirement disposable income or "take-home pay." The adequacy of retirement income is determined by measuring what older Canadians spend in retirement and estimating the gross or net income needed to maintain that consumption level. Therefore, the thesis will explore the questions of the income replacement levels needed to minimize the risk of poverty for seniors and enable older Canadians to maintain their pre-retirement consumption. The level of pre-retirement consumption varies by income levels, family size, and cost of living in different parts of Canada. In order to maintain consumption levels at retirement, individuals are required to save for their retirement so that income can be received while not gainfully employed. As a result, income replacement is needed to maintain pre-retirement living standards in post-retirement to avoid living in poverty. Retirement income security is affected by multiple factors including the extent and type of labour force attachment, family and socio-economic status, including pre-retirement income levels – issues addressed in greater

detail in Chapter 2: The Background to Canada's Retirement System. However, there are concerns about the adequacy of the RIS for future Canadians going into retirement. These concerns have led to different measures taken by the governments and policy analysts to review the adequacy of the CPP/QPP, the dynamics of OAS and GIS, and the extent to which Canadians are saving enough for their retirements.

DEFINITION OF PROBLEMS

Defining the Problem

Canada's Retirement Income System went through an extensive formal and informal policy review during the years following the global financial crisis and recession of 2007-09. Numerous analysts concluded that the RIS has improved the living standard of seniors to some extent compared to what was obtainable in the past generations, based on actions by both federal and provincial governments. However, the adequacy of the RIS and the pension inequality prevalent among retirees leave much to be desired. Three sets of issues have emerged as significant concerns: levels of employment pension coverage, inequality of employment pension coverage across different groups of working Canadians, and the extent to which inadequacies in retirement savings lead Canadians to work beyond the age of 65 in order to maintain their standards of living.

Employment Pension Coverage

Canada's public retirement system provides a foundation for retirement security for lower- and middle-income Canadian households. However, a quick overview of income data from 2018 for senior households and unattached seniors indicates that the public retirement income system and overall government transfers accounts for only 37.4 and 40.0 percent of total income respectively, while private pension, RRSP, investment and

other income account for 47.9 percent of total income (see Table 1.1). Private (employment) pensions account for the largest share of "Pillar Three" income: 31.9 percent.

Table 1.1 - Income Sources: Households and unattached individuals aged 65 and over: 2018

(percent)	Total
Total income	100%
Pillar I: OAS / GIS	20.3%
Pillar II: CPP / QPP	17.1%
Pillar III: Private Pensions	31.9%
Pillar III: RRSPs	1.6%
Pillar III: Dividend / interest income	11.3%
Employment Income	12.1%
Other government transfers	2.6%
Other income	3.1%

Source: Statistics Canada, private data analysis; household income statistics, (2021).

However, both differences in access to and the quality of employment pensions contributes to substantial pension inequality in Canada, reflecting both the structure of the labour force and labour force attachment in Canada. Statistics Canada (2021) notes that overall pension coverage of paid workers has declined from 40.8 percent in 1999 to 37.1 percent in 2019. Coverage for women increased slightly, while pension coverage for men dropped from 42.0 to 34.5 percent over the same period. Coverage by defined benefit (DB) pension plans dropped from 34.5 percent to 24.7 percent of paid workers, while coverage from defined contribution (DC) pensions increased slightly from 5.6 to 6.9 percent. Defined benefit (DB) pension plans guarantee retirement income, usually based on formulae reflecting years of service and highest levels of pre-retirement income, with varying degrees of inflation protection in retirement, while DC plans are based on

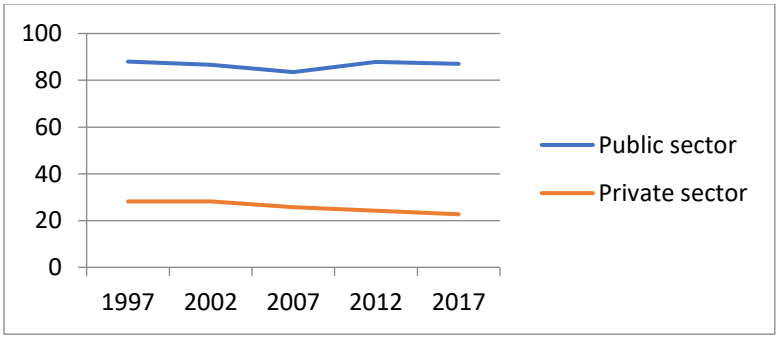
their investments' market performance rather than guaranteeing pensioners' retirement incomes.

Pension Inequality

Disparities in pension access and quality are reinforced by differences between the extent and quality of pension coverage by workers in public and private sectors. Statistics Canada (2021) notes that the private sector employees accounted for 64.7 percent of the labour force in 2019, compared with public sector employees (20.2 percent) and the self-employed (15.7 percent), of whom 70.5 percent have no paid help. The latter are most vulnerable to economic shocks such as the 2020-21 pandemic. Cross (2014) notes that public sector total pension assets accounted for 68 percent of total pension assets**,** despite public sector workers only accounting for 20.4 percent of overall employment, while total private sector pension assets were only 32 percent of the total pension assets, despite private sector workers accounting for 79.6 percent of labour force employment. These disparities have been growing for most of the past twenty years. Figure 1.1 shows a wide gap in the percentage of paid workers covered by a registered pension plan (RPP) from 1997 to 2017, with data provided every five years. There is a wide gap in pension coverage between public and private sector employees. Figure 1.2 shows the evolution of the pension quality gap between the public sector and private sector employees, identifying differences in levels of defined benefit, defined contribution, and other (typically hybrid) plans in public and private sectors. Again, the private sector includes self-employed Canadians relatively few of whom are participants in a registered pension plan.

A comparative analysis from the graphs below shows that employees in the public sector have a higher participation rate in defined benefit plans than employees in the private sector. In 2017, for example, 87.1 percent of public sector employees were covered by a registered pension plan, compared with only 22.7 percent in the private sector. The latter figure includes self-employed Canadians who are participants in a registered pension plan. Moreover, for public sector employees, Figure 1.1 shows that there is relative stability in pension plan membership from 1997 to 2017, with just a minor decline in 2007. However, it also indicates a decline in private sector pension coverage from 28.2 percent in 1997 to 22.7 percent in 2017. These data underline the reality of pension inequality among retired seniors, part of broader challenges faced by middle-income Canadians in retirement. If this trend continues, there is a potential problem maintaining pre-retirement living standards and income replacement rate for middle-income seniors.

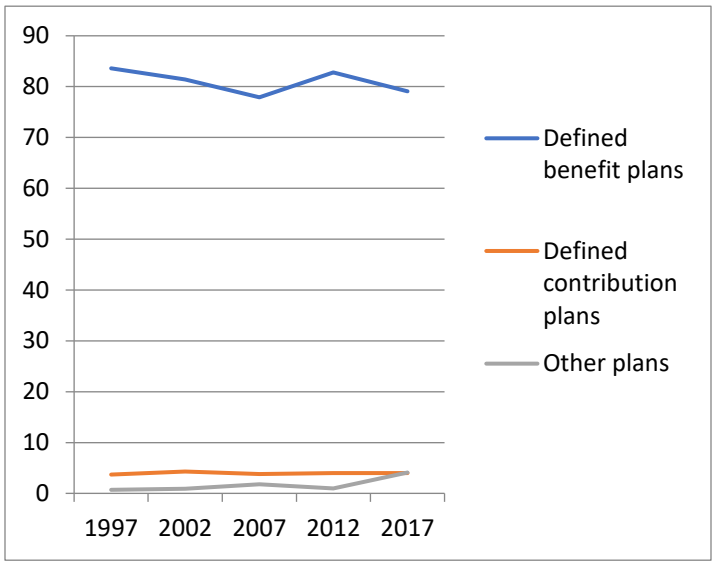
Figure 1.1: Percentage of Paid Workers Covered by a Registered Pension Plan by Sectors 2018.



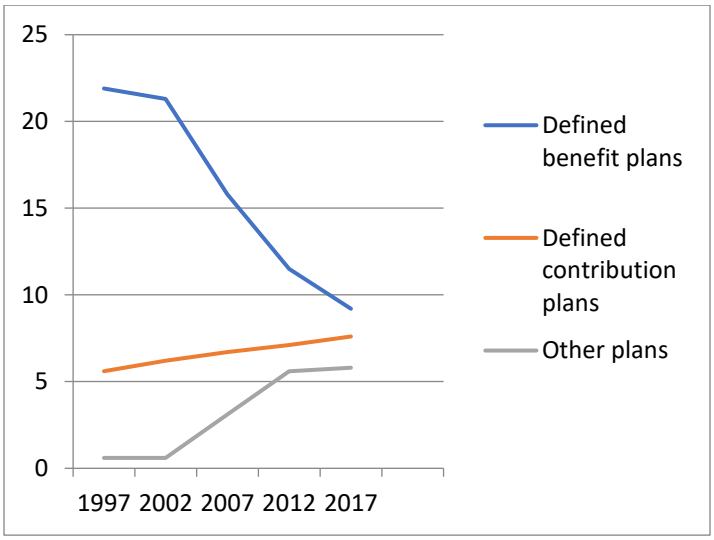
Source: Statistic Canada 2018 report

Figure 1.2: Percentage of workers in the different types of registered pension plans by sectors 2018.

Public Sector Employees



Private Sector Employees



Source: Statistics Canada 2018 report: Registered Pension Plan Membership, by Sector and Plan Type

Not only is pension coverage far lower in the private sector than the public sector, it is also far more likely to be based on DC or hybrid (involving composite plans including elements of both DB and DC plans) than DB plans (see Figure 1.2; Table 1.2).

Table 1.2 - Pension Coverage: Public and Private Sector Employees: 2019

	Total	Defined Benefit	Defined Contribution	Other plans[1]
All sectors	37.1	24.7	6.9	5.5
Public Sector	88.3	80.0	4.1	4.2
Private Sector	22.4	8.8	7.8	5.9

Source: Statistics Canada (2021), "Percentage of paid workers covered by a registered pension plan," Tables 11-10-0133-01 and 14-10-0027-01, *The Daily,* June 29, 2021. https://www150.statcan.gc.ca/n1/daily-quotidien/210629/t002c-eng.htm

Employment Beyond Age 65

These realities contribute to significant differences across employment sectors in the adequacy of income sources to maintain the living standards of retired Canadians. They have contributed to growing tendencies to remain gainfully employed or seek employment after "retirement" so that the income from employment will enhance living standards beyond those provided by government transfers, other employment pensions, and private retirement savings. The reason is that from 2010 statistics on income composition, about 70 percent of all residents have some employment income, which is 74 percent of the total income in Canada. Surprisingly, of the 74.7 percent employment income, wages and salaries constituted 70.3 percent, while self-employment and small business income make up the remaining 4.4 percent.

A Statistics Canada (2010) report also shows that employment income decreases with age, but the proportion of Canadians with employment income at age 66 is 43.1 percent, while at age 75, it is 18.2 percent. It is concerning that so many Canadians beyond normal "retirement age" are still working. A 2018 Statistics Canada report (see Table 1.3) indicates that about 40 percent of persons aged 65-69 and almost 30 percent of persons working at or beyond age 70 do so from necessity (Hazel 2018). These figures suggest income support received from government transfers and employment standards may be insufficient to sustain seniors' living standards in retirement.

Table 1.3 - Working Past Age 60 (2017) – Choice or Necessity

	By choice	By necessity
60 years and over	51.0	49.0
60-64 years	40.7	59.3
65-69 years	59.7	40.3
70 years and over	71.6	28.4

Source: Statistics Canada, "Labour Force Survey"' Hazel 2018.

Statistics Canada data commissioned by the author indicate that 44.2 percent of couple families over age 65 and 20.6 percent of individuals not in census families reported employment or self-employment income in 2018. Even for those aged 75 and over, 28.8 percent of couples and 20.6 unattached individuals reported some level of employment or self-employment income (see Table 1.4).

Table 1.4 - Couple Families and Individuals not in Census Family reporting Employment or Self-Employment Income: 2018

Percent	Couple Families	Unattached individuals
65-69	59.6	38.2
70-74	41.9	23.5
75+	28.8	11.8
Over 65 Total	44.2	20.6

Source: Statistics Canada (2021), "Composition of Household Income: Couple Families and Individuals not in census families," private data run.

Another problem of pension inequality shows that the retirement income system is disadvantageous to some income groups of Canadians, such as the self-employed and employees in the private sector with limited or no pension plans. For example, Statistics Canada data summarized in Table 1.5 show that average retirement ages in 2019 were 2.7 years higher for self-employed Canadians (67.1) than for private sector employees (64.4) and 4.5 years higher than for public sector employees (62.6).

Table 1.5 - Average and median retirement ages by employment sector: 2019

	All employees	Public Sector	Private Sector	Self-employed
Average	64.3	62.6	64.4	67.1
Median	64.5	62.3	64.8	66.4

Source: Statistics Canada (2021), "Retirement age by class of worker, annual," Table # 14-10-0060-01 (Ottawa: November 8).

These data suggest that for some retired Canadians are retirement income may not be sufficient to maintain their pre-retirement living standards unless they seek full or part-time work after age 65. However, it is important to recognize that some retired Canadians work not because of inadequate income but because they want to be busy and

active – consistent with data in Table 1.3. Another primary consideration is the impact of inflation on the pension payout to seniors from declines purchasing power due to inflation. Although extended periods of relatively high inflation during the 1970s and 1980s led the federal government to index CPP and OAS benefits to the consumer price index (CPI), relatively few pension plans outside the core federal public sector have full indexation and as noted above, fewer than 30 percent of Canadians outside the public sector have employment pensions at all.

Despite repeated reforms to the RIS, many observers have expressed concerns that Canadians are not saving enough for retirement. (McDonald and Donahue 2011; Moore, Robson and Laurin 2010; Wolfson 2011) – although others are more optimistic (e.g. Cross 2014; Hamilton 2015). The reason for focusing on Canadians' third source of retirement income is that studies show that one-fourth to one-third of Canadians may not be saving enough for their future, and they may depend on the public retirement income system. The 2016 Statistics Canada Survey of Financial Security (SFS) indicates that the proportion of senior households with mortgage or consumer debts increased from 9.9 percent in 1999 to 27.4 percent in 2016 (Uppal 2019), although the extent and levels of debt increase significantly with income. This finding challenges traditional views that at the age of 65, an average Canadian is expected to have housing or mortgage paid up and has already acquired other assets such as stocks, bonds, and other investments, hopefully appreciating in value. If overall retirement savings levels are adequate, few seniors should be involuntarily seeking employment.

Furthermore, the expectation that employer-sponsored pension plans and the public and private pension plans will cover the shortfalls of the public retirement system

for Canadians are not valid for every senior for reasons noted above. These concerns prompted Canada's federal and provincial governments to introduce two sets of reforms to the CPP in 2016, with implementation between 2019 and 2025. The reform in 2019 involves gradual enhancement by increasing CPP contribution rates by one percentage point each for employers and employees over five years, which will increase the CPP retirement pensions and post-retirement benefits. In 2024-25, a higher pensionable earnings limit will be introduced, allowing the investment of an additional portion of earnings to the CPP.

This thesis will be organized chapter by chapter, and it will be structured according to the objectives of the research. Chapter one will focus on the introduction, problem definition, and historical background of the research. The introduction will give a brief discussion of what the thesis is about and what it plans to achieve; that is, it will include a detailed thesis statement. It will also include some definitions of terms to give the readers a description of the terms used as it applies to the objectives. The rationale is to present a brief overview so that readers can, at first glance, understand what the thesis is all about, while the problem definition will focus on the issues of the RIS and why it matters. The historical background will analyze the history of the public retirement income system and the goals it was set to achieve. The purpose of the background is such that the reader can understand how the RIS evolved and how we got to where we are today. Furthermore, chapter two will focus on the literature review, which focuses on the views, studies, and opinions of academics, researchers, policymakers, government officials, and how these different views and analyses of empirical data impact this thesis. It is important to recognize people and authority in the pension world and what their

opinions or positions are, as it affects seniors' living standards and the pension inequality that may be existing or could exist in the future if measures are not put in place to address it.

Chapter three of this thesis will discuss the research methodology and sources used for gathering data. The methods used for quantitative analysis will be discussed; the scope, sample, and sample size will be stated in this chapter. It will also include the types of primary and secondary data collected, the size of data, and sources of data. The secondary sources are pre-existing data that have been previously analyzed and gathered by different individuals or organizations, and the limitation of gathering the data will be discussed. As a link to the research methodology outline in chapter three, the analysis of the results from the data collected and the discussion of findings will be outlined in chapter four. The results will determine if the hypotheses are true or false and analyze how the results are linked to the research questions. The quantitative analysis results in this thesis will be reviewed, and the discussion of findings will be used to summarize the thesis. Chapter four will also discuss how the results from the research methodology can be interpreted or translated into the RIS reality and how it affects seniors.

Finally, chapter five will discuss the limitations, recommendations, and conclusions of this thesis. The limitation will outline the challenges or difficulties of the research, such as limitations in gathering secondary data. This section will also provide a recommendation that is needed to achieve the purpose of the thesis. If any, the recommendation will state the proposed actions to be implemented in the RIS and the real or potential pension inequality among retired Canadians. Lastly, the thesis's conclusion will state the overall outcome and if the thesis achieved its objectives. In conclusion, this

chapter discussed the introduction of the thesis, the objectives of the RIS, and the components of the first, second, third, and fourth pillars of the RIS. Also, it looked at the definitions of RIS, and the definition of problems identified, some of which include employment pension coverage and the pension inequality between the public and private sector employees.

CHAPTER TWO: HISTORICAL BACKGROUND, LITERATURE REVIEW AND METHODOLOGY

In this chapter, the thesis will discuss the historical background of the RIS, literature review and methodology. The historical background is essential to give understanding to the situation the led to the creation of the RIS and the various years the components of the RIS was established. It will also discuss what the RIS was created to achieve and the changes or reforms that was implemented. Furthermore, the literature review will focus on research and studies of policy analysts, and academics on the RIS. The objective of the literature review is to show the finding of studies and research on what it recommends on the adequacy of the RIS. The methodology will discuss the method of data analysis this thesis will use for data gathering, analysis and interpretation of the adequacy of the RIS.

Canada's Retirement Income System: Historical Background

Every Canadian in the workforce will, at some point in their career, consider what life will be like after retirement and seek out available programs to help maintain a sustained lifestyle. To some extent, the federal government has met this expectation by creating social insurance and social assistance programs to address older Canadians' needs. Therefore, after decades of these programs, Canadians are still receiving income support, although whether or not it is adequate for them is subject to debate.

Canada's retirement income system has evolved greatly since its beginnings in the decade after the First World War. Before the Second World War, private savings were the primary source of older Canadians' retirement income. During this era, municipalities and charities provided "relief" from poverty, including food and clothing, in the absence

of social assistance or insurance programs – often a major financial burden during periods of economic difficulty. The system proved incapable of dealing with the extended crisis of the Great Depression (1929-39).

Efforts by social reformers led to federal legislation creating the first Old Age Pension in 1927. This pension provided for federal cost-sharing for means-tested provincial pensions targeted at lower-income seniors aged 70 and older (Dewetering 1990). However, the twenty years following the Second World War saw the introduction of Old Age Security (OAS, 1952), Canada and Quebec Pension Plans (CPP/QPP, 1965), the regulation of employer-sponsored pensions (1965), the Guaranteed Income Supplement (GIS, 1967), and other tax-shelter savings such as RRSPs (1957) (Maser 2003: 12). A 1951 constitutional amendment provided an opportunity to reform the Old Age Pension Act. It led to the enactment of the Old Age Security Act (OAS), a modest income assistance program for Canadians 70 and older funded from dedicated federal tax revenues (Mazer et al 2017). The OAS remained the main source of public retirement income support to seniors aged 70 and older until 1966. Following Quebec's announcement of plans to create a universal Quebec Pension Plan (QPP) in 1964, the federal government negotiated a partnership with other provincial governments to establish the Canada Pension Plan (CPP), which took effect in 1966.The reason for the partnership with provinces was because the OAS was introduced in 1952 subject to provincial paramountcy. Therefore, the CPP was a deal between the federal government and provinces requiring provinces representing a majority of the population to consent. Provincial consent was necessary to change the plan for joint governance. Hence, the federal government could not change the CPP without provincial consent. These two

plans are contributory pension plans funded by employers and employees based on social insurance principles. They were designed originally to replace an average of 25 percent of workers' earnings between the ages of 18 and 65 up to the level of the average industrial wage ($ 5,000 in 1966; $ 57,400 in 2019; $ 64,900 in 2022), supplementing the OAS (Mazer et al. 2017; Canada Revenue Agency 2020, 2021). Originally a "pay-as-you-go" system, current workers' (and employers') contributions paid for current retirement benefits. CPP benefits were indexed to inflation in 1974. But demographic changes during the 1970s and 1980s revealed the downside of the CPP's design: if current contributions cannot pay for the cost of benefits, governments had to increase contributions of workers and employers to make up the difference.

By the 1960s, the retirement income system had expanded to include the OAS, GIS, CPP/QPP, and other federal and provincial social programs to address Canadians' different needs. The CPP is only available to those who have worked and paid into the plan (Lacasse 2017). It was not sufficient to maintain living standards, especially for lower-income seniors. In response, the federal government created the Guaranteed Income Supplement (GIS) in 1967 as a targeted tax-supported program for lower-income seniors.

Developments Since 1970

The period of 1960 to 1970 saw the establishment of most of the programs of the retirement income system. A series of policy initiatives and events impacting the retirement system occurred from 1970 to 2020. However, the focus of this thesis will be from 2000 to 2020. From 1980 and 2010, the primary policy debate that shaped the discussion was on how to combine three major goals: first, anti-poverty and poverty

reduction; second, maintaining and enhancing the sustainability of the CPP; and thirdly, how to enhance income replacement through a combination of public and private pension plans and other income supports. The period between 2010 and 2019 witnessed the fine-tuning of the poverty reduction strategy and the adaptation of income maintenance to changing labour markets and income maintenance needs for individuals and families, particularly middle-income earners. Supplemental CPP benefits introduced in 2019 to be phased in through 2025 will be discussed below.

Since the 1960s, there have been various reforms to the retirement income system by both federal and provincial governments to provide Canadians with adequate income and a reasonable standard of living in retirement. Some reforms expanded benefits or reduced taxes on pension income, including exclusions of lowest earning years from CPP calculations and splitting of CPP pension credits between spouses (1978). However, chronic deficits also led to increased targeting of benefits, including repayment or "clawback" of OAS for upper-income earners since 1989. As a result, some Canadians postpone collecting their OAS benefits because more money received in retirement may push a retiree into a higher tax rate bracket, which results in a tax clawback of 15 percent for every $ 1,000 taxable income over a defined threshold ($ 79,054 in 2020)**.** Another change to the RIS resulted from increasing concern over the impact of demographic aging resulting from the baby boomers retiring (see Table 2.1). The CPP, as a pay-as-you-go system, originally was based on the payment of benefits for one generation from the contributions of the future generations. The decline in the number of younger Canadians entering the labour force created concerns over expected increases in the over-65 dependency ratio, increasing costs for the future working population paying for

benefits of currently retired Canadians. The dependency ratio (see Table 2.1) is the ratio of individuals aged 65 and over to individuals of working age.

Table 2.1 - Age Dependency Ratio: Canadians 65 and over as percent of working age population (15-64)

1985	15.0	2005	19.0
1990	16.5	2010	20.4
1995	17.7	2015	23.6
2000	18.4	2020	27.4

Source: World Bank; Federal Reserve Board of St. Louis (2021), "Age Dependency Ratio"; https://fred.stlouisfed.org/series/SPPOPDPNDOLCAN.

Due to these concerns for fiscal sustainability, the pay-as-you-go system of administering the CPP was changed to a system that would ensure greater intergenerational equity in the 1990s, thus helping to reduce the level of inter-generational transfers, which is the current working population paying for the retirement benefit of retired Canadians. In 1997, the federal government negotiated changes to the CPP pay-as-you-go system with provincial governments to move towards steady-state financing. Steady-state financing helps build a reserve of assets to ensure that the ratio of assets to expenditures is stable over time, helping to stabilize contribution rates for workers and employers. The new funding system helped to ensure that the level of assets to the level of expenditure would be stabilized by increasing contribution rates from 5.6 percent in 1996, divided equally between employers and employees, to 9.9 percent in 2003. The 1997 agreement also provided that future improvements in CPP benefits would

be subject to incremental full funding, so that new benefits would be funded before the benefit is received. Therefore, costs accrued from benefits earned and not paid are amortized and cleared within a pre-defined period (Government of Canada 2016).

The most recent reform to the RIS in 2016 is the expansion of the CPP to cover 33 percent of workers' average earnings (compared to the previous 25 percent), with the additional benefit to be fully funded from additional contributions between 2019 and 2023. In addition, the CPP changes will increase the CPP's Yearly Maximum Pensionable Earnings (YPME) by a further 14 percent, also on a fully funded basis. Although the unprecedented COVID-19 pandemic led the federal government to make additional one-time payments to OAS and GIS recipients, the 2021 federal budget announced a 10 percent increase in OAS benefits for seniors aged 75 and over, suggesting recognition of inadequacies within the RIS. The following section summarizes the academic and policy debates of 2010-16 with respect to the inadequacies of and priorities for improvement of the RIS.

From the foregoing, the implication of the trade-off between and the shortcomings of the various financing options implemented in the public retirement system such as the CPP come to light. In a situation where the economy is not growing, an attempt to increase compulsory savings is considered a bad policy strategy. As a result of this implication, the best way of resolving this issue is to set aside savings for pre-funding through investment to cover the cost that may accrue beyond and above the CPP contributions; therefore, a steady-state financing becomes the solution for this problem. On the other hand, fully funded financing of the option may be the best option, but the downside is the waiting period for investment income for people in the private sector and

the self-employed. Canadians expect that the public retirement income will not provide all their financial needs, but it should at least sustain their pre-retirement living standards such that they do not have to seek employment to support what they receive from the RIS.

ASSESSING THE EFFECTIVENESS OF CANADA'S RETIREMENT INCOME SYSTEM: LITERATURE REVIEW

This section focuses on reviews of different studies and research done by academics, policy analysts, and government agencies involved in the retirement income system. Its purpose is to analyze the adequacy of the RIS and what may be considered as the appropriate relationship between pre-retirement income and post-retirement income for maintaining pre-retirement living standards at retirement. This section also discusses the discrepancies of pension coverage between the public and private sector employees and the dynamic of savings and investment as a significant component of the RIS's third pillar.

Two tests of RIS adequacy noted earlier are its capacity to protect Canadians from poverty in retirement and its capacity to maintain pre-retirement living standards, especially for middle-income Canadians. There is a fairly broad consensus among analysts that the RIS has evolved in ways that meets both sets of objectives for lower-income Canadians. Social policy analysts use several different parameters: including the Low-Income Measure (LIM), the Low-Income Cutoff (LICO), the Market Basket Measure (MBM), and Gross and Net Income Replacement ratios. Statistics Canada (2012) defines the LIM as 50 percent of median adjusted household income in different parts of Canada. The LIM is a relative measure of poverty which is adjusted for

household size, recognizing that income needs increase with household size. The Low-Income Cut-Off, a consumption-based measure, is based on the percentage of individuals or households who spend at least twenty percent more of their income on food, clothing and shelter than the average family. A 2012 Conference Board study (2012) notes that the proportion of seniors with after-tax incomes below the LICO dropped from about 30 percent in 1976 to 5.3 percent in 2010. **S**eniors in this category will be able to maintain their pre-retirement living standards and are less likely to be involved in involuntary employment.

The Market Basket Measure (MBM) is the measure of low income analyzed from the costs of a specific basket of goods and services, which shows Canadians' basic standard of living in different communities across Canada. In 2018, the Trudeau government formally adopted the MDM as Canada's official poverty line in its "Opportunity for All" poverty reduction strategy (Employment and Social Development Canada 2021). Table 2.2 notes the percentage of persons aged 65 and over in low income based on this calculation. At the peak of the 2010s economic cycle in 2019, the proportion of Canadian seniors in poverty had dropped to 5.4 percent, 2.8 percent of those in "economic families" comprised of more than one person. Poverty rates for unattached seniors remained somewhat higher, at 11.7 percent, but have declined substantially since 2015. These data demonstrate both the sensitivity of poverty measurements to technical factors and the greater economic vulnerability of single seniors.

Table 2.2 - Persons in Low Income: Market Basket Measure

(percent)	2015	2019
All persons	14.5	10.1
Persons 65 years and over	7.0	5.4
* in economic families	3.3	2.8
* not in economic families	17.0	11.7

Source: Statistics Canada (2021), "Persons in low-income by age, sex and family type," Table # 11-10-0135-01. Ottawa: November 10.

This literature review also analyzes the concepts of Gross Replacement Rate (GRR) and Net Replacement Rate (NRR): the ratios between pre-retirement income and post-retirement income before and after taxes respectively. Different analysts have held different positions on the appropriate target for income replacement rate to guarantee pre-retirement living standards at retirement. They all agree that there must be income replacement to maintain pre-retirement living standards. However, they differ on the percentage of pre-retirement income needed to sustain living standards.

The expected Gross Replacement Rate (GRR) for pre-retirement income required to maintain living standards after retirement is widely estimated at 70 percent, taking into account the anticipated drop in spending and various taxes after retirement, although this figure is contested (Kesselman 2010; Cross 2014; Baldwin 2020). Another factor to consider in determining the adequacy of the RIS is the Net Income Replacement Rate (NRR). Kesselman (2010) posits that Canadians retiring are likely to desire an NRR of 100 percent because it is based on consumption, and it may correspond to levels

comparable to 70 percent of GRR. Cross (2014) estimates that a GRR of 70 percent is the approximate income required to sustain 100 percent NRR for consumption at retirement. However, he disagrees that the GRR of 70 percent should be the target goal of Canadians because in analyzing consumption levels, he believes that consumption drops after retirement. He suggests that most retirees only need to replace an average of 50 percent GRR, and that actual GRR needs will range from 30 percent and 70 percent depending on consumption patterns of households at different income levels. Based on these analyses, to replace 100 percent NRR, 70 percent of GRR is considered normal and satisfactory to sustain seniors' living standards, although the more, the better.

However, in practical reality, at least three questions arise: whether the 70 percent target GRR is achievable in adverse economic situations; whether it can be sustained over time given Canadian inflation rates; and whether the RIS is adequate to meet this threshold over time. The capacity of the public pension system, including the OAS, GIS, and the CPP/QPP, to meet a target GRR of 70 percent is doubtful for middle-income Canadians. Canadians' median after-tax income in 2019, including both economic families and unattached individuals, was $ 62,900. However, non-senior families (those whose highest earner was under 65) and senior families with highest earners over 65 reported median after-tax incomes of $ 93,800 and $ 64,300, respectively. Median after-tax incomes for unattached individuals over and under 65 were $ 33,800 and $ 29,500 respectively (Statistics Canada 2021. The 70 percent of GRR at retirement is unlikely to be met probably because of the decline in employment income at retirement and because not all retired Canadians have access to employer sponsored pensions plan and savings in RRSP and investment income may be significantly affected due to rising inflation.

Baldwin (2017) estimates that the public pension system will fully replace the pre-retirement income to about one-half of the average wages and salaries. However, for those at the average industrial wage, Cross (2014) argues that the public pension system was established to replace 40 percent of pre-retirement income.

This analysis raises the question of where the remaining percentage comes from and how it can be made available to Canadians in middle-income groups. Lower-income individuals are those with household after-tax incomes below half of the median after-tax income, adjusting for household size, are in the bottom (first) quintile of the income distribution statistics. Middle-income groups are composed of families and unattached individuals in the second, third, and fourth quintile of the income distribution statistics surrounding the median after-tax income noted above. For purposes of this analysis, upper-income groups are families and unattached individuals in the top (fifth) quintile of the income distribution. These households have after-tax incomes of more than $142,100 annually in 2017 (Statistics Canada 2017).

There are different positions on RIS adequacy for lower-income groups, starting with the public pension system. Mintz and Wilson (2013) note that the public pension system was created to reasonably provide an adequate replacement ratio for lower-income groups, and that the replacement rates are higher for those in the lower-income quintile. Kesselman (2010) estimates that the replacement rate for the lower-income group approaching 100 percent, although these figures vary with the family size, cost of living, housing, and household income. However, as pre-retirement income increases, the replacement ratio provided by the public pension system decreases, raising concerns for middle-income and upper-income groups. However, Kesselman also notes that the

middle-income group experienced a replacement rate of 60 percent compared to the lower-income group while replacement rates for the upper-income group were less than 60 percent. Therefore, these analyses lead this thesis to focus on the adequacy of the RIS for middle-income families, particularly the third pillar of the RIS.

The third pillar of the RIS includes the employer-sponsored pension plans, also known as RPP, private savings, and investment. The RIS was established on the assumption that Canadians are saving for their retirement, and the tax support for retirement savings is provides incentives to supplement their savings, which will enable a reasonable living standard in retirement. The Registered Pension Plan (RPP) is a vital piece of the RIS. Baldwin (2016) has noted that RPP participants have a higher capacity to maintain their living standards at retirement; 84 percent of workers with RPPs are on the path of maintaining their living standards compared to 63 percent of those with no RPP. He also argued that young Canadians aged 24-54 with middle to high incomes that do not satisfy the retirement readiness standard are those least likely to have access to RPPs. The importance of the RPP cannot be over-emphasized. Cross (2014) supports this view, noting that most public service defined benefit pension plans replace up to 70 percent of pre-retirement income. However, most private sector employees, who make up 79.6 percent of the labour force, have limited access to defined benefit pension plans as noted in Chapter 1. Therefore, public sector participation in RPPs (mainly defined benefit) remains high while the private sector participation in RPPs is in decline; only 22.4 percent of private sector employees participated in RPPs in 2019.

That said, limited reliance on RPP access makes most private sector workers and self-employed persons more dependent on other savings and investment income to

prepare for retirement. However, this process comes with diverse challenges, not least whether many of these Canadians are saving enough for retirement. Mintz and Wilson (2013:6) state that some individuals with modest incomes do not save enough to provide for adequate retirement income replacement because of some combination of job loss, family breakups, poor investment returns, and poor saving culture. This assessment raises concerns that many working Canadians are not making adequate provisions for their future retirement income. Moore, Robson and Laurin (2010) also share this view. They state that 44 percent of current 25-30 year olds are on a path to experience a sharp reduction in their living standards during retirement, and that 30 percent of middle to high-income households are most likely not saving enough to prevent a substantial decline in their retirement living standards. A key element of this concern is whether the RIS can support the living standards of older Canadians where the third pillar is insufficient or non-existent. Conversely, Cross (2014) challenges the assumption that Canadians are not saving adequately for retirement as faulty. He argues that analysts should look beyond the pension system to assets including home equity, non-tax preferred accounts, and to prospective income from social programs, which provide financial and support to Canadians. Furthermore, for the percentage of middle to upper-income groups who are saving and investing in the future, unforeseen economic shocks like inflation and disruptions from the coronavirus pandemic may undermine retirement savings – particularly for persons who lose jobs or businesses. As a result, future retirees will most likely face increasing income deficiencies after retirement (Kesselman 2010).

Reflecting on concerns that Canadians are not saving enough, Hamilton (2015) notes that the Ontario government cited poor savings among Canadians living in Ontario

as the main reason for proposing an Ontario Retirement Pension Plan (ORPP), which created the political conditions for Canada Pension Plan expansion after 2018. Hamilton concluded that 70 percent of gross income replacement is not realistic because many workers are not meeting their existing savings goals. Moreover, he stated that household savings have declined since the 1980s and remained at an average of 4 percent for the 20 years after 1990. Retirement savings declined from 11.7 percent to 5.2 percent of income between 1990 and 2012. In addition, the belief that most Canadians are saving for retirement in the Registered Retirement Savings Plan (RRSP) is overstated as relative contributions to the RRSP have been decreasing since the mid-1990s. After all, younger Canadians are using it or diverting their RRSPs into homeownership and less on retirement. Tax-Free Savings Accounts (TFSA), which were introduced in 2009, may be used for purposes including but not limited to retirement savings. Canadians between the ages of 20 and 65 contributed $22.5 billion to TFSA and withdrew $8.8 billion in 2012. (Hamilton 2015).

The fact that some analysts are of the opinion that Canadians' savings are rising and not falling does not prove that they are saving enough (Hamilton 2015). Cross (2014) stated that the assumption underlying CPP expansion that Canadians are not saving enough is faulty. He contends that Canadian households currently save more than 10 percent of their incomes with a large portion of their saving targeted at retirement. Indeed, he seems to think that the average Canadians are saving too much for retirement. However, Wolfson (2011) states that Canadians born between 1945 and 1970 might likely experience a 25 percent decrease in living standards when they retire due to the limited income available to them. He recommends more reforms to the pension system.

There are concerns that these trends may pose severe challenges to future retirees, and many may not be able to sustain their living standards. Wolfson (2011) points to evidence that one-fifth of Canadians may not have sufficient savings in the form of Registered Pension Plans (RPP) and Registered Retirement Saving Plans (RRSP) to replace 90 percent of their pre-retirement consumption. Moore, Robson, and Laurin (2010) agree that if this existing trend of poor savings behavior continues, working Canadians will be at risk of a significant drop in their living standards when they retire. Furthermore, the differences in the performance of the third pillar of the RIS noted in Chapter 1 show its inadequacy even though it may help lower-income Canadians to maintain their living standard in retirement.

However, sizeable numbers of middle-income individuals and families are at risk of decreasing living standards in retirement because they rely on voluntary savings for most of their retirement income (Moore, Robson, and Laurin2010). According to Peter (2002), the resultant effect of poor savings among Canadians is that some individuals need to delay their retirement because they lack the financial capacity to adequately support themselves in retirement due to low saving rates and declining RPP participation.

The pay-off from this is the huge fluctuation of savings results in an inability to achieve a suitable retirement income. As noted earlier, pension inequality is a major factor in individuals' decisions to either to retire early or delay their retirement. For example, it results in early retirement date for individuals with direct benefits pension plan, and later retirement date for individuals with weak pension options most especially the self-employed. Public servants who participate in defined benefit RPPs are retiring at a median rate of 3.8 years earlier than private sector employees and 4.8 years earlier than

the self-employed. (Cross 2014). Beach (2008) and Peter (2002) also note that because people have not saved enough for their retirement, older workers may feel the need to continue working longer so that they can supplement the shortfall of their retirement savings. Statistics Canada data (2016) show that in May 2016, the employment rate of Canadians 65 years and older stood at 13.9 percent, which is an increase from 8.4 percent in 2001. In 2015, 19.8 percent of Canadians aged 65 and older worked during the year, almost one in five; a majority of these Canadians are private sector employees.

However, Cross (2014) stated that savings inadequacy to replace pre-retirement consumption should not be the focus because Canadians do not need to replace all their gross working income after retirement because expenses and consumption decline for retired Canadians. Furthermore, Cross (2014) claims that Canadians have adequate savings and argues that there is no retirement income crisis for the current generation because a significant number of Canadians are well satisfied with the system. However, this position is open to challenge because of the low private saving rates. Therefore, Cross (2014) focused more on the current retirees and does not adequately consider the sustainability of the RIS and the future of working Canadians.

Moore, Robson and Laurin (2010) find that there are significant proportions of newly retired Canadians who will not be capable of meeting their three-quarters of the average pre-retirement consumption level. This trend is expected to triple in the next 40 years, and if this situation continues without remedy, by 2046-2050, 44 percent of workers currently between the age of 25 and 30 years will have major difficulties in sustaining their pre-retirement living standards. Therefore, the pension policy of encouraging private pension plans, such as employer-sponsored pension plans, must be

structured to address this risk. Data showing that 40 percent of seniors 65-69 work out of necessity demonstrate an involuntary search for employment by older Canadians already in this situation.

In conclusion, this chapter focused on the historical background of Canada's retirement income system, discussed the origin of the various policies of the government, which include the origin of OAS/GIS, the CPP, and other social policies and social insurance initiatives of the government aimed at providing retirement income to seniors. It also discussed the development of the retirement income system since the 1970s, which saw the beginning of major policy reforms of the RIS, and it analyzed this thesis by assessing the effectiveness of Canada's retirement income system through literature reviews of academics and policy analysts and determined that the 70 percent GRR was the threshold of pre-retirement income necessary to sustain living standards in post-retirement.

CHAPTER THREE: RESEARCH QUESTIONS AND METHODOLOGY

The Research Questions

This chapter informs the main research question for this thesis: to what extent does the adequacy of the RIS depend on future employment income at retirement for middle-income Canadians. According to Statistics Canada (2016), one in five Canadians aged 65 and older, about 1.1 million seniors, worked during the year in 2015, and 5.9 percent worked full time. This report also shows that 53.5 percent of senior men worked, 22.9 percent full-time.

Table 3.1

Percentage of Senior Men and Women Working between 1995 and 2015

Seniors at age 70	1995	2015
Men	5.4	8.8
Women	6.4	17.1

Source, Statistics Canada (2016)

For both part-time and full-time employment, many senior men continue to work at age 70, increasing from 5.4 percent in 1995 to 8.8 percent in 2015. In 2015, almost four in ten senior women (38.8 percent) were working at age 65, and the percentage of senior women working at age 70 rose almost three times from 6.4 percent to 17.1 percent between 1995 and 2015. However, the increase in work was more for part-time than full-time employment. This report also stated that employment income was the primary source of income for 43.8 percent of seniors who worked in 2015, particularly the 70.3 percent of seniors of that group who worked full time. Surprisingly, seniors' employment rates show a consistent increase from 1995, 2005, and 2015. In May 2016, the

employment rate of seniors aged 65 and older was at 13.9 percent, an increase from 8.4 percent in 2001. For seniors who are part-time workers, one-third of them had employment income as the primary source of income, significantly more than in 1995 and 2005.

The rationale for this inquiry is that significant numbers of Canadians are at the retirement age of 65 and are still gainfully employed or searching for employment and the motivation for this behaviour requires analysis. Subsequent reports (e.g. Hazel 2018) have assessed whether seniors are working by choice or necessity. Some of the reasons leading to this trend are increased education, life expectancy, and changes in financial status and obligations. Other factors to consider are the impact of the 2008/2009 recession, declines in private sector pension coverage, and changes in the extent and kind of pension coverage, including changes from defined benefit to defined contribution pension plans in the private sector. The pension reform debates from 2010 to 2018 form the basis of addressing this research question. Statistics Canada (2016) indicates that fewer older Canadians have private retirement income, and those without pension plans are more prone to continue working past age 65. Seniors without RPPs or savings are 1.5 times more likely to work full-time than those with pension plans. The report shows that pension inequality is such that 40.6 percent of seniors without pension plans (RPP) income worked in 2015 compared with 23.9 percent with RPP income. Therefore, the research will look into potential pension inequality between the public sector and private sector employees.

The research hypotheses include the following:

1. Seniors' need to pursue or maintain employment (or self-employment) after age 65 is likely to be inversely proportional to their ability to maintain pre-retirement living standards as measured by Income Replacement Rates.
2. If employment beyond age 65 is involuntary, relative reliance on employment income as a share of total income is likely to be inversely related to levels of private pension and RSP income.

This research will examine whether these hypotheses are true or false and make recommendations for each scenario.

The Research Methodology

Quantitative analysis involves data collection on multiple sources of income of the RIS showing income data to analyze the incomes of Canadians, both unattached individuals and households, for Canada and across selected provinces from selected years of 2000, 2005, 2010, 2015, and 2018. Data are from primary Statistics Canada sources rather than secondary sources. Primary data sources involve databases and tables obtained from Statistics Canada.

The Longitudinal Administrative Data (LAD) is an alternative approach to source for data, but it will not be used in this thesis for reasons subsequently noted. However, Ostrovsky and Schellenberg (2009) describe LAD as a methodology for accessing data derived from taxation data. Also, Statistic Canada states that the LAD includes a wide variety of data on income and demographic variables that are derived from the annual tax file provided by the Canada Revenue Agency (CRA). However, Ostrovsky and Schellenberg (2009) noted the shortcomings of LAD, notably that it does not allow RRP

members and non-members to be distinguished based on the retirement income they receive at retirement. Therefore, RRP members and non-members could be identified through their RRP contributions during their working years or while they are still in the workforce. The Lifepaths model is a sophisticated simulation tool developed by Statistics Canada (Moore, Robson, and Laurin 2010). It is also a model of individuals and families, and it creates a statistically representative sample of the complete lifetime of individuals. However, unfortunately, Statistics Canada has discontinued the Lifepath project, and the Lifepath model is no longer supported as a statistical tool for analysis. Hence, this thesis will not use the LAD for analysis.

The data are analyzed for different economic, social, and demographic categories such as household income, age groups, income quintiles. The custom data commissioned from Statistics Canada include segmented data of seniors ages 55-59, 60-64, 65-69, 70-74, and 75 years and older. However, the outcome of the analysis was not based on the binary result, which is 0 or 1 because of Canada and Canadians' diverse socio-economic groups, locations, and opportunities. The quantitative analysis included both independent and dependent variables. The independent variables are the variables that stand alone and cause changes in the results of the analysis. The independent variables to be considered in this research are Gross Replacement Rate (GRR), family structure, and income quintile. The thesis uses the GRR as an independent variable because the decision of seniors to work beyond age 65, either full-time or part-time is partly a reflection of their inability to maintain incomes close to pre-retirement levels without working full-time or part-time. It is a function of my hypothesis that employment income is an outcome of the GRR. The Gross Replacement Rate (GRR) is the ratio of the sum of all retirement income sources

such as CPP/QPP, OAS, Dividend and Interest Income, Private Pension, Registered Retirement Savings Plan (RRSP), Other Income, and Other Government Transfers to total pre-retirement income. This analysis includes other government transfers in its analysis because Statistics Canada data indicate that it comprises a major source of retirement income reflecting both the number of Canadians receiving it (75.9 percent of couple families and 49.9 percent of unattached individuals 65 and over) and the significant share (2.6 percent) it contribute to Canadian seniors' post-retirement income, especially across lower (11.6 percent) and middle (Q2: 7.6 percent; Q3: 4.5 percent) income quintiles for post-65 age cohorts, as noted in Table 3:1. The GRR was used as an independent variable instead of the Net Replacement Rate (NRR) because the average effective tax rate does not provide a clear picture of the income quintiles and the NRR does not capture the diversity of taxpayers and household circumstances within each of the income quintile.

Table 3.2 – Other Government Transfers as Percentage of Income for Households, Persons over Age 65: 2018
Percent, over-55 income quintile

	Q1	Q2	Q3	Q4	Q5	Total
All over 65 households	9.3%	7.0%	3.5%	1.6%	0.5%	2.6%
Households	11.8%	7.6%	4.5%	1.6%	0.5%	1.6%
Unattached individuals	9.1%	6.8%	2.7%	1.5%	0.6%	3.9%

Source: Statistics Canada (2021), Sources of Income for Households, Unattached Individuals over age 55; private data sort.

The dependent variables are variables that do not stand alone, rely on other factors, and can be analyzed in relation to the independent variable to arrive at a specific result in analysis. The dependent variables for this research include employment income

at retirement. Other variables include both endogenous and exogenous factors in the data analysis. Endogenous variables are the variables within the RIS which directly influence the operations and performance of the system. They include taxes, savings, and family structure for those in retirement, labour force composition, and others. In contrast, exogenous variables are outside the RIS, and examples include unemployment, labour force attachments, life expectancy, cost of living, and other factors. The quantitative method used comparative data analysis to show the relationship between all the variables, both the independent and dependent variables identified for this research. The data analysis of these variables shows how it represents the relationship among the variables regarding measuring the adequacy of the RIS for middle-income Canadians. The data analysis is expected to show the adequacy of the GRR without employment income assuming pre-retirement income within the age cohorts identified are 55-59 and 60-64, while post-retirement income is ages from 65 years and over. The thesis analysis also compares pre-retirement living standards of Canadians to actual post-retirement living standards. Data on middle-income groups are analyzed, and brief attention is given to the upper-income group. However, the focus of this thesis is on middle income Canadians – those in the second, third, and fourth income quintiles -- focusing on variations in total incomes and various sources of income across selected provinces for both individuals and household income. Additional attention is given to the relationship between household income and investment income.

The rationale for the focus on middle-income earners is that Statistics Canada shows that poverty levels among seniors are low and in decline: 4.9 percent in 2016, 3.9 percent in 2017; 3.5 percent in 2018. Poverty rates remain significantly lower 1.7 percent

in 2018 for seniors living in families than unattached seniors (7.9 percent) (Statistics Canada 2018). Poverty rates declined from 2016 to 2019, but further analysis is needed to determine what led to this decline, what components of the RIS led to the decline, what proportion of the middle-income group is affected by it, and how can it be sustained without undue disadvantage to seniors while at the same time bridging the gap of pension inequality.

Research Informing the Main Research Questions

LaRochelle-Cote, Picot and Myles (2010) indicate that one-quarter of middle-income Canadians had a gross income replacement rate below 60 per cent in their mid-seventies. The decline of average family income with age may lead to a decline in their living standards in retirement. This is the concern raised in the first research hypothesis which assesses the need for Canadians aged 65 or older to seek employment to sustain their living standards. The outcome of this analysis will depend on the relative importance of employment income relative to various elements of the RIS, not least relative levels of retirement pension income across different income groups, which in turn will reflect differences in the levels and quality private pension coverage. Ostrovsky and Schellenberg (2010) state that there has been a declining rate of pension coverage, especially in the private sector, as noted in previous chapters. Lastly, the second hypothesis states that the RIS is not favourable to the private sector employee and self-employed. The thesis tries to ascertain the validity of this hypothesis because, according to Ostrovsky and Schellenberg (2009), Canadians in their forties and fifties who are members of private pension plans expect to retire earlier than non-members who are mainly in the private sector and self-employed. They also state that private pensions are

predicated on labour force participation and the collection of employment income, and that private pensions are positively correlated with income. Given the historically greater continuity and security of employment of public sector workers, who are generally covered by defined benefit pension plants, private sector employees and self-employed people are in a disadvantaged position. Morissette and Qui (2020) posit that short-term income decreases have been consistently higher for displaced workers approaching retirement. Private sector employees are more likely to be displaced from their employment which will negatively impact their ability to save and invest. Coupled with economic uncertainties such as inflation, unemployment, and economic downturn that result in adverse effects on financial markets, they are thereby at greater risk of severe declines in investment income. This thesis will also use quantitative analyses to help determine the extent to which the RIS maintains pre-retirement living standards for seniors in the middle-income group. Specifically, its objective is to determine relative levels of employment income among seniors, related factors affecting pension inequality, and the adequacy of the RIS. It is essential to state that some private sector workers, whether unionized or not, have the privilege of accessing employer-sponsored pension plans but only represent a fraction of all private sector workers as noted in Chapter 1.

This analysis will address the future of the RIS and how real and potential pension inequality may be resolved to ensure fairness and equity in income distribution among seniors to improve living standards at retirement. Furthermore, the methodology of this research is such that the GRR, which is a sum of all sources of retirement income as a percentage of pre-retirement total income, was divided by the total number of households and unattached individuals for each age cohort to arrive at the average income for each

cohort in a given period. Hence, the GRR for a given year is derived by dividing the average income of the current year period by the previous baseline period to arrive at the percentage rate of GRR using the year 2000 as the base period. In this methodology, to ascertain the impact of investment income on retirement, the “fourth pillar” of the RIS, the GRR, was separated between GRR with investment income and GRR without investment. However, GRR with investment income was used as the major analysis for this research because investment income is also a source of retirement income. It was assumed that retired Canadian within the age cohorts possess at least one form of investment income, such as dividend and interest income and other income. However, dividend and interest income appear to be a major source of investment income compared to other income in the data provided. Other income includes net rental income, alimony, net limited partnership income, and registered disability savings plans (RDSP) income. Other sources of income not included in this research are veteran disability payments, dependent pensioner payments, war veterans' allowances, lottery winnings, and capital gains.

Income earners are categorized into five quintiles (Q1, Q2, Q3, Q4, and Q5), where Q1 is the low-income group and Q2, Q3, and Q4 are the middle-income groups. Q5 is the upper-income group. This research focuses on Q2, Q3, and Q4 due to the findings of the literature (confirmed by thesis findings) that, on average, retired Canadians in Q1 have 100 percent GRR, while the RIS assumes that members of Q5 have sufficient income sources from and beyond the RIS to provide reasonable levels of retirement income security.

The cohorts for this research are divided into five-year age groups, starting at age 55: i.e. 55-59, 60-64, 65-69, 70-74, and 75 years and over. Age 55-59 is used as the base age cohort because some Canadians within this age group may choose to retire even if not eligible for CPP/QPP. A large proportion of Canadians in this group would still be working compared to other cohorts. The years covered in this research were based on the selected years between 2000 and 2018, specifically 2000, 2005, 2010, 2015, and 2018. The sample years end in 2018 because it is the latest year for which there are available data from Statistics Canada for all variables. The thesis also analyzes data from Canada and selected provinces to determine how much variation there is between provinces. Provinces analyzed include lower-income provinces such as Quebec and Nova Scotia, middle-income provinces such as British Columbia, upper middle-income provinces such as Ontario, and upper-income provinces such as Alberta. As a key variable, the family structure is divided between households (couple families) and individuals not in a census family. The age cohort of households is based on the youngest member, 55 years old and over. Persons not included in households are unattached or individual seniors. In the regression table for analysis, couple families or households were represented by 1 while unattached persons by 0 because a person either shares a household with a family member or not. Employment income includes wages, salaries, and commission and net self-employment income.

Furthermore, the research methodology of this thesis will compare employment rates in Canada and the selected provinces by considering the percent of age cohorts employed during selected years of 2000 and 2018, starting from 60-64 cohorts. It excludes 55-59 cohorts because most middle-income Canadians are still employed and

are not eligible for some retirement benefits such as the OAS/GIS and CPP benefits are reduced. The purpose of comparing the employment rates is to test for the relative consistency of changes over 18 years between Canada and the selected provinces. The data analysis will also focus on the GRR with and without investment income for middle-income couple families and unattached individuals. It will determine the adequacy of the RIS by comparing the GRR of middle-income Canadians of age 65-69 in 2010 with age 55-59 in 2000, and it will compare the GRR of 70-74 age cohort in 2015 with 55-59 age cohorts in 2000 for Canada and a comparative analysis with the selected provinces. The rationale for this analysis is to determine the relative adequacy of RIS as the source of income replacement over time. Starting with 2000 as the base year and 55-59 as the base age cohort and comparing the GRR of middle-income Canadians for 10-year and 15-year periods to know if they are better-off or worse-off after 10 years and 15 years into retirement. However, it is anticipated that the GRR figures across the age cohorts and income quintile might rise above 100 percent if there is a rising RIS income level over time and if labour force attachment continues to 60-64 age cohorts. Another reason is that there is no clear picture of inter-cohorts' mobility as seniors age or passes from married to unattached status and vice versa.

Finally, the data analysis will analyze the percentage with income source and percent by income source for both couple families and unattached individuals across the middle-income quintile in 2018 to determine any significant changes in the RIS income sources for Canada and the selected provinces.

In conclusion, this chapter focused on the percentage of senior men and women working between 1995 and 2005 and established the two research hypotheses. The

research methodology took a central focus of this chapter, and in the process, it discussed the use of LAD as an alternative approach to data analysis and the challenges of using the LAD. As a result, the LAD will not be appropriate for this thesis. It also discussed and identified the various RIS income sources, the components of the GRR, and the rationale for including other government transfers as part of the RIS. Furthermore, a brief discussion on research informing the main research questions and how the data generated will be analyzed was discussed in this chapter.

CHAPTER FOUR: ANALYSIS AND INTERPRETATION OF DATA

This chapter summarizes and analyzes data from a custom income data set commissioned by the author from Statistics Canada. This analysis includes tables and graphs showing variations in distributions and sources and incomes between couple families and unattached individuals aged 55 and over. It also shows the extent and sources of employment income by income quintile and age cohorts, along with Gross Replacement Rates (GRR) of pre-retirement income to assess the relative adequacy of the RIS. This data also compare and interpret national outcomes with those in selected provinces. The analysis in this chapter also compares trends in levels and composition of income for older Canadians in five-year age cohorts 55 years of age and older between the years 2000 and 2018.

As noted in Chapter 3, the principal data source is a custom data set commissioned by the author from Statistics Canada which indicates the number, incomes, and sources of income of couple family households and unattached individuals, sorted by income quintile, across Canada and in five "representative" provinces (Ontario, Quebec, Alberta, British Columbia, and Nova Scotia) in years 2000, 2005, 2010, 2015, and 2018. The analysis in this chapter focuses mainly on Canada-wide data. However, it also compares income data in selected provinces to determine levels of inter-provincial variations which may be policy relevant. Among other things, it identifies income patterns among age cohorts which indicate major sources and distributions of income for Canadians beyond age 65. The data analysis focuses on various RIS sources and compares the composition and impact of the RIS on different groups between 2000 and 2018 to determine if the RIS has been effective in reducing poverty and maintaining pre-

retirement living standards among retired Canadians. As previously discussed, employment income may supplement the RIS system, and is a factor that reflects the relative adequacy of the RIS. In other words, this thesis discusses the influence of RIS adequacy on employment income.

The amount of employment income generated among seniors depends in part on the labour force participation rates of older Canadians even in nominal retirement. The data in this chapter also note trends in household composition after age 65, summarized in Table 4.1. The total number of households (including unattached individuals) over age 55 increased by 67.4 percent between 2000 and 2018. The overall proportion of couples in households remains quite consistent during this period. However, the proportion of unattached persons to couple families generally increases with age from near parity in the 55-59 age cohort. The ratio of unattached individuals to couple families declined from 3.73: 1 in 2000 to one of 2.65: 1 in 2018.

The number of couple families in households compared with unattached individuals consistently declined across the age groups from Ages 55-59 to 75 and over for Canadians in the first income quintile from 2000 to 2018. However, there was a slight difference in 2018, where the age increased in the age group 55-64 and declined sharply from 65-69 to 75 and over. There is also a slight difference for the unattached individuals in the first income quintile. The data show that though the number of individuals declined for age groups 55-59 to 70-74 from 2000 to 2015 except for 2018, where the number increased for age group 60-64 and later declined for the subsequent age groups. The age group of 75 and over showed an interesting twist by a significant increase in the number of unattached individuals that almost doubled in 55-59 to 70-74 cohorts.

Table 4.1 - Canada's Household Composition, Canadians 55 and over, 2000, 2018

55 & over	2000	% of households	2018	% of households	% growth: 2000-18
Couple Families	1,517,760	43.0	2,599,340	44.0	71.3
Unattached persons	2,014,370	57.0	3,314,880	56.0	64.6
Total Households	3,532,130	100.0	5,914,220	100.0	67.4
55-59					
Couple Families	371,990	10.5	537,040	9.1	44.4
Unattached persons	287,020	8.1	543,660	9.2	89.4
Total Households	659,010	18.7	1,080,700	18.3	64.0
60-64					
Couple Families	350,150	9.9	617,090	10.4	76.2
Unattached persons	260,520	7.4	556,250	9.4	113.5
Total Households	610,670	17.3	1,173,340	19.8	92.1
65-69					
Couple Families	318,290	9.0	555,410	9.4	74.5
Unattached persons	283,260	8.0	528,270	8.9	86.5
Total Households	601,550	17.0	1,083,680	18.3	80.1
70-74					
Couple Families	244,680	6.9	433,560	7.3	77.2
Unattached persons	315,330	8.9	477,920	8.1	51.6
Total Households	560,010	15.9	911,480	15.4	62.8
75 & Over					
Couple Families	232,630	6.6	456,250	7.7	96.1
Unattached persons	868,250	24.6	1,208,780	20.4	39.2
Total Households	1,100,880	31.2	1,665,030	28.2	51.2

Source: Statistics Canada (2021), *Household Income by Age Group and Income Quintile*, custom data set.

Table 4.2 summarizes the distribution of couple families and unattached individuals across income quintiles in 2000 and 2018. The first (lowest income) quintile is disproportionately composed of unattached individuals (89.3 percent in 2000; 92.1 percent in 2018). The fifth (highest income) quintile is composed disproportionately of couple families, (79.7 percent in 2000; 81.9 percent in 2018). The much greater prevalence of unattached individuals among lower (Q1) and lower middle (Q2) income

Table 4.2 - Canada's Income Distribution across Household Categories, Income Quintiles 2000, 2018. Percent

2000	Q1	Q2	Q3	Q4	Q5
All Households					
Couple Families	10.7	12.7	47.6	64.8	79.7
Unattached persons	89.3	87.3	52.4	35.2	20.3
55-64					
Couple Families	7.2	7.3	17.7	27.3	42.9
Unattached persons	33.6	10.4	12.8	11.8	8.8
65-69					
Couple Families	1.5	1.9	11.0	15.5	15.3
Unattached persons	11.4	12.5	8.3	5.2	2.5
70-74					
Couple Families	1.0	1.5	8.9	11.5	11.7
Unattached persons	10.9	15.9	9.3	5.7	2.9
75 & Over					
Couple Families	1.0	1.9	9.9	10.4	9.8
Unattached persons	33.4	48.6	22.0	12.5	6.1

2018	Q1	Q2	Q3	Q4	Q5
All Households					
Couple Families	8.3	19.9	44.0	66.3	81.9
Unattached persons	92.1	86.1	52.1	31.4	23.7
55-64					
Couple Families	5.2	7.1	13.6	27.2	44.8
Unattached persons	34.3	16.3	19.3	14.3	8.6
65-69					
Couple Families	1.4	4.2	9.1	15.4	17.0
Unattached persons	14.5	11.7	9.7	5.9	2.8
70-74					
Couple Families	1.0	3.8	9.0	12.0	11.0
Unattached persons	13.4	18.5	4.4	2.1	7.7
75 & Over					
Couple Families	0.8	4.7	12.3	11.8	9.0
Unattached persons	29.9	39.5	18.7	9.1	4.7

Source: Statistics Canada (2021), *Household Income by Age Group and Income Quintile*, custom data set.

seniors may explain the 2021 federal budget decision to increase OAS levels by 10 percent for seniors aged over 75.

The number of couples in the fifth income quintile continues to decline from age group 55-59 to 75 and over from 2000 to 2018, except that in 2010, where the age increased in the age group 75 and over. The number of Canadians also fell from 55-59 to 70-74 for unattached individuals in the fifth quintile but increased for individuals in the age group 75 and over from 2000-2018.

However, data illustrating family structures for middle income Canadians in quintiles two, three, and four showed a different trajectory. The numbers of couples in the middle-income quintile remain stable, with minor fluctuations. On the other hand, the number of unattached individuals shows a rather interesting trend. The data, for the most part, show that from 2000 – 2018, there is an increase in the number of unattached individuals across the age cohorts from 55-59 to 75 and over except from quintile four in 2015 and 2018 that show that unattached individuals declined from age group 55-59 to 70-74.

Labour Force Participation Trends among Older Canadians

This section analyses changes in labour force participation and relative dependence on employment income separately for couple families and unattached individuals in 2000 and 2018. Using 55-59 as the base age group, in 2000, the proportion of employed Canadians among couple families employed continued to decline across age groups from 60-64 to 75 and over. This outcome is expected because most Canadians in these age cohorts are moving towards or are in retirement. The same outcome applies to the 2018 data on the number of older Canadians employed. However, an opposite trend may be

observed across quintiles. The percentage of Canadians employed increased as we moved from quintile one to quintile five for both years 2000 and 2018. The proportion of Canadians employed for quintile one is the lowest while quintile five has the highest across the age group. Similar patterns are observable both for couple families and unattached individuals in 2000 and 2018. Another observation from the data is that the proportion employed increased in 2018 for all age groups and income quintiles compared to the year 2000, reflecting an overall increase in labour force participation.

Table 4.3: Percentage of middle-income Canadians households with paid employment: couple families.

2000				2018			
Age Cohort	**Q2**	**Q3**	**Q4**	**Age Cohort**	**Q2**	**Q3**	**Q4**
55-59	61.7	70.8	82.2	55-59	68.2	86.2	93.3
60-64	41.2	42.7	60.1	60-64	46.5	69.2	81.9
65-69	20.1	19.1	33.5	65-69	20.4	39.7	60.6
70-74	12.9	12.8	22.7	70-74	12.7	28.2	47.6
75+	8.1	8.6	16.3	75+	7.2	19.3	36.0

Table 4.3 summarizes the percentage of couple families reporting employment income as a proportion of their age cohort to the total number of retired Canadians in couple families in each age group for 2000. It shows that the percentage of households reporting employment income in the middle-income quintiles (Q2, Q3, and Q4) for age group 55-59 was 61.7, 70.8, and 82.2 percent respectively – indicating that labour force participation rises with income levels. However, the proportion of households reporting employment income declines across each five-year age cohort. For age group 60-64, 41.2, 42.7 and 60.1 percent of Q2, Q3, and Q4 respectively report employment income. Age group 65-69 saw further declines across middle-income quintiles with comparable

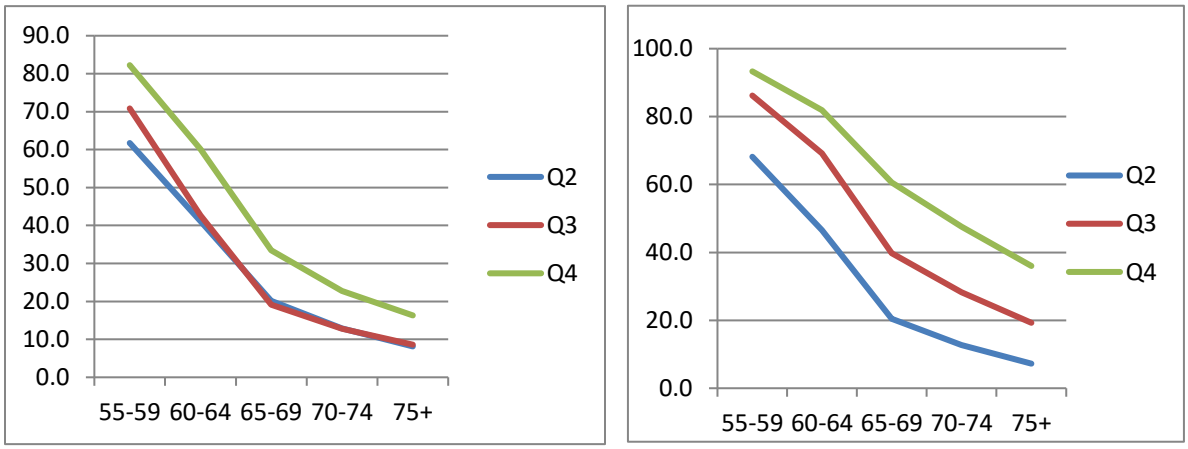
percentages falling to 20.1, 19.1, and 33.5 percent. Households in the 70-74 age group with employment income declined to 12.9, 12.8, and 22.7 percent, while labour market participation in households 75 and over declined sharply to 8.1, 8.6, and 16.3 percent respectively.

Data trends for 2018 data show a similar pattern. Again, using 50-59 as the base age cohort, the percentage of middle-income households reporting employment income in Q2, Q3, and Q4 is 68.2, 86.2, and 93.3 percent, respectively. Comparable figures the 60-64 age cohort are 46.5, 69.2, and 81.9 percent, with the largest increases in labour market participation compared to 2000 rising in Q3 and Q4. The 65-69 age group also experienced significant increases in labour market participation, especially in Q3 and Q4, compared with 2000 at 20.4, 39.7, and 60.6 percent. The 70-74 age groups saw notable declines in participation rates to 12.7, 28.2, and 47.6 percent. Employment income reported by Q2 and Q3 for the 75 and over cohort declined to 7.2 and 19.3 percent, while remaining substantial for the Q4 group at 36.0 percent. Figure 4.1 charts these respective trends, noting the correlation of higher labour force participation and rising incomes among older Canadians. From Figure 4.1, it shows that there is not much gap between Canadians in Q2 and Q3, but Q4 has a wider gap showing that the labour participation rate is higher for Canadians in Q4 in the year

However, although it is important to recognize employment levels among older Canadians, assessing the impact and adequacy of the RIS requires an analysis of actual employment income. Relevant sources of employment income from available data are wages, salaries and commissions, and net self-employment income. Again, comparing 2000 and 2018, we determine from the relationship between levels of employment

Figure 4.1 - Canada's Households (Couple Families) Reporting Employment Income in 2000, 2018: Middle-Income Quintiles (Q2, Q3, Q4).

2000 **2018**



income to ascertain if the adequacy of the RIS may be determined from employment income. According to the income data commissioned from Statistics Canada, the amount of employment income as a share of total household income increases with income levels across-age cohorts and quintiles in both 2000 and 2018 – as illustrated in Table 4.4.

Table 4.4: Canada's Employment Income as Percentage of Total Income by Age Cohort and Income Quintile: Couple Families: 2000 and 2018.

2000				2018			
Age Cohort	Q2	Q3	Q4	Age Cohort	Q2	Q3	Q4
55-59	31.9	36.6	47.3	55-59	41.4	54.6	64.7
60-64	13.3	12.9	21.4	60-64	19.1	28.4	37.8
65-69	0.3	1.3	4.2	65-69	3.2	6.7	13.3
70-74	-0.7	0.2	1.6	70-74	0.8	2.8	6.0
75+	-0.9	0.1	0.7	75+	-0.1	0.9	2.3

Table 4.4 shows the percentage of employment income for middle income Canadians for each age and income cohort in relation to the total dollar amount of all income sources for Canadians in the middle income quintiles (Q2, Q3, and Q4) for 2000 and 2018. Using age cohort 55-59 as the base, of (Q2: 31.9, Q3: 36.6, Q4: 47.3) all middle income quintiles within the 60-64 age cohort experience a significant decline in employment income shares to 13.3, 12.9 and 21.4 percent respectively. This trend continues for age cohort 65-69 with employment income shares of 0.3, 1.3, and 4.2 percent respectively; and for the 70-74 cohort: -0.7, 0.2, and 1.6 percent. For the 75 and over age cohort the share of employment income fell to -0.9, 0.1, and 0.7 percent respectively for Q2, Q3, and Q4. Negative figures for employment income may reflect recognition of losses for self-employment income which may be carried back or forward to previous or future years under the *Income Tax Act.* Similarly, data for 2018 show reduced dependence on employment income in successive age cohorts as a percentage of total income continues to decline but is a little higher than the year 2000. The proportion of employment income for the three middle income quintiles in age cohort 55-59 is Q2: 41.4 percent, Q3: 54.6 percent, and Q4: 64.7 percent respectively, which suggests greater labour participation compared with 2000. However, as in 2000, employment income's share of total income

declines for age group 60-64 with 19.1, 28.4, and 37.8 percent respectively, and the 65-69 age group with 3.2, 6.7, and 13.3 percent respectively. Relative employment income dependence in the 70-74 age group is negligible with 0.8 and 2.8 percent in Q2 and Q3, and modest at 6.0 percent for Q4. Employment income dependence for the 75 and over groups is minimal at -0.1, 0.9, and 2.3 percent respectively.

Figure 4.2 - Canada's Employment Income as Percentage of Total Income by Age Cohort and Income Quintile: Couple Families: 2000 and 2018.

2000 **2018**

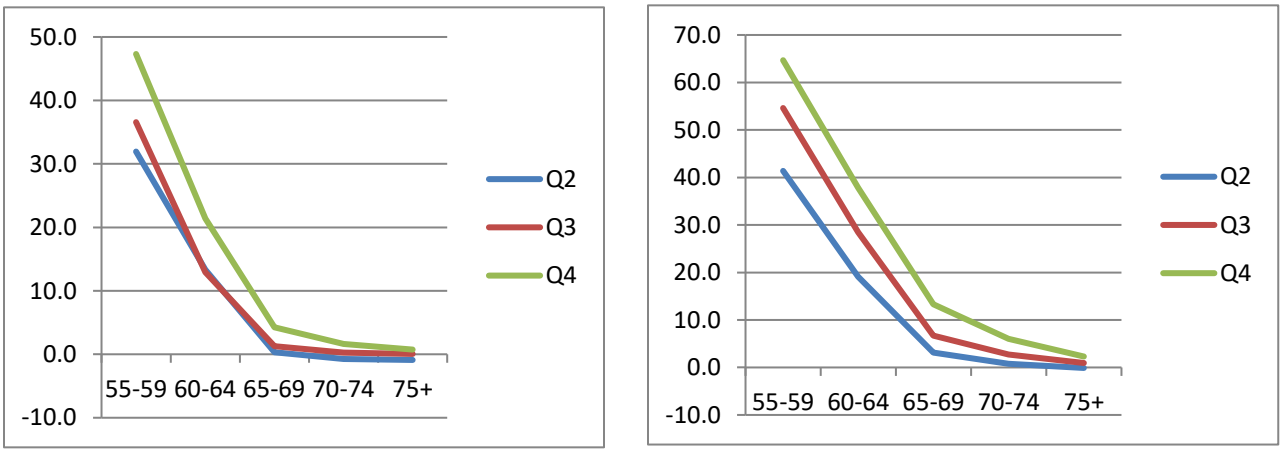


Figure 4.2 compares employment income levels as percentages of total income across age cohorts and quintiles in 2000 and 2018. The 2000 graph shows that the dollar amount of employment income for middle-income Canadians experienced a sharp decline as it moves across the age cohorts. The data show, as expected, that employment income declines sharply with advancing age, across the age cohorts, especially for Canadians in Q2 reporting zero to negative income from the de facto retirement age of 65 years to 75 and over. However, the 2018 graph shows a further decline in employment income, especially for Canadians in age cohorts 70-74 and 75 and over. The difference between 2000 and 2018 is that in 2000, there is almost no gap in the amount of employment

income for Canadians in Q2 and Q3 for all the age groups, but there is a noticeable gap between these two income quintiles in 2018. It is difficult to conclude that economic performance and variables played a significant role because the data show that larger proportions of retired Canadians in couple families were working and earning employment income in 2018 than in 2000. Unattached individuals are also impacted by the changing share of employment income across quintile and age cohorts. Statistics Canada data also help determine if the interaction between the number of older Canadians employed, and the relative share of employment income has any significant influence on the RIS. The data analyzed in this section are between 2000 and 2018, focusing on unattached individuals.

An analysis of unattached individuals across age cohorts who are employed shows a decline in the labour force participation as retired Canadians aged, but rising employment rates for each cohort between 2000 and 2018. In 2000, employment rates declined across the age cohorts and income quintiles. Using age cohort 55-59 as the base, we continue to see further declines in age cohorts 60-64, 65-60, 70-74, and 75 and over as indicated in Table 4.5.

The data for 2000 show a decline in the percentage of unattached individuals (as opposed to "couple families") in five-year age cohorts beginning at age 65. Employment rates of unattached Canadians in age cohort 55-59 vary with income at Q2: 76.0 percent, Q3: 83.7 percent, and Q4: 90.6 percent. However, these levels decline with age cohort

Table 4.5: Percentage of middle-income Canadians with paid employment: unattached individuals.

2000				**2018**			
Age cohort	Q2	Q3	Q4	Age cohort	Q2	Q3	Q4
55-59	76.0	83.7	90.6	55-59	88.6	94.2	96.6
60-64	49.2	61.2	71.6	60-64	73.4	81.5	88.7
65-69	13.4	28.6	41.0	65-69	33.0	55.1	67.0
70-74	6.3	15.6	23.4	70-74	19.9	36.8	44.5
75 and over	3.2	9.0	13.3	75 and over	8.9	21.1	25.1

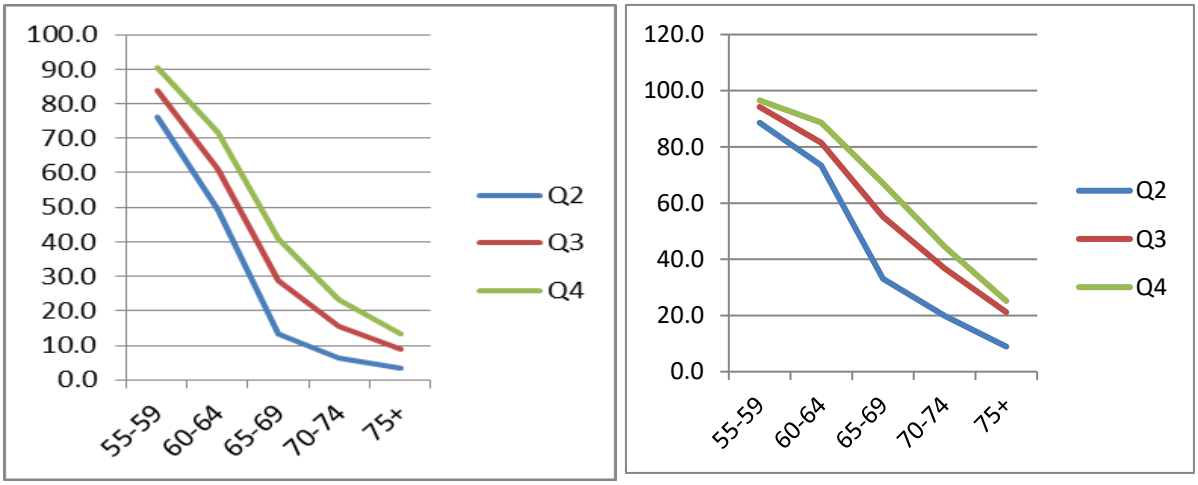
60-64, if not to the same extent as with couple families, with 49.2, 61.2, and 71.6 percent, respectively. Employment rates for the unattached 65-69 cohort were lower in Q2 than for couple families (13.4 vs. 20.1 percent), but higher for Q3 (28.6 vs. 19.1 percent) and Q4 (41.0 vs 33.5 percent). For age cohort 70-74, employment rates in 2000 were lower for unattached individuals than couple families in Q2 (6.3 vs. 12.8 percent), higher in Q3 (15.6 vs. 12.8 percent) and roughly the same in Q4 (23.4 vs. 22.7 percent). Employment rates for the unattached 75 and over cohort were lower than for couple families in Q2 (3.2 vs 8.3 percent), and Q4 (13.3 vs. 16.3 percent) but higher in Q3 (9.0 vs 8.1 percent). This data demonstrate that that the need to be employed clearly declines as Canadians' age increases, but that there is no consistent pattern to this process between unattached individuals and members of couple families, suggesting various reasons in addition to the benefits of the RIS.

In 2018, the data showed a similar trend to 2000. Employment rates, while declining with age, are significantly higher for all age groups and income quintiles in 2018 than in 2000 and increase with income levels. The only two groups for which employment rates in 2018 were lower for unattached individuals than for couple families were unattached Q4 individuals aged 70-74 and 75 and over.

Another major difference between 2000 and 2018 is the relatively small gap in employment rates between the number of Canadians in age cohort 55-59 and 60-64 in 2018 compared to the wide gap indicated in 2000. Few Canadians left the labour force in 2018 as they moved from age cohort 55-59 to 60-64 and across income quintiles, in contrast to 2000. Furthermore, it is important to analyze the share of employment income of unattached individuals to determine the relative adequacy of the RIS for Canadians in

Figure 4.3 - Percentage of middle-income Canadians with paid employment by age cohorts and income quintiles: unattached individuals: 2000 and 2018.

2000 **2018**



Q2, Q3, and Q4. The data show that in 2000, employment income drops off sharply as a share of total income after age 65 for unattached, middle-income Canadians, if not quite to the extent of couple families. After age 70, percentage of employment income as a portion of total retirement income sources is insignificant and continues to decline across age cohorts.

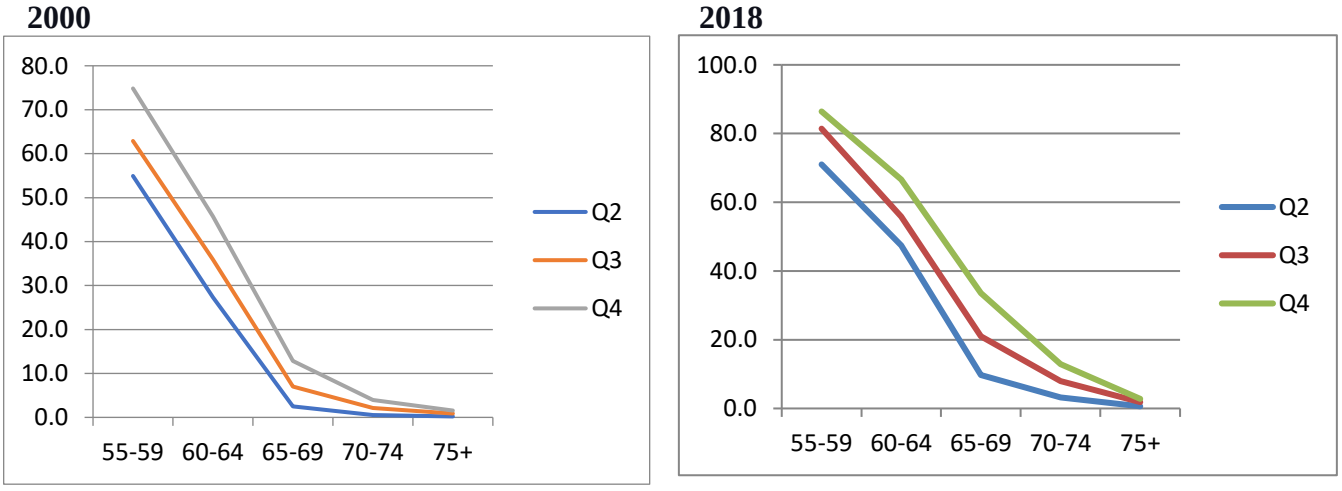
Table 4.6 - Canada's Employment Income as Percentage of Total Income by Age Cohort and Income Quintile: Unattached Individuals: 2000 and 2018.

2000					2018			
Age Cohort	Q2	Q3	Q4		Age Cohor	Q2	Q3	Q4
55-59	54.9	62.9	74.8		55-59	71.0	81.4	86.4
60-64	27.4	35.9	45.7		60-64	47.5	55.8	66.6
65-69	2.5	7.0	12.8		65-69	9.7	21.0	33.5
70-74	0.5	2.1	4.0		70-74	3.2	8.0	12.9
75+	0.2	0.9	1.6		75+	0.6	1.8	2.8

Table 4.6 above shows the percentage employment income as a share of total income of unattached individuals, using age cohort 55-59 as the base. As with employment rates, employment income declined consistently across age cohorts for both 2000 and 2018, although remaining disproportionately significant for Q4 seniors in the 65-69 and 70-74 cohorts. Unattached individuals aged 55-64 have consistently been more dependent on employment income than couple families of similar ages and income quintiles. For example, in 2000, the percentage amounts of employment income for unattached persons in age cohort 55-59 are Q2: 54.9 (vs. 31.9 percent for couple families), Q3 62.9 (vs. 36.6 percent), and Q4: 74.8 (vs. 47.3 percent) . These trends continue in age cohorts 60-64: Q2: 27.4 (vs. 13.3 percent), Q3: 35.9 (vs. 12.9 percent), and Q4: 45.7 (21.4 percent). The relatively low figure for couple families may be explained by the methodological choice to sort income data according to the age of the younger spouse. Unattached individuals in age cohort 65-69 experienced sharply lower employment income levels: 2.5, 7.0, and 12.8 percent respectively for Q2 through Q4. This trend continued for age cohort 70-74 with 0.5, 2.1, and 4.0 percent respectively and the 75 and over cohort with 0.2, 0.9, and 1.6 percent for the three middle income quintiles.

Table 4.6 also indicates that unattached individuals were substantially more dependent on employment income into their late 60s in 2018, both relative to 2000 and to couple families in 2018. Employment income dependence for unattached individuals in age cohort 55-59 was Q2: 71.0 (vs. 41.4 percent for couple families), Q3: 81.4 (vs 54.6) percent, and Q4: 86.4 (vs 64.7) percent. Employment income dependence was still substantial for the 60-64 cohort with Q2: 47.5 (vs. 19.4 percent for couple families), Q3: 55.8 (vs. 28.4) percent, Q4: 66.6 (vs. 37.8) percent. Differences across income quintiles are more visible for the 65-69 age cohort: Q2: 9.7 (vs. 3.2) percent, 21.0 (vs. 6.7) percent, and 33.5 (vs. 13.3 percent). However, employment income dependence declines significantly for the 70-74 cohort: 3.2, 8.0, and 12.9 percent respectively for Q2 through Q4, while becoming negligible for unattached seniors 75 and over: 0.6, 1.8, and 2.8 percent respectively. Figure 4:4 represents this data graphically.

Figure 4.4 - Canada's Employment Income as Percentage of Total Income by Age Cohort and Income Quintile: Unattached Individuals: 2000 and 2018.

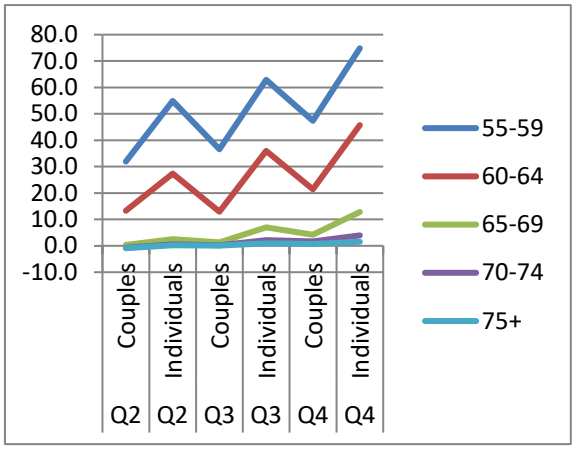


It shows that the amount of employment income declined across the age cohort using 55-59 as the base, which is seen in 2000 and 2018. Therefore, from the data, employment income during retirement years is not a significant source of income for most middle-income Canadians, whether couples and unattached individuals, although its relative importance increased between 2000 and 2018 for unattached Q3 seniors 65-69, and both unattached seniors and couple families 65-69 in Q4. This means that couples in families and unattached individuals are more likely to retire at or near age 65 in the lower quintiles than those in the upper quintiles. The implication for middle income groups is that those in Q2 leave the labour force earlier and to a greater extent than Q3, and those in Q3 leave employment earlier and to a greater extent than Q4.

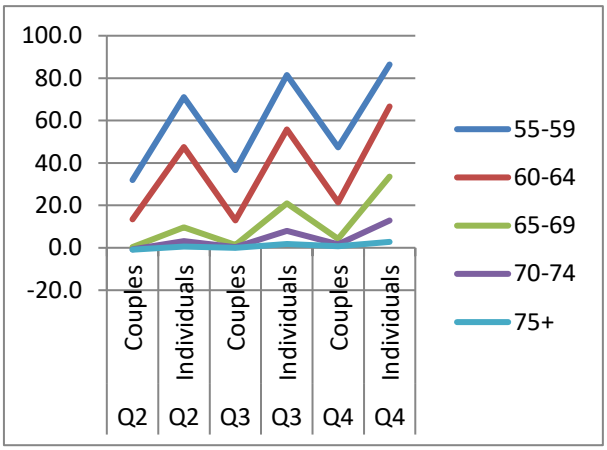
In summary, as seen in Figure 4.5, relative dependence on employment income declined across age cohorts but increased across income quintiles in both 2000 and 2018. Lastly, comparing the employment income between families in couples and unattached individuals, the data show that in 2000 and 2018, relative dependence on employment income increased for unattached individuals than couple families in the middle-income quintiles. are reflected in differences in policies, laws, and regulations affecting retirement incomes and non-cash benefits for seniors among the provinces and territories. Each province has the freedom to formulate and implement economic and social policies that affect their residents. However, this research focused on selected provinces based on the criteria outlined in Chapter 3's discussions of methodology. These provinces include Nova Scotia, Quebec, Ontario, Alberta, and British Columbia.

Figure 4.5 Canada's Employment Income as Share of Total Income by Age Cohort and Income Quintile: -Couple Families and Unattached Individuals: 2000 and 2018.

2000



2018



Data Analysis and Interpretation of Data: Canada and Selected Provinces

Provinces within Canada are faced with different challenges and situations that are unique to each province. Moreover, Canada is a federal system in which there are clear distinctions between the roles of federal and provincial governments. Levels of economic activity, personal and household incomes, and employment vary widely across provinces. Table 4.7 illustrates differences in median income levels for all households, economic families, and unattached individuals between Canada and five provinces representing a cross section of income levels in 2000, 2010, and 2018.

Table 4.7 - Median Income by Economic Family Type, Canada and selected provinces

2019 constant dollars and percent of Canadian Average

	2000 $	Percent of Cdn. Average	2010 $	Percent of Cdn. Average	2018 $	Percent of Cdn. Average
All Households						
Canada	59,400	100.0	64,100	100.0	70,900	100.0
Alberta	65,300	109.9	80,800	126.1	84,900	119.7
Ontario	68,800	115.8	69,200	108.0	76,000	107.2
British Columbia	56,000	94.3	61,500	95.9	70,100	98.9
Quebec	52,300	88.0	56,800	88.6	61,600	86.9
Nova Scotia	50,700	85.4	56,600	88.3	59,800	84.3
Economic Families						
Canada	79,500	100.0	87,900	100.0	99,300	100.0
Alberta	84,500	106.3	106,200	120.8	116,600	117.4
Ontario	90,000	113.2	91,500	104.1	103,700	104.4
British Columbia	77,400	97.4	87,600	99.7	104,300	105.0
Quebec	71,400	89.8	77,700	88.4	89,800	90.4
Nova Scotia	69,000	86.8	75,300	85.7	84,800	85.4
Not in Economic Family						
Canada	28,000	100.0	33,100	100.0	34,200	100.0
Alberta	30,500	108.9	42,500	128.4	41,000	119.9
Ontario	31,100	111.1	47,300	142.9	46,400	135.7
British Columbia	29,700	106.1	29,000	87.6	36,200	105.8
Quebec	25,500	91.1	30,100	90.9	31,800	93.0
Nova Scotia	23,200	82.9	27,000	81.6	31,600	92.4

Source: Statistics Canada (2021), "Income statistics by economic family type and income source," Table # 11-10-0191-01 (Ottawa: March 23).

Table 4.7 indicates there are relatively modest changes among relative levels of median income between 2000 and 2018 for couple families across provinces studied. Unattached individuals show much lower median incomes compared to couple families in all provinces studied, but significant net improvements since 2000 in relative income levels of three of five provinces studied (Alberta, Ontario, and Nova Scotia).

Table 4.8 - Comparative Analysis of Employment Rates: Canada and Provinces (Percent of age cohorts employed during selected years) for household middle-income quintiles.

60-64							
Q2	**Year**	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
	2000	41.17	46.22	63.69	39.50	34.38	36.26
	2018	46.54	53.01	57.55	45.79	41.54	42.68
Q3	2000	42.68	43.74	50.77	42.66	39.41	34.95
	2018	69.15	73.35	67.41	69.33	67.11	66.76
Q4	2000	60.08	58.37	68.92	59.61	59.39	51.79
	2018	81.86	85.69	80.61	83.25	79.09	79.11
65-69							
Q2	**Year**	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
	2000	20.13	21.88	48.39	19.58	12.71	13.04
	2018	20.45	22.46	39.91	19.21	18.86	16.84
Q3	2000	19.11	19.60	28.26	20.16	15.35	12.20
	2018	39.74	46.19	36.62	38.53	39.01	37.63
Q4	2000	33.47	32.06	39.75	33.54	32.26	23.24
	2018	60.62	68.27	59.02	61.75	56.91	55.46
70-74							
Q2	**Year**	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
	2000	12.87	11.73	38.46	12.77	7.05	8.33
	2018	12.72	12.71	32.37	11.68	11.48	11.64
Q3	2000	12.79	11.61	19.46	13.39	9.66	6.85
	2018	28.23	34.15	25.91	27.63	26.97	25.79
Q4	2000	22.73	20.04	25.59	23.06	23.01	13.89
	2018	47.60	57.61	45.29	49.61	42.56	39.41
75+							
Q2	**Year**	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
	2000	8.14	6.48	25.58	8.41	4.38	5.00
	2018	7.25	5.36	23.81	6.44	5.97	6.91
Q3	2000	8.60	6.60	11.69	9.69	6.87	3.08
	2018	19.27	25.11	17.03	20.69	16.55	15.80
Q4	2000	16.31	13.90	17.01	17.08	17.13	8.82
	2018	36.00	48.35	30.66	39.37	29.88	24.50

Table 4.8 shows a comparison of employment rates between Canada and the selected provinces for couple in families starting from age cohorts 60-64 and above for middle-income quintiles of Q2, Q3, and Q4. However, for Canadians in age cohorts 55-59, the majority in the group are still employed and actively engaged in the labour force, for example, Statistics Canada data show that in 2018 couple families Canadians in Q1, Q2, and Q3 68.2 percent, 86.2 percent, and 93.3 percent have labour participation rate respectively, while unattached individuals report 88.6 percent, 94.2 percent, and 96.6 percent labour participation rates for QI, Q2, and Q3.

However, retirement is starting to be more visible from age group 60-64. The table shows the percentage of households engaged in employment relative to the total income of middle-income Canadians. Furthermore, we discovered that overall, a larger percentage of households reported employment income in 2018 than 2000 across Canada and most selected provinces (except Alberta). The reasons for this increase could be that more Canadians went into retirement in 2018 than in 2000, and there were more job opportunities in 2018. In addition, we discovered that there is no significant difference in the household labour participation rates of Canada and most selected provinces for "over-65" households, other than Alberta in 2000 and British Columbia in 2018. However, we noticed that the labour force participation rate increased in all provinces and time periods from Q2-Q4 but declined as we moved from 60-64 age cohorts to 75 and above age cohorts. For households in age cohorts 60-64, the table shows that for Canadians in Q2, Alberta has a higher labour participation rate compared to Canada and other provinces in 2000 and 2018 with 63.39 percent and 57.55 percent respectively. For Q3 and Q4, Alberta had a higher employment rate in 2000 with 50.77 percent and 68.92 percent,

while British Columbia had a higher employment rate in 2018 with 73.35 percent and 85.69 percent respectively.

Furthermore, a similar trend was observed for Canadians in age cohorts 65-69, in Q2, Alberta had a higher labour participation rate compared to Canada and other provinces in 2000 and 2018 with 48.39 percent and 39.91 percent. Similarly, for Q3 and Q4, Alberta had a higher employment rate in 2000 with 28.26 percent and 39.75 percent, while British Columbia had a higher employment rate in 2018 with 46.19 percent and 68.27 percent. Canadians in age cohort 70-74 produced a similar result compared to age cohorts 60-64 and 65-69, again with Alberta having the highest employment rate compared to Canada and other provinces in 2000 and 2018 with 38.46 percent and 32.37 percent. For Q3 and Q4, Alberta had a higher employment rate in 2000 with 19.46 percent and 25.59 percent, while British Columbia had a higher employment rate in 2018 with 34.15 percent and 57.61 percent. However, Canadians in age cohort 75 and above showed a slightly different result from that data. However, Alberta maintained a higher labour participation rate for Q2 in 2000 and 2018 with 25.58 percent and 23.81 percent and Q3 with 11.69 in 2000. However, for Q4, Quebec has a higher labour participation rate with 17.13 percent displacing Alberta and Ontario with 17.01 and 17.08 respectively. In comparison, British Columbia maintained a higher labour participation rate for Q3 and Q4 in 2018 with 25.11 percent and 48.35 percent respectively.

Table 4.9 - Comparative Analysis of Employment Rates: Canada and Provinces (Percent of age cohorts employed during selected years) for unattached individual middle-income quintiles.

60-64							
Q2	**Year**	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
	2000	49.16	55.71	62.07	49.14	43.20	45.00
	2018	73.40	79.74	67.52	74.37	71.96	71.39
Q3	2000	61.20	66.07	71.68	62.73	55.43	52.82
	2018	81.49	87.65	83.28	83.79	77.43	77.54
Q4	2000	71.64	78.02	80.35	71.76	66.36	59.09
	2018	88.68	91.78	90.53	87.20	88.23	86.41
65-69							
Q2	**Year**	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
	2000	13.43	17.96	15.87	13.07	11.20	9.25
	2018	33.03	45.22	25.24	30.87	33.40	35.15
Q3	2000	28.58	33.11	36.36	28.20	25.81	22.41
	2018	55.15	65.93	54.94	56.11	51.01	48.26
Q4	2000	41.00	44.36	48.04	39.55	40.58	31.78
	2018	66.99	74.10	69.68	63.62	67.58	64.88
70-74							
Q2	**Year**	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
	2000	6.31	8.17	8.22	6.02	4.90	4.01
	2018	19.91	31.67	14.32	18.26	19.86	17.87
Q3	2000	15.56	17.66	19.96	14.89	14.42	12.22
	2018	36.76	51.02	36.20	37.74	30.93	29.90
Q4	2000	23.36	24.11	28.10	22.37	24.44	15.18
	2018	44.49	55.88	46.21	41.05	42.04	39.13
75+							
Q2	**Year**	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
	2000	3.23	3.75	4.04	3.02	2.60	1.90
	2018	8.93	17.33	7.23	8.52	7.35	6.97
Q3	2000	9.03	10.09	11.16	8.49	9.14	4.48
	2018	21.15	38.58	17.26	21.22	16.20	12.81
Q4	2000	13.30	14.22	16.52	12.13	15.26	7.79
	2018	25.15	40.26	23.57	22.92	21.58	15.29

Table 4.9 is a comparative analysis of the middle-income individuals who are unattached in Canada and the selected provinces. The table shows that for unattached individuals in the age cohort 60-64, Alberta had a higher labour force participation rate in 2000 for all the middle-income quintile Q2, Q3, and Q4, with 62.07 percent, 71.68 percent, and 80.35 percent, respectively. In comparison, British Columbia had higher labour force participation in 2018 for Q2, Q3, and Q4 with 79.74 percent, 87.65 percent, and 91.78 percent, respectively. Age cohort 65-69 has British Columbia with the highest labour force participation rate for Q2 in 2000 and 2018, with 17.96 percent and 45.22 percent, slightly different from the age cohorts 60-64. However, for Q3, Alberta had the highest labour force participation rate in 2000 with 36.36 percent, and British Columbia had the highest participation rate in 2018 with 65.93 percent.

Furthermore, from Q4 in age cohort, 65-69 through to all income quintiles in age cohort 75 and above, Alberta and British Columbia have the highest participation rates. Alberta had higher participation in 2000 for all middle-income quintiles, and British Columbia had the highest participation rate in 2018 for all middle-income quintiles. In general, these two western provinces have a higher rate of middle-income unattached Canadians still actively engaged in employment after age 65 than Canada, Ontario, Quebec, and Nova Scotia. However, it is essential to note that there is no significant difference in the labour participation rate between Alberta and British Columbia compared to Canada and the rest of the provinces.

Table 4.10 - Comparative Analysis of Employment Income: Canada and Provinces (Percent of age cohorts income derived from employment during selected years) for household middle-income quintiles.

60-64							
Q2	**Year**	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
	2000	13.35	16.75	21.24	14.38	10.46	9.78
	2018	19.10	24.11	26.17	20.82	13.61	13.76
Q3	2000	12.92	13.82	15.88	13.23	11.34	11.33
	2018	28.45	30.95	31.29	30.32	25.09	25.85
Q4	2000	21.41	20.60	27.05	20.88	20.54	19.48
	2018	37.80	38.15	42.12	40.56	34.05	35.85
65-69							
Q2	**Year**	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
	2000	0.34	3.07	-4.64	1.99	0.28	-0.12
	2018	3.15	5.16	8.32	4.06	1.46	1.35
Q3	2000	1.29	1.84	0.99	1.62	1.09	0.99
	2018	6.67	8.29	7.17	7.03	5.54	6.37
Q4	2000	4.24	4.07	6.09	3.96	3.89	3.29
	2018	13.28	13.46	16.06	13.51	11.61	13.01
70-74							
Q2	**Year**	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
	2000	-0.73	0.40	-6.71	0.39	0.04	0.07
	2018	0.77	1.53	0.93	1.56	0.11	-0.01
Q3	2000	0.24	0.44	-0.47	0.39	0.36	0.29
	2018	2.75	3.38	2.76	2.75	2.23	2.82
Q4	2000	1.61	1.45	2.52	1.46	1.42	1.37
	2018	6.02	5.93	7.55	5.74	5.16	6.02
75+							
Q2	**Year**	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
	2000	-0.89	-0.01	-7.42	-0.44	-0.15	-0.98
	2018	-0.11	0.24	-1.56	0.09	-0.08	-0.29
Q3	2000	0.05	0.05	-0.09	0.03	0.22	0.14
	2018	0.94	1.21	1.08	0.86	0.72	0.87
Q4	2000	0.74	0.51	1.29	0.59	0.66	0.70
	2018	2.30	2.26	3.45	2.11	1.74	1.89

Table 4.10 shows the share of age cohorts' income derived from employment during the selected year for couple families. As discussed earlier, the income derived from employment is a percentage of the total income from all RIS sources. Overall, the table shows that employment income as a source of post-retirement income contributes little or nothing to middle-income retired Canadians in couple families over age 70 even though there is a reasonable labour force participation rate from table 4.8. However, the share of income derived from employment increased from Q2 to Q4 even though the increase is not significant. This suggests that a significant proportion of (mostly) retired middle-income Canadians participate in employment voluntarily and for self-actualization, not solely for the purpose of supporting their post-retirement living standards and expenses. Another possible explanation for this trend is that the data generated were based on the younger spouse in couple families.

One area of uncertainty is that there is mobility between family status because some retired couple families may move to become unattached individuals as they increase in age due to the loss of a spouse to become widows and widowers. Across Canada and the selected provinces, age cohorts 60-64 have a reasonable share of employment income compared to other age cohorts. Also, for the same age cohorts, employment income contributed an average of 20 percent to the total income in 2000 across the middle-income quintiles and an average of 30 percent in 2018 across middle-income quintiles. In addition, Alberta has the highest share of income derived from employment for age cohorts 60-64 and across the middle-income quintiles.

Furthermore, Canadians aged 65-69 show a further decline in employment income in Canada and the selected provinces. In this age cohort, employment income

contributed less than 2 percent to total income for Q2 and Q3 and less than 4 percent for Q4 in 2000. However, 2018 has a slight increase in the share of employment income compared to 2000 for Q2, Q3, and Q4. British Columbia had the highest share of income from employment in 2000 with 3.07 percent, while Alberta had the highest in 2018 with 8.32 percent for Q2. However, Q3 and Q4 produced a different result showing that British Columbia had the highest income in 2000 and 2018 with 1.84 percent and 8.29 percent respectively for Q3, while Alberta had the highest income in 2000 and 2018 with 6.09 percent, and 16.06 percent respectively for Q4.

However, age cohorts 70-74 and 75 and above reported a significant decline in employment income in Canada, the selected provinces, and across the middle-income quintiles. In these age cohorts, we see that with a decent rate of labour force participation, the share of income derived from employment shows a little above zero and negative percent contribution of employment income to the total income for Q2 and Q3. At the same time, Q4 added a slight percentage increase to the total income. That said, it suggests that the younger spouse in couple families is the group engaged in employment. In other words, the employment income data capture the younger spouse for age cohorts 70-74, while in most cases the older spouse would have exited labour force participation.

Table 4.11 - Comparative Analysis of Employment Income: Canada and Provinces (Percent of age cohort's income derived from employment during selected years) for unattached individuals' middle-income quintiles.

60-64							
Q2	**Year**	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
	2000	27.36	30.82	37.98	28.08	23.01	25.44
	2018	47.48	50.59	45.94	51.00	45.08	44.57
Q3	2000	35.93	39.13	46.76	38.63	29.75	29.50
	2018	55.81	60.62	63.99	58.71	50.79	50.16
Q4	2000	45.72	54.24	54.42	46.96	37.52	35.85
	2018	66.63	69.24	73.15	66.09	63.82	60.78
65-69							
Q2	**Year**	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
	2000	2.47	3.13	2.98	2.47	2.13	1.60
	2018	9.68	12.70	8.38	9.74	8.68	10.68
Q3	2000	7.00	7.38	10.73	6.83	6.07	5.95
	2018	20.99	22.56	25.09	21.67	18.74	19.16
Q4	2000	12.81	13.94	16.82	12.12	12.39	8.81
	2018	33.55	35.37	39.76	31.35	33.55	32.02
70-74							
Q2	**Year**	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
	2000	0.53	0.72	0.62	0.48	0.51	0.45
	2018	3.22	4.51	2.91	3.11	2.84	3.27
Q3	2000	2.11	2.06	3.89	1.88	1.84	1.75
	2018	7.97	8.64	11.25	7.87	6.59	7.16
Q4	2000	3.96	3.52	6.17	3.67	4.08	2.47
	2018	12.86	13.54	17.80	11.16	12.12	13.30
75+							
Q2	**Year**	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
	2000	0.21	0.23	0.33	0.18	0.18	0.20
	2018	0.62	0.85	0.77	0.53	0.48	0.49
Q3	2000	0.88	0.84	1.83	0.71	0.76	0.66
	2018	1.85	1.97	3.08	1.64	1.48	1.47
Q4	2000	1.55	1.23	2.75	1.33	1.60	1.32
	2018	2.79	2.65	5.18	2.23	2.42	2.24

Table 4.11 above shows the share of age cohorts' income derived from employment during the selected year for unattached individuals. The table shows a higher percentage share of income derived from employment than couple families. This shows that unattached individuals are more likely to remain employed after 65 than couple families. Specifically, Canadians in Q4 in Canada and across selected provinces have greater tendencies to continue working because the share of income to total income is significant for age cohorts 60-64 and 65-69. On the other hand, the share of income significantly declines for age cohorts 70-74 and 75 and above. However, the decline is not at the same rate as Canadians in couple families.

Those in Q2 are less likely to continue working or be dependent on employment income than those in Q4. Also, from the table, unattached individuals in Alberta reported a higher share of employment income than Canada and the rest of the provinces for the most part, except for minor differences where British Columbia reported a higher share in some cases. For example, for age cohort 60-64, Alberta has the highest share of employment income for Q2 in 2000 with 37.98 percent and Q3 and Q4 in 2000 with 46.76 percent, and 54.42, and 2018 with 63.99 percent, and 73.15 percent, respectively. British Columbia has the highest share of employment income for Q2 in 2018. Middle-income Canadians in Q2 living in British Columbia have the highest share of employment income in age cohorts 65-69 for both 2000 and 2018, with 3.13 percent and 12.70 percent, respectively. Alberta reported the highest share of employment income for middle-income Canadians in Q3 and Q4 for 2000 and 2018 with (Q3) 10.73 percent and 25.09 percent, and (Q4)16.82 percent, and 39.75 percent, respectively.

Furthermore, for age cohorts 70-74, there is a significant decline in the percentage share of income derived from employment such that in 2000, Canada and all the selected provinces reported less than one percent employment income for Q2, and a slight increase in income in 2018, with British Columbia showing a higher share of income in 2018 with 4.51 percent. Unattached individuals in Q3 reported a slight increase from 2000, with Alberta showing the highest share of income, reporting 3.89 percent (2000), and 11.25 percent in 2018. Individuals in Q4 showed more improvement in the share of income from employment. This is expected because Q4 is the upper category of the middle-income bracket. They tend to want to continue employment, especially if they are self-employed. Again, Alberta reported the highest share in 2000 and 2018 with 6.17 percent and 17.80 percent, respectively.

Age cohorts 75 and above, again, show that there is a considerable drop in the share of income derived from employment reporting less than one percent in 2000 for Q2 and Q3 and less than two percent in 2000 for Q4 (except Alberta). 2018 data show that those in Q2 also reported less than one percent across Canada and the selected provinces and less than two percent for Q3 except for Alberta with 3.08 percent and less than three percent for Q4 except for Alberta with 5.18 percent. The share of income derived from employment for age cohort 75 and above is not surprising because, at this age, seniors are not expected to continue employment.

Gross Replacement Rates

Table 4.12 - Gross Replacement Rate Data for Canada, by middle-income quintile without investment income

Canada			
Couple Families	Q2	Q3	Q4
65-69 (2010) vs. 55-59 (2000)	111.21	96.09	91.69
70-74 (2015) vs. 55-59 (2000)	121.11	104.63	102.78
Unattached Individuals			
65-69 (2010) vs. 55-59 (2000)	85.83	84.79	71.95
70-74 (2015) vs. 55-59 (2000)	95.79	99.83	94.80

Table 4.12 above shows the relative adequacy of the RIS as the source of income replacement. Based on Gross Replacement Rates between 2000 and 2010 / 2015 for different age groups, the RIS without investment income was adequate, on average, for couple families in their late sixties and early seventies for all middle income quintiles. Over this period, middle-income Canadians recorded an average GRR of 111.21 percent for Q2, 96.09 for Q3, and 91.69 for Q4 households. Therefore, based on the targeted GRR of 70 percent suggested by many academics and policy analysts to maintain pre-retirement living standards, middle-income Canadians who were 55-59 in 2000 and turned 65-69 in 2010 have adequate GRR to sustain their pre-retirement living standards, even though, Canadians in Q2 have a better GRR than Q3 and Q4. Furthermore, Canadian households in age cohort 55-59 in 2000 had a better GRR fifteen years from baseline measurements and now in age cohort 70-74 in 2015 as those in Q2 reported a GRR of 121.11 percent, Q3 with 104.63 percent and Q4 with 102.78 percent. These figures suggest that on average they are better-off fifteen years after the initial baseline than ten years. Again, Canadians in Q2 showed a better GRR compared to those in Q3

and Q4. However, further research is needed to determine the extent of "downward" migration of households across income quintiles as they age, given that allocation to quintiles is based on households whose younger member is aged 55 or more.

GRRs for unattached individuals, though lower than those for couple families, also fell into an "adequate" range for Canadians in middle-income quintiles ten years from the initial baseline for age cohort 55-59 in 2000 to age cohort 65-69 in 2010. Over this period, unattached middle-income Canadians were slightly above the GRR benchmark of 70 percent, with those in Q2 reporting 85.83 percent, Q3 reporting 84.79 percent, and Q4 reporting just 1.95 percent above the benchmark at 71.95 percent. Unattached individuals in age cohorts 70-74, that is, fifteen years beyond baseline measurement, report a more satisfactory GRR than when they were in age cohorts 65-69. Subject to qualifications noted above, retirement paid off for middle-income Canadians fifteen years beyond initial baseline data, and they were more able to sustain their pre-retirement living standard, as shown in Table 4.12, where those in Q2 showed a 95.79 percent GRR. In contrast, Q3 showed 99.83 percent, and Q4 showed 94.80 percent. A comparative analysis between couple families and unattached individuals shows that for GRR without investment income, Canadians in households are better able to meet their pre-retirement living standard than unattached individuals for age cohorts 65-69 in 2010 and 70-74 in 2015.

Table 4.13 - Gross Replacement Rate Data for Canada, by middle-income quintile with investment income

Canada			
Couple Families	Q2	Q3	Q4
65-69 (2010) vs. 55-59 (2000)	114.59	100.83	98.36
70-74 (2015) vs. 55-59 (2000)	123.50	108.55	108.91
Unattached Individuals			
65-69 (2010) vs. 55-59 (2000)	91.09	91.96	82.55
70-74 (2015) vs. 55-59 (2000)	99.96	106.73	107.04

Table 4.13 above shows that middle-income Canadians in households did better in their income replacement ten years into retirement, using 2000 as the base year. Therefore, couple families who were 55-59 in 2000 had a stronger GRR with investment income ten years into their retirement in 2010 when they turned 65-69, with those in Q2 reporting 114.59 percent, Q3 with 100.83 percent, and Q4 with 98.36 percent.

Furthermore, fifteen years from the baseline, middle-income Canadians who were 55-59 in 2000 performed even better in the GRR with investment income when they turned 70-74 age in 2015. Hence, as Canadians move along the age cohort, the data suggest that GRR becomes adequate to sustain their pre-retirement living standard. Fifteen years into retirement in 2015, middle-income Canadians in Q2 reported 123.50 percent, Q3 with 108.55 percent, and Q4 showing 108.91 percent. Therefore, comparing Tables 4.13 and 4.12, GRR for households was greater with investment income than without investment income. Unattached individuals equally produced a similar result with couple families because the GRR with investment income performed better to meet their pre-retirement living standards. Middle-income Canadians who are unattached also had a stronger GRR with investment income ten years into retirement in 2010 when they

turned 65-69, with Q2 showing a GRR of 91.09 percent, Q3 with 91.96 percent, and Q4 with 82.55 percent. In 2015, when unattached individuals turned 70-74 age cohort, the GRR with investment income was even better than that of the 65-69 cohort. Therefore, fifteen years after the baseline, those in Q2 reported a GRR with investment income of 99.96 percent, Q3 with 106.73 percent, and Q4 with 107.04 percent. Again, comparing Tables 4.13 and 4.12, unattached individuals had a better GRR with investment income than without it. For example, for age cohort 65-69 in 2010, those in Q2 reported (91.09 vs. 85.83), Q3 reported (91.96 vs. 84.79), and individuals in Q4 reported (82.55 vs. 71.95). Individuals in age cohort 70-74 in 2015 showed similar results when comparing table 4.13 and 4.12; with those in Q2 reporting (99.96 vs. 95.79), Q3 reporting (106.73 vs. 99.83), and Q4 reporting (107.04 vs. 94.80). Therefore, it is advisable that unattached individuals should have a form of investment income for the adequacy of the RIS to be guaranteed or sustainable.

Table 4.14 - Gross Replacement Rate (GRR) without Investment Income: Comparison between Canada and Selected Provinces.

Couples						
Q2	Canada	BC	AB	ON	QC	NS
65-69 (2010) vs. 55-59 (2000)	111.21	105.83	109.65	107.78	113.66	115.49
70-74 (2015) vs. 55-59 (2000)	121.11	115.76	111.04	119.66	122.90	123.46
Q3						
65-69 (2010) vs. 55-59 (2000)	96.09	95.64	95.27	98.58	93.97	98.04
70-74 (2015) vs. 55-59 (2000)	104.63	103.59	111.40	107.18	101.57	104.45
Q4						
65-69 (2010) vs. 55-59 (2000)	91.69	90.32	85.91	94.44	90.71	96.12
70-74 (2015) vs. 55-59 (2000)	102.78	101.34	98.28	105.43	102.39	106.47

Table 4.14 compares the GRR without investment income between Canada and the five selected provinces for Canadians in middle-income quintiles of Q2, Q3, and Q4

in ten years and fifteen years from the initial baseline. Again, using 2000 as the base years and age cohort 55-59 as the base age cohort, we observed a good performance for couple families Canadians after ten years of retirement and attaining age cohort 65-69 in 2010. The GRR without investment income for those in Q2 was adequate in Canada and the five selected provinces, with Nova Scotia performing better and having the highest GRR of 115.49 percent. Also, after fifteen years into retirement for age cohort 70-74 in 2015, the GRR without investment income produced a better result than age cohort 65-69 in Canada and the selected provinces, again with Nova Scotia reporting the highest GRR with 123.46 percent. Canadians in Q3 and Q4 produced similar outcomes. However, for Q3, Ontario had the highest GRR for those in 65-69 age cohorts in 2010 with 98.58 percent, while Alberta had the highest GRR for those in 70-74 age cohorts in 2015 with 111.40 percent. In as much as the GRR was adequate for Q4, Alberta recorded the lowest GRR between Canada and the selected provinces for both Canadians in age cohorts 65-69 in 2010 and 70-74 in 2015 with 85.91 percent and 98.28 percent, respectively.

By comparison, Nova Scotia reported the highest GRR for both age cohorts with 96.12 percent for 65-69 in 2010 and 106.47 percent for 70-74 in 2015. However, it is interesting to see that Alberta and British Columbia shared the highest percentage rate in labour force participation rates and shares of income derived from employment, compared with Canada and the other three provinces sampled. However, this metric is not reflected in the GRR without investment income.

Table 4.15 - Gross Replacement Rate (GRR) without Investment Income: Comparison between Canada and Selected Provinces.

Unattached Individuals						
Q2	Canada	BC	AB	ON	QC	NS
65-69 (2010) vs. 55-59 (2000)	85.83	84.94	85.41	88.06	84.17	89.63
70-74 (2015) vs. 55-59 (2000)	95.79	95.46	96.86	98.50	93.25	99.84
Q3						
65-69 (2010) vs. 55-59 (2000)	84.79	82.00	76.26	86.58	86.13	89.61
70-74 (2015) vs. 55-59 (2000)	99.83	97.42	94.92	102.28	99.99	104.78
Q4						
65-69 (2010) vs. 55-59 (2000)	71.95	68.62	62.14	77.29	70.18	75.25
70-74 (2015) vs. 55-59 (2000)	94.80	90.10	87.04	100.83	92.76	97.57

From Table 4.15 above, the GRR without investment income between Canada and the selected provinces shows that the RIS is adequate for unattached individuals in Q2 and Q3 for both age cohorts based on the 70 percent GRR standard noted earlier. Individuals in Q4, especially those in age cohorts 65-69 in 2010, reported marginal adequacy slightly above the 70 percent GRR threshold for Canada with 71.95 percent, Ontario with 77.29 percent, Quebec with 70.18 percent, and Nova Scotia with 75.25 percent. However, Alberta and British Columbia reported an inadequate RIS because GRRs are below the 70 percent benchmark with 62.14 percent and 68.62 percent, respectively. In addition, Nova Scotia has the highest GRR for Canadians in age 65-69 in 2010 and 70-74 in 2015 for Q2 with 89.63 percent and 99.84 percent and Q3 with 89.61 percent and 104.78 percent. Ontario has the highest GRR in both age cohorts for 65-69 in 2010 with 77.29 percent and 70-74 in 2015 with 100.83 percent for Canadians in Q4.

Table 4.16 - Gross Replacement Rate (GRR) with Investment Income: Comparison between Canada and Selected Provinces.

Couples

Q2	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
65-69 (2010) vs. 55-59 (2000)	114.59	109.99	117.48	111.76	116.14	116.99
70-74 (2015) vs. 55-59 (2000)	123.50	119.07	123.59	122.08	124.78	124.69
Q3						
65-69 (2010) vs. 55-59 (2000)	100.83	101.61	101.14	103.56	98.65	100.53
70-74 (2015) vs. 55-59 (2000)	108.55	108.82	115.65	111.15	105.42	106.82
Q4						
65-69 (2010) vs. 55-59 (2000)	98.36	97.95	94.69	100.76	97.54	100.53
70-74 (2015) vs. 55-59 (2000)	108.91	108.52	105.68	111.15	108.65	110.77

Table 4.16 shows the GRR with investment income for Canada and selected provinces. Using the 70 percent threshold for GRR, Table 4.16 above shows that the GRR with investment income produces an adequate RIS for middle-income Canadians between ten and fifteen years from the initial baseline. In Q2, Alberta has the highest GRR with investment income with 117.48 percent for age cohort 65-69 in 2010, while Quebec has the highest GRR with investment income for age cohort 70-74 with 124.78 percent. However, for Q3, in the age group 65-69 in 2010 show that Ontario has the highest GRR with investment income for household families with 103.56 percent, while Alberta is the highest GRR with investment income for those in age cohort 70-74 in 2015 with 111.65 percent. The GRR with investment income for middle-income Canadians in Q4 shows that Ontario has the highest GRR for both age cohorts 65-69 in 2010 and 70-74 in 2015 with 100.76 percent and 111.15 percent, respectively.

Table 4.17 - Gross Replacement Rate (GRR) with Investment Income: Comparison between Canada and Selected Provinces.

Unattached Individuals

Q2	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
65-69 (2010) vs. 55-59 (2000)	91.09	91.18	90.12	93.52	89.43	93.62
70-74 (2015) vs. 55-59 (2000)	99.96	101.24	100.19	102.70	97.41	103.20
Q3						
65-69 (2010) vs. 55-59 (2000)	91.96	90.29	84.71	94.19	92.57	95.32
70-74 (2015) vs. 55-59 (2000)	106.73	105.70	103.21	109.15	106.32	110.63
Q4						
65-69 (2010) vs. 55-59 (2000)	82.55	80.76	72.95	86.92	81.87	85.79
70-74 (2015) vs. 55-59 (2000)	107.04	104.41	100.49	111.75	106.02	109.77

From Table 4.17 above, the GRR with investment income for unattached individuals in the middle-income quintiles shows that, again, the RIS is adequate in sustaining pre-retirement living standards of Canadians. However, there is a slight decline in the GRR for unattached individuals compared to household families. However, the GRR with investment income is relatively higher than GRR without investment income. For example, Alberta and British Columbia reported inadequate RIS for unattached individuals in age cohort 65-69 in 2010 for GRR without investment with 62.14 percent and 68.62 percent, respectively. However, for GRR with investment income for unattached individuals, Alberta and British Columbia reported an adequate RIS with 72.95 percent and 80.76 percent, respectively.

Furthermore, the table shows that for middle-income Canadians in Q2 and Q3, Nova Scotia has the highest GRR with investment income for both age cohorts of 65-69 in 2010 and 70-74 in 2015 with 93.62 percent, 103.20 percent, 95.32 percent, and 110.63 percent respectively. On the other hand, Ontario has the highest GRR with investment income in Q4 for both age cohorts 65-69 in 2010 and 70-74 in 2015 with 86.92 percent

and 111.75 percent, respectively. Again, Alberta and British Columbia having higher labour participation rates and share of income derived from employment than other provinces, it shows no direct relationship between employment income and GRR. The higher rate of GRR exceeding the threshold of 70 percent for the most part further explains the reason for the insignificant contribution of share of income from employment to the total income. This suggests that the RIS is adequate, and a significant share of seniors who are engaged in employment have other reasons other than the adequacy of the RIS and are engaged in employment voluntarily.

Table 4.18 shows the percentage distribution of sources of income after age 65 for middle-income Canadians for couple families and unattached individuals for Canada. The table is segmented by public pension and other government transfer income, "third pillar" income from Registered Pension Plans and Registered Retirement Savings Plans, and "other" income from employment, investment and other sources. This dataset does not capture withdrawals from investment capital or Tax-Free Savings Accounts, although accumulation from the latter only began in 2009 and are not limited to retirement savings.

Table 4.18 - Sources of Income across Quintiles – Percent with Income Sources - 2018

Canada

Couples									
		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100	100	100	100	100	100	100	100	100
Average	$31,059.32	$42,794.72	$68,057.19	$31,598.34	$42,317.08	$67,143.38	$31,738.80	$41,818.40	$65,654.48
CPP	90.54	98.20	99.25	89.80	98.78	99.66	84.70	98.52	99.54
OAS/GIS	94.34	98.68	99.27	96.47	99.42	99.78	98.22	99.77	99.87
Other Govt Transfers	98.80	97.69	62.15	99.03	98.13	61.89	99.00	98.53	64.79
Sub-total: transfer income	**283.67**	**294.57**	**260.67**	**285.30**	**296.34**	**261.33**	**281.92**	**296.81**	**264.20**
RPP	22.83	68.29	86.07	27.88	80.91	95.86	30.00	83.81	97.81
RRSP	4.86	12.11	19.40	2.41	6.13	9.35	1.37	4.27	5.58
Sub-total: third pillar income	**27.69**	**80.40**	**105.47**	**30.29**	**87.04**	**105.22**	**31.38**	**88.08**	**103.39**
Employment Income	20.45	39.74	60.62	22.56	40.21	77.98	7.25	19.27	36.00
Investment Income	28.13	43.38	56.37	26.51	45.85	62.39	32.64	57.53	75.69
Other Income	13.53	23.37	32.29	10.93	21.66	33.63	10.16	21.68	36.60
Sub-total Investment Income	**41.66**	**66.75**	**88.66**	**37.44**	**67.51**	**96.02**	**42.80**	**79.21**	**112.29**

Unattached									
		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100	100	100	100	100	100	100	100	100
Average	$28,302.09	$47,024.44	$72,170.07	$27,897.62	$46,892.80	$72,434.72	$27,476.57	$45,674.95	$70,965.48
CPP	96.58	95.85	91.87	98.50	99.24	98.92	98.19	98.94	98.88
OAS/GIS	96.60	94.02	88.42	99.42	99.30	98.39	99.81	99.72	99.37
Other Govt Transfers	**99.62**	**82.93**	**57.70**	**99.67**	**81.66**	**57.70**	**99.68**	**84.97**	**60.42**
Sub-total: transfer income	**292.80**	**272.80**	**237.99**	**297.58**	**280.20**	**255.02**	**297.67**	**283.63**	**60.42**
RPP	50.25	70.08	64.35	68.21	89.61	89.45	74.97	95.61	97.14
RRSP	10.63	16.47	19.12	6.43	9.72	11.25	4.36	6.38	7.44
Sub-total: third pillar income	**60.88**	**86.55**	**83.46**	**74.64**	**99.33**	**100.70**	**79.33**	**101.99**	**104.57**
Employment Income	33.03	55.15	66.99	19.91	36.76	44.49	8.93	21.15	25.15
Investment Income	32.37	43.75	54.19	35.77	52.03	67.20	51.26	71.62	85.05
Other Income	19.24	26.99	35.64	19.49	31.42	43.82	19.80	37.47	52.97
Sub-total Investment Income	**51.61**	**70.75**	**89.83**	**55.26**	**83.45**	**111.02**	**71.06**	**109.09**	**138.01**

Source: Statistics Canada (2021), custom dataset commissioned by author,

From this table, we observe that average income increases along the income quintiles for age cohorts 65-69, 70-74, and 75 and above. The OAS/GIS (Pillar One), CPP (Pillar Two) are almost universally available to middle-income Canadians over age 65 across quintiles. There is general access to other government transfers, especially for seniors in

Q2 and Q3. However, for the third pillar of the RIS, which includes Registered Pension Plans (RPP) and Registered Retirement Saving Plans (RRSP), we noticed that middle-income Canadians in Q3 and Q4 have substantially higher participation rates in the RPP. RRSP participation rates are substantially lower across age cohorts and quintiles, even though rather more couple families and unattached individuals in Q3 and Q4 receive RRSP benefits than Q2. "Fourth pillar" investment and other income are reported by significant numbers of Canadians across quintiles and age cohorts for couple families and unattached individuals.

Table 4.19 shows the dollar amount of income received from the RIS and other sources by middle-income Canadians in age cohorts 65-69, 70-74, and 75 and above. For Canadians in couple families, the first and second pillars of the RIS are adequate for those in Q2 and Q3 across the age cohorts. However, Canadians in Q4 would need additional income from the third pillars to have an adequate RIS, while investment income would be an additional source of income to the middle-income Canadians across income quintiles. This data suggest that the RIS provides adequate income across the first, second, and third pillars with or without investment income.

Table 4.19 - Distribution of Income across Quintiles – Percent by Income Sources

Canada

Couples									
		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$31,059.32	$42,794.72	$68,057.19	$31,598.34	$42,317.08	$67,143.38	$31,738.80	$41,818.40	$65,654.48
CPP	19.96	27.63	21.73	19.01	29.24	22.43	18.48	30.49	22.89
OAS/GIS	61.39	37.08	19.73	66.50	38.62	21.31	68.55	39.31	22.02
Other Govt Transfers	8.21	4.80	1.87	7.45	4.34	1.37	7.25	4.41	1.43
Sub-total: transfer income	**89.56**	**69.51**	**43.33**	**92.96**	**72.20**	**45.10**	**94.28**	**74.22**	**46.34**
RPP	3.88	18.14	35.63	4.11	20.91	42.77	3.61	20.03	43.58
RRSP	0.51	1.58	2.67	0.16	0.58	0.97	0.07	0.38	0.53
Sub-total: third pillar income	**4.39**	**19.72**	**38.30**	**4.28**	**21.49**	**43.74**	**3.68**	**20.41**	**44.11**
Employment Income	3.15	6.67	13.28	0.77	2.75	6.02	-0.11	0.94	2.30
Investment Income	1.82	2.60	3.49	1.33	2.28	3.56	1.66	3.26	5.53
Other Income	1.07	1.50	1.59	0.66	1.28	1.57	0.48	1.17	1.72
Sub-total Investment Income	**2.89**	**4.11**	**5.08**	**2.00**	**3.56**	**5.14**	**2.15**	**4.43**	**7.25**

Unattached									
		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$28,302.09	$47,024.44	$72,170.07	$27,897.62	$46,892.80	$72,434.72	$27,476.57	$45,674.95	$70,965.48
CPP	24.74	18.26	12.83	28.10	20.40	14.64	31.69	21.96	14.89
OAS/GIS	33.35	13.96	8.25	35.00	16.10	10.22	33.99	16.82	10.72
Other Govt Transfers	7.97	3.36	1.75	6.62	2.40	1.29	6.53	2.51	1.42
Sub-total: transfer income	**66.05**	**35.59**	**22.82**	**69.72**	**38.90**	**26.15**	**72.21**	**41.29**	**27.02**
RPP	17.91	34.91	31.39	22.14	45.79	48.87	21.06	46.31	53.17
RRSP	1.94	3.06	3.70	0.84	1.48	1.97	0.55	0.83	0.91
Sub-total: third pillar income	**19.86**	**37.97**	**35.09**	**22.98**	**47.27**	**50.84**	**21.60**	**47.14**	**54.08**
Employment Income	9.68	20.99	33.55	3.22	7.97	12.86	0.62	1.85	2.79
Investment Income	2.60	3.45	5.84	2.43	3.76	7.22	4.15	7.24	12.51
Other Income	1.81	1.99	2.69	1.66	2.09	2.93	1.42	2.49	3.61
Sub-total	**4.41**	**5.45**	**8.54**	**4.08**	**5.85**	**10.14**	**5.57**	**9.73**	**16.11**

On the other hand, unattached individuals have a different experience with the income generated by the RIS. The part of Table 4.19 noting the distribution of unattached individuals shows that only those in Q2 experienced sufficient income from *public* RIS sources, if barely so. Age cohort 65-69 reports a little below 70 percent GRR with 66.05 percent, and those in age cohort 70-74 reporting 69.72 percent. Public RIS income is adequate only for those in age cohort 75 and above, with 72.21 percent GRR. Canadians

in Q3 cannot rely on the first and second pillars alone, but RIS adequacy depends on the third pillar for them. However, for those in Q4, the RIS from all sources fails to meet the benchmark of 70 percent. Therefore, unattached individuals, especially those in Q3 and Q4, depend RPP and RRSP's income to sustain their pre-retirement living standards.

Provincial Income Distribution

Provinces within Canada are faced with different challenges and situations that are unique to each province. Moreover, Canada is a federal system in which there are clear distinctions between the roles of federal and provincial governments. These distinctions are reflected in differences in policies, laws, and regulations affecting retirement incomes and non-cash benefits for seniors among the provinces and territories. Each province has different economic structures and the freedom to formulate and implement economic and social policies that affect its residents. However, this research focused on selected provinces based on the criteria outlined in Chapter 3's discussions of methodology. These provinces include Nova Scotia, Quebec, Ontario, Alberta, and British Columbia.

Levels of economic activity, personal and household incomes, and employment vary widely across provinces as noted in Table 4.7. Patterns of income growth have also varied widely across provinces for both couple families and unattached individuals between 2000 and 2010 and again between 2010 and 2018.

Table 4.20 summarizes key differences across provinces related to first, second and third pillar incomes relative to the national average, sorted by couple families and unattached individuals. It also shows relative dependence for each income quintile on public RIS income and third pillar income across Canada and the selected provinces for

Table 4.20 - Cross-Provincial Comparison of the Public and Third Pillar Income of the RIS

Couples (Percent of Total Income)

65-69						
Q2	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
OAS	61.39	60.79	43.36	60.67	63.98	62.71
CPP	19.96	17.51	20.29	16.46	23.18	27.46
RPP	3.88	4.89	7.73	3.83	3.11	3.31
RRSP	0.51	0.77	1.20	0.57	0.26	0.31
Q3						
OAS	37.08	35.66	38.54	36.54	37.74	36.99
CPP	27.63	26.97	27.08	28.20	27.57	28.16
RPP	18.14	18.14	12.16	16.59	20.54	21.17
RRSP	1.58	2.12	2.08	1.84	1.08	1.40
Q4						
OAS	19.73	19.83	20.12	19.63	19.76	19.56
CPP	21.73	22.04	22.47	22.44	21.11	20.68
RPP	35.63	33.61	28.83	34.56	39.50	38.43
RRSP	2.67	3.30	3.63	2.95	1.95	2.37

70-74						
Q2	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
OAS	66.50	68.27	52.80	67.01	66.52	64.69
CPP	19.01	15.98	17.75	14.24	22.98	27.91
RPP	4.11	5.33	9.62	4.43	3.16	3.36
RRSP	0.16	0.25	0.24	0.22	0.07	0.10
Q3						
OAS	38.62	37.23	41.39	37.60	39.21	38.76
CPP	29.24	29.35	28.10	30.27	28.63	29.70
RPP	20.91	21.93	15.13	19.66	22.94	23.43
RRSP	0.58	0.81	0.58	0.67	0.44	0.57
Q4						
OAS	21.31	21.29	21.90	21.19	21.27	21.23
CPP	22.43	22.82	23.54	23.34	21.29	21.17
RPP	42.77	41.15	37.97	42.01	46.00	45.47
RRSP	0.97	1.18	1.19	1.07	0.69	0.83

75+						
Q2	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
OAS	68.55	71.14	57.11	71.18	66.75	64.18
CPP	18.48	15.78	15.63	12.73	23.22	28.74
RPP	3.61	4.40	9.36	3.73	2.89	3.22
RRSP	0.07	0.06	0.00	0.07	0.09	0.10
Q3						
OAS	39.31	37.60	42.12	38.18	40.22	39.21
CPP	30.49	31.21	28.63	31.35	29.84	30.83
RPP	20.03	22.07	14.53	19.33	21.28	23.61
RRSP	0.38	0.36	0.33	0.36	0.42	0.34
Q4						
OAS	22.02	21.86	23.23	21.93	21.85	21.72
CPP	22.89	23.21	23.61	23.79	21.48	21.45
RPP	43.58	42.78	38.55	42.56	46.63	48.98
RRSP	0.53	0.57	0.58	0.51	0.56	0.46

Unattached Individuals

65-69						
Q2	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
OAS	33.35	30.30	39.87	34.63	31.62	29.72
CPP	24.74	24.70	23.84	25.32	24.54	25.23
RPP	17.91	19.07	10.12	14.15	22.92	24.39
RRSP	1.94	2.63	1.98	2.17	1.53	1.55
Q3						
OAS	13.96	14.23	14.59	14.08	13.68	13.31
CPP	18.26	18.40	18.51	18.62	17.86	18.05
RPP	34.91	31.87	27.38	32.50	39.97	39.26
RRSP	3.06	3.44	4.18	3.48	2.32	2.79
Q4						
OAS	8.25	8.36	8.05	8.32	7.98	8.43
CPP	12.83	12.83	12.88	13.05	12.25	12.96
RPP	31.39	27.83	24.43	33.94	32.61	32.54
RRSP	3.70	3.61	4.21	3.78	3.31	3.67

70-74						
Q2	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
OAS	35.00	31.61	43.06	35.41	33.41	31.77
CPP	28.10	28.68	26.39	29.32	27.13	28.68
RPP	22.14	25.22	13.21	18.90	26.64	28.61
RRSP	0.84	1.15	0.74	0.87	0.73	0.90
Q3						
OAS	16.10	16.26	16.75	16.06	15.96	15.74
CPP	20.40	21.02	21.31	21.37	18.98	19.88
RPP	45.79	43.35	39.80	43.77	50.49	49.04
RRSP	1.48	1.76	1.94	1.62	1.17	1.36
Q4						
OAS	10.22	10.36	10.20	10.17	10.21	10.18
CPP	14.64	14.96	15.08	14.90	13.56	14.25
RPP	48.87	45.54	42.62	51.44	50.09	49.40
RRSP	1.97	1.99	2.25	1.95	1.84	2.12

75+						
Q2	**Canada**	**BC**	**AB**	**ON**	**QC**	**NS**
OAS	33.99	31.25	39.81	33.51	33.66	31.35
CPP	31.69	33.04	29.11	32.76	30.51	32.09
RPP	21.06	24.38	14.06	19.38	23.68	28.70
RRSP	0.55	0.61	0.41	0.53	0.63	0.46
Q3						
OAS	16.82	16.87	17.54	16.70	16.72	16.51
CPP	21.96	22.60	22.59	22.78	20.15	21.41
RPP	46.31	45.04	42.09	44.66	50.08	51.74
RRSP	0.83	0.85	0.88	0.83	0.89	0.58
Q4						
OAS	10.72	10.81	11.21	10.61	10.60	10.78
CPP	14.89	15.22	15.43	15.12	13.62	14.57
RPP	53.17	51.11	48.04	54.45	54.29	56.34
RRSP	0.91	0.90	0.83	0.90	1.02	0.69

couple families and unattached individuals.

Detailed data for each province are found in Appendices 4.1 through 4.10.

Appendix 4.1 notes that there is increased participation of middle-income Canadians in British Columbia participating in CPP, OAS/GIS, and many receiving other

government transfers for couple families and unattached individuals and across the age cohorts and income quintiles. Many British Columbians also increase participation in RPPs but lower participation in RRSPs across age cohorts and income quintiles. However, British Columbians in Q3 and Q4 have increased participation in RRSPs than those in Q2 for couple families. Many Canadian households in British Columbia have at least one form of investment income, and those in Q3 and Q4 participated more in investment income than those in Q2. For unattached individuals like couple families, there is increasing participation in CPP, OAS/GIS, and other government transfers with over 90 percent participation rate. The difference between unattached individuals and couple families is that all British Columbians in the middle-income quintiles (Q2, Q3, and Q4) have increased participation in RPPs and reasonable participation in RRSPs. In contrast, primarily those in Q3 and Q4 of households in British Columbia participated in RPPs. Also, unattached individuals have higher participation in RRSPs than couple families.

Appendix 4.2 shows data for couple families and unattached individuals, only Canadians in Q2 are able to achieve RIS adequacy using the first and second pillars for all age cohorts of 65-69, 70-74, and 75 and above. The data show that for couple families, Canadians in Q2 for age cohort 65-69 reported 84.18 percent; Q2 in age cohort 70-74 reported 89.85 percent, and Q2 in the age group 75 and above reported 92.46 percent. Therefore, in British Columbia, Canadians in Q2 achieved adequacy of the RIS within the first and second pillars. However, Canadians in Q3 and Q4 need the addition of the third pillar for their RIS to be adequate. However, for unattached individuals, that table shows that middle-income Canadians in all age cohorts would reply on the first, second,

and third pillars of the RIS in order to achieve the adequacy of the RIS, and investment income would be an additional source of income. The exception is for Canadians in the age group 65-69 in Q4, where the table shows that not all the three pillars with investment income could achieve the adequacy of the RIS. As a result, Canadians in this category are more prone to see employment involuntarily to meet their pre-retirement living standards.

Furthermore, the income from RPPs and RRSPs for lower-income quintiles in British Columbia is meager, and they are not a good source of retirement income for Canadians in British Columbia. The RPP as a source of retirement income is very low for Canadians in Q2 but much better for Q3 and Q4 across the age cohorts for couple families. However, unattached individuals benefited more in the income from RPPs during retirement because there is a reasonable percentage of income RPPs contributes to their total retirement income. On the other hand, RRSPs as a source of retirement income have a very low percentage of the total retirement income, and income from RRSPs could be considered insignificant to the RIS for both couples in families and unattached individuals on average.

Appendix 4.3 shows that similar to British Columbia, there is increased participation of middle-income Canadians in Alberta participating in CPP, OAS/GIS, and many receiving other government transfers for couple families and unattached individuals and across the age cohorts and income quintiles. The exception is for couple families in age cohort 70-74 and in Q2, Q3, and Q4, which show a declined number of Canadians participating in OAS/GIS compared to their counterparts in 65-69 and 75 and above. In Alberta, it is observed that Canadians in Q4 across the age cohorts of 65-69, 70-74, and

75 and above have reduced participation in other government transfer with 25.03 percent for age group 65-69, 18.25 percent for age group 70-74, and 23.15 percent for age group 75 and above. In addition, there is a reasonable rate of participation of couple families in RPPs, especially for Canadians in Q3 and Q4, but RRSPs have a low rate of participation across the age cohorts and income quintiles. However, for unattached individuals, there is a reasonable participation rate in RPPs across age cohorts and income quintile and especially those in Q3 and Q4. Again, RRSPs have a lower participation rate for all age cohorts and across income quintiles, but this rate is higher than Canadians in households. There is also moderate participation among Canadians in Alberta in investment income.

From Appendix 4.4, we see that middle-income couple families Canadians, and across the age cohorts living in Alberta are barely achieving RIS adequacy for those in Q2 and Q3 with 78.48 percent and 74.07 percent for 65-69, 85.95 percent, and 77.98 percent for 70-74, and 87.70 percent and 79.48 percent for 75 and above from the CPP, OAS/GIS and other government transfers. With the first and second pillars of the RIS, Albertans in Q2 and Q3 were able to hit the 70 percent benchmark of the pre-retirement income required to sustain their living standard in post-retirement. However, for Canadians on Q4, the first and second pillars of the RIS are inadequate, and they will need the third pillar to achieve the adequacy of the RIS. Investment income contributes so little to the RIS for Alberta. The contribution of RPPs in Alberta was reasonable and more couples in families of Alberta in Q4 across the age cohorts benefited from RPPs during retirement. However, RRSPs have little contribution to the RIS on average as a source of retirement income across the age cohorts and income quintiles, especially Albertans in the age group 75 and above where income from RRSPs is 0.00 percent for

Q2, 0.33 percent for Q3, and 0.58 percent for Q4. The same is reported for unattached individuals with RRSPs as the income source from RRSPs to the total retirement income is insignificant, again especially for those in Q4.

Furthermore, for unattached individuals in Alberta, only those in Q2 across the age cohorts achieved the adequacy of the RIS with few points above the 70 percent threshold with the first and second pillars, but they satisfactorily achieved the adequacy of the RIS in addition to the third pillars. Albertans in Q3 and Q4 for age cohort 65-69 requires all income sources from the RIS, including investment income, to be adequate. Unfortunately, Albertans in Q4 could not achieve RIS adequacy with investment income. However, age cohorts 70-74 and 75 and above did a little better because those in Q3 and Q4 achieved the adequacy of the RIS with all the three pillars, and investment income will help to meet the RIS adequacy satisfactorily.

Appendix 4.5 shows that there is increased participation of Canadians living in Ontario in CPP, OAS/GIS, and other government transfers for couple families. However, CPP participation declined for those in Q2 across the age cohorts compared to those in Q3 and Q4 for couple families. RRSP has reasonable participation, but there is also reduced participation for those in Q2 across the age cohorts compared to those in Q3 and Q4. RRSP data for Ontario show that Canadians living in Ontario are relatively averse to investing in RRSPs; hence, there is a surprising decline in the participation rate across all the age cohorts. Instead, Canadians in Ontario are comfortable in investment income as a source of retirement income leading to reasonable participation in investment income. The participation in investment income is more noticeable across the age cohorts for Canadians in Q4.

On the other hand, unattached individuals living in Ontario also have increased participation in CPP, OAS/GIS, and other government transfers, but this time around across age cohorts and income quintiles. RPPs have a good level of participation across age cohorts and income quintiles, and participation in RRSPs is better for individuals than couple families. Investment income also has a reasonable participation rate among middle-income seniors in Ontario.

Appendix 4.6 shows that for couples in families, the RIS is adequate with the first and second pillars for Canadians living in Ontario and Q2 and Q3 across the age cohorts, but the first and second pillars of the RIS are inadequate for those in Q4; hence, they will need the third pillar for the RIS to be adequate. Similar to the participation rate of households in Ontario in RRSP, the income source of RRSPs to the total retirement income is insignificant across age cohorts and income quintiles. RPPs are beneficial to those in Q4 compared to Q2 and Q3. However, although Canadians living in Ontario have good participation in investment income, this is not reflected in the dollar amount of investment income contribution to the RIS. Unattached individuals' percent by income source leaves much to be desired. For the age cohort, 65-69, the first and second pillars did not achieve adequacy of the RIS compared to couple families in all the three income quintiles. Therefore, Canadians living in Ontario will require the third pillar of the RIS to achieve adequacy for those in Q3. Unfortunately, those in Q4 could not achieve adequacy of the RIS with all the three pillars and investment income. However, for age cohorts 70-74 and 75 and above, the first and second pillars barely achieved the adequacy of the RIS for those in Q2 only, while Q3 and Q4 will need the third pillar of the RIS to achieve adequacy. RPP as a source of retirement income is more advantageous to those in Q3 and

Q4, but RRSPs have a very low-income contribution to the RIS across the age cohorts and income quintiles.

In Quebec, Appendix 4.7 shows that couple families have a high participation rate in CPP, OAS/GIS across income quintiles and age cohorts. However, other government transfers have an increased participation rate for those in Q2 and Q3, while those in Q4 saw a decline in other government transfers participation rates across age cohorts. RPP has an increased number of households enrolling into it for Q3 and Q4 but a decline in Q2 across age cohorts. Again, just like the other provinces, Quebec has a significant decline in the number of middle-income Canadians enrolled in RRSPs across age cohorts and income quintiles except for those in the age group 65-69 in Q4 that report reasonable participation in RRSPs. There is a reasonable number of Canadians in Quebec with investment income across age cohorts, and those in Q4 reported a significant number of households with investment income. The data for unattached individuals in Quebec show a slightly different result. There is an increasing number of unattached individuals participating in CPP, OAS/GIS. However, other government transfers show a slight decline for those in Q3 compared to couple families and a significant decline in the number of retired Canadians in Q4. RPPs show a steady number of Canadians participating in pension plans across age cohorts and income quintile better than households, but RRSPs have a reduced number of individuals enrolling in the retirement saving platforms. Again, investment income shows a significant number of Canadians in Quebec with one form of investment or the other, but the number is more for those in Q4 with a significant number of people with investment income.

Appendix 4.8 shows that for couple families, Canadians in Q2 satisfactorily achieved the adequacy of the RIS, while those in Q3 barely achieved the RIS adequacy in the first and second pillars. However, Q4 will need the third pillar to satisfactorily adequacy in the RIS. The income from RPP is more beneficial to those in Q3 and Q4 across age cohorts, but Q2 has a considerable decline in RPP income. Again, as observed in other provinces, RRSP income contribution to the RIS is insignificant, and it adds little or nothing on average to Canadians as a source of income in retirement. Also, investment income across age cohorts and income quintile do not provide a good source of retirement income, except for those in Q4 of age cohort 75 and above, where investment income provided a little source of income compared to Q2 and Q3 in other age groups cohorts with 7.35 percent. However, for unattached individuals, the first and second pillars did not achieve RIS adequacy for all age cohorts and income quintiles. Hence, it will require the third pillar to achieve adequacy, except for those in Q4 of age cohorts 65-69, with inadequate RIS even with investment income. RPP for unattached individuals provides a reasonable and steady source of retirement for all income quintiles, especially for those in Q3 and Q4. Unfortunately, RRSP contributes little on average to the RIS as with other provinces.

Appendix 4.9 shows that a high number of household seniors living in Nova Scotia receive the CPP and OAS/GIS. However, other government transfers have those in Q2 and Q3 receiving more and have a higher participation rate than those in Q4 across all age cohorts. Conversely, RPPs benefit those in Q3 and Q4 more than Q2. For example, for age cohort 65-69, those in Q3 reported 73.71 percent, and Q4 reported 87.59 percent participation rate while Canadians in Q2 reported a 25 percent participation rate in RPPs.

A similar outcome was reported for age cohorts 70-74 and 75 and above. RRSPs have the fewest number of Canadians in Nova Scotia contributing, like the rest of the selected provinces. Investment income has a reasonable number of Canadians investing into their retirement, but across the age cohorts, those in Q4 have a higher number of investors into their retirement than Q2 and Q3 reporting 71.75 percent for age group 65-69, 82.18 percent for age group 70-74, and 99.78 percent for age group 75 and above. However, unattached individuals also have a high number of seniors receiving and participating in CPP and OAS/GIS. However, the number of seniors receiving other government transfers is high for Q2, around average for Q3, and very low in number for Q4. RPPs have a significant number of seniors contributing across age cohorts and income quintiles, but RRSPs have a low number of Canadians participation compared to other sources of the RIS. Investment income has a reasonable and steady number of seniors but is more favorable to those in Q3 and Q4 across age cohorts.

From Appendix 4.10, seniors in couple families in Q2 show satisfactory adequacy of the RIS across age cohorts while Q3 barely achieved the adequacy of the RIS with the first and second pillars. However, Q4 across the age cohorts will need the third pillar to achieve adequacy of the RIS. The income received from RPPs is very low for Q2, which is less than 5 percent of the total retirement income across age cohorts. However, Q3 and Q4 have a reasonable income from RPPs across the age cohorts. RRSPs are not a good source of retirement income for Canadians in Nova Scotia because the average contribution to the total retirement income is around 1.00 percent. Investment income does not provide a significant source of retirement income across quintiles and age groups, but it is considered an additional source of retirement income. Unattached

individuals need all the three pillars to achieve adequacy of the RIS across age cohorts and income quintiles, except for Q4 in age cohort 65-69. The table shows that there is inadequacy of the RIS with the addition of investment income. RPP provides a comfortable source of income for seniors in all age groups and income quintiles, but RRSP is again contributing low income to seniors; thus, the dollar amount of income from RRSP is insignificant to seniors of all age groups. Lastly, investment income is also a low source of retirement income, but it is more favorable o those in Q4.

Interpretation of Data

From the Tables and Appendices discussed above, it may be seen that the public RIS (pillars one and two) provides adequate incomes for seniors in couple families in Q2 across age cohorts while those in Q3 barely achieved adequate levels of RIS income replacement from the first and second pillars. However, Q4 families across age cohorts will need the third pillar to achieve adequate levels of income replacement from the RIS. Income received from RPP is very low for Q2 -- less than 5 percent of the total retirement income across age cohorts. However, families in Q3 and Q4 have a reasonable income from RPP across age cohorts. Investment income does not provide a significant source of retirement income across quintiles and age groups, but it is considered an additional source of retirement income. Unattached individuals need all the three pillars to achieve RIS adequacy across age cohorts and income quintiles, except for Q4 in age cohort 65-69. This is shown in Table 4.19 that there is inadequacy of the RIS with the addition of investment income. RPP income provides a comfortable source of income, on average, for seniors in all age groups and income quintiles, but RRSP is again contributing a relatively low share of income. Thus, the dollar amount of income from RRSP is

relatively insignificant, on average to seniors of all age groups, whatever its benefits to particular groups. Lastly, investment income is also a low source of retirement income, but it is more favorable to those in Q4.

Overall, the data analysis shows that Q2 quintiles especially couple families are more dependent of the first and second pillars of the RIS, but for unattached individuals, there is a significant distribution of mix of first and second pillar sources of the RIS. The rationale is that OAS for most couples are generally twice what unattached individuals receive as only a small proportion of those in Q4 is subject to the OAS clawback. However, a higher income from first pillar for Q2 unattached individuals could be linked to the GIS receipts. Hence, Q2 couple families and unattached individuals significantly depend on the public RIS income sources, especially OAS for couple families. Therefore, improvements to income security may come from the first pillar on the short-run while long-term improvements in income security may be through CPP reforms starting in 2019 to make CPP replace 33% of employment earnings over the lifetimes of employee and the self-employed instead of the previous 25%.

Furthermore, Q3 couple families receive a significant share of their retirement income from the third pillar of the RIS, and mostly from RPP sources, while Q3 unattached individuals depend substantially on third pillar for their retirement incomes. Hence, as long-run supplemental CPP is introduced in 2019-2024, the Q3 group will likely benefit, because Canadians in Q3 are closer to the top of the CPP earnings range. The public RIS income is also significant for Q4 couple families because they have access to full, or nearly full OAS payments and a significant CPP income. Unattached individuals draw on one OAS payment and it is reflected in the reduced reliance on

public RIS. However, Q4 couples and individuals may also benefit from the increases in supplementary CPP contributions, which is starting in 2024. That said, for those in Q3 and Q4 groups, is it unclear of the effect of higher CPP premiums will have on their overall saving rates. Investment and other income is a more significant source of retirement income for unattached individuals in Q2, Q3 and Q4 than for couples. Overall, the public RIS serves its purpose in providing a safety net with effective income replacement for Q2 families and individuals.

Another major finding is that the GRR with or without investment income is not affected by employment income and vice versa. They are not linked or connected in such a way that the increase in GRR would not lead to a decrease in employment income and vice versa. Therefore, GRR may is not the only determining factor in the decision to seek employment at retirement. According to Field, Uppal, and LaRochelle-Cote (2017), there are other factors that lead to seniors remaining in employment, notably marital status and the presence of dependent children, particularly when a working partner may lead to the other spouse remaining employed. Another significant factor is the level of education, as more educated seniors are more likely to remain employed than seniors with lesser education. Rising wages and more employment opportunities are other factors that lead seniors to remain in employment. Indebted seniors are also more likely to remain employed. These factors limit the dependence of employment income on GRR, although results may vary if other variables are included in the analysis. The data show that Canadians in couple families would have a higher level of increase in employment income than unattached individuals or persons not in a family.

One explanation of why the GRR with and without investment income does not significantly affect the RIS may be that as retired Canadians receive earnings from investment income, their expenses increase higher than retired Canadians who do not have additional income from investment. Another reason that could explain this trend is the effect of OAS clawback. The principle of OAS clawback requires retired Canadians to pay back part of their earnings to the government if they exceed the income threshold because it will push them into a higher tax rate bracket. The current threshold amount of the OAS clawback is $79,054, based on the 2020 income. Therefore, any income of retired Canadians above the threshold is subject to paying back the government a portion of the OAS received (Omololu 2021). Furthermore, Omololu (2021) notes that Canadians whose income exceeds $128,149 for 2021 will not be entitled to any OAS benefit after taxes.

This thesis aims to determine the adequacy of the RIS on middle-income retired Canadians. There were concerns that the RIS was inadequate, which resulted in retired Canadians seeking employment to support the income received from the RIS. Therefore, it suggests that there is a relationship between the RIS and employment income such that as income received from the RIS increases, employment income would decrease and vice versa. However, the data analysis findings show no significant relationship between the RIS and, by extension, the GRR with or without investment and employment income. Addressing the first hypothesis of the thesis, the extent to which persons aged 65 years and older, in each of the three middle-income quintiles, both individuals and couple households' employment income engaged in employment or self-employment since 2000 is on the decline from age cohorts 65-69 to 75 and over. The employment income per

person in real or after inflation adjusted dollars is on the decline since 2000. The findings show that Canadians aged 65 years and older saw a decline in employment for unattached individuals and couple families. However, the percentage of people employed increased from 2000 to 2018. The difference in the number and amount of employment income may suggest that many retired Canadians are engaged in employment as a matter of interest (or to supplement income at the margins) and not of necessity. The reason is that though the number of people employed increased in 2018 compared to 2000, the amount of employment income did not increase in the same proportion.

To address the second hypothesis, the extent and the resulting level of employment relation to the variation in pension benefits and other forms of retirement income is not significant because pension benefits are a part of GRR calculations, and the data analysis shows that the GRR has no significant impact on the extent of employment income. However, the data show that, on average, the share of employment pension (RPP) benefits other than the CPP increases as the income quintile moves from lower, middle to upper. Unattached individuals have a larger share of income from employment pension benefits than couple families both nationally and in all provinces. Therefore, the overall outcome of the data analysis is that the RIS/GRR is not the sole determining factor in the decisions of retired Canadians to seek employment. Instead, multiple factors affect the need to sustain pre-retirement living standards and maintain current consumption levels. It should be emphasized that the inability to sustain pre-retirement living standards is not the same as a low, or below-poverty level standard of living. Canadians do not need to replace all their gross working income after retirement because their expenses eventually decline (Cross 2014). Therefore, it may be difficult to

extensively determine the adequacy of the RIS where other variables such as cost of living, inflation, GDP, interest rates, consumption level, healthcare, and other economic variables are not considered. If included in the thesis and in the data analysis, they may change the relationship dynamics between GRR and employment income.

However, based on the findings of this thesis, the RIS is adequate for middle-income Canadians. Furthermore, according to Milloy (2019), poverty rates among seniors aged 65 and over have fallen over the years. For example, seniors' poverty rate across Canada fell to 5.6 percent in 2018 and 5.4 percent in 2019 from 7 percent in 2015. The reduction in the poverty rate is also seen across the provinces, as noted in Table 4. 21

Table 4.21 - Poverty Rates among Canadians 65 and over

Regions	**2015**	**2018**	**2019**
Canada	7.0	5.6	5.4
Alberta	3.2	3.5	3.3
Ontario	6.0	5.4	5.6
Quebec	6.8	5.4	5.0
British Columbia	11.3	7.7	5.9
Nova Scotia	10.5	8.1	7.8

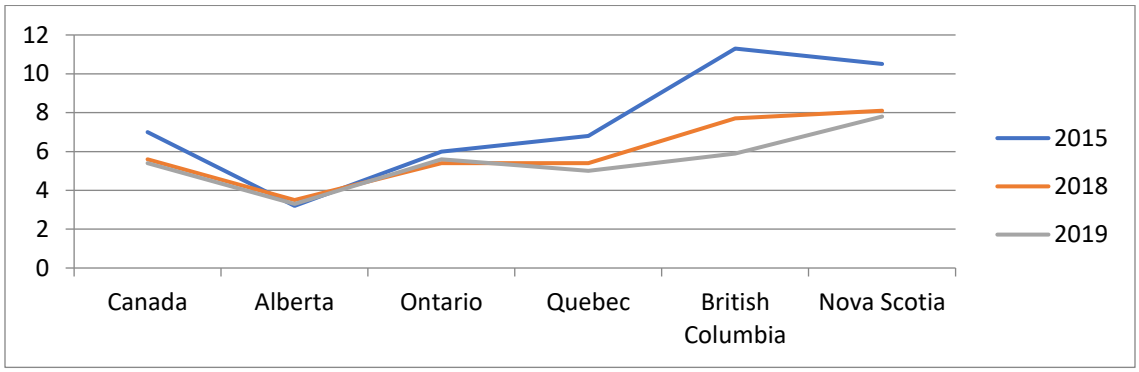
Source: Canadian Income Survey, 2019. Finance and Treasury Board. Government of Nova Scotia

Table 4.21 shows that across the years using 2015 as the base, the poverty rate has declined on average in all the provinces with slight differences. In Alberta, the poverty rate increased from 3.2 percent in 2015 to 3.5 percent in 2018 and later declined to 3.3 percent in 2019. However, in Ontario, the rate declined to 5.4 percent in 2018 from 6 percent in 2015, but later increased to 5.6 percent in 2019.

These developments are represented graphically in Figure 4.6**,** which shows that the 2018 curve is below the 2015 curve, while the 2019 curve is beneath 2018, representing the decrease in the poverty rate in Canada and provinces among seniors.

Hence, it shows a consistent decline in the seniors' poverty rate, suggesting that the RIS is achieving these particular goals, with slight variations due to other factors not covered by this thesis.

Figure 4.6 - Poverty Rate among seniors age 65 and over



In conclusion, data analysis used in this these shows that employment income in retirement is not a significant source of retirement income, particularly for older seniors (75 and over) and those in lower-middle and middle-income quartiles. The data analysis includes data for Canada and the selected provinces. A comparative analysis of the employment rates in Canada and selected provinces for couples in families and unattached individuals, which includes the percent of age cohorts employed during selected years of 2000 and 2018 for the middle-income quintiles, was discussed in this chapter. The GRR with and without investment income was also analyzed for ten (2010) and fifteen (2015) year periods using the year 2000 as the base year to determine the adequacy of the RIS for couples and unattached individuals in Canada, with comparisons for Canada and selected provinces. Lastly, the data were analyzed on the distribution of different retirement income sources across quintiles and age cohorts for 2018 for Canada and the selected provinces.

CHAPTER FIVE – CONCLUSION

FINDINGS, LIMITATIONS, RECOMMENDATIONS

This study analyzed the adequacy of the RIS system on middle-income retired Canadians and determined whether the RIS meets its two primary objectives. Based on the data analysis and the findings, this thesis will establish a conclusion and achievement on this study on whether the RIS is adequate for middle-income retired Canadians. It has also discussed various studies and research by policy analysts, academics, and other government agencies. This chapter section will focus on the data analysis findings, the limitations the thesis encountered in the study of the RIS, and the recommendations for future research on the RIS.

This research shows no significant relationship between RIS/GRR adequacy and post-65 levels of employment income. The RIS provides reasonable income replacement levels for most middle-income Canadians in retirement except those in the upper-middle and the upper-income quintiles. Pension inequality between private and public sector employees is apparent from broader research. The major advantage for public sector employees is that they can retire "early" between 55-59 and 60-64. In contrast, the private sector employees and the self-employed often have to work until age 65 or beyond before they can satisfactorily retire from employment. The relative adequacy of the RIS in replacing pre-retirement income is subject to the amount of pre-retirement income earned by Canadians and the variables that constitute pre-retirement income. Therefore, any assessment of the adequacy of the RIS should focus on the combination of pre-retirement income and expenses and post-retirement income and expenses because expenses often

decline during retirement, just as the data analysis shows that employment income decline with age.

Finally, this research shows that the GRR does not determine employment rates and levels of employment income (dollar amounts) among retired middle-income Canadians. Its findings suggest that the RIS is adequate for middle-income retired Canadians because their employment income declines with age just as other research suggests that their expenses decline. In addition, the data analysis indicates that employment rates and levels of employment income decline with age; as such, there is a strong inference that employment is voluntary for a substantial plurality, if not majority, of middle-income Canadians. Therefore, based on the findings of this thesis, the RIS is adequate for the middle-income retired Canadians to a large extent, subject to further analysis to determine if other variables not considered in this thesis may alter the outcome.

Ongoing changes to the RIS announced since 2016 offer the potential for further improvements (Runchey 2019). The Federal Government successfully negotiated changes to the CPP with the provinces. The first set of changes, to be phased in between 2019 and 2023, will increase the cost of contributions from 9.9 to 11.9 percent. These increased contribution cost affects all future pensionable earning levels between than the Year's Basic Exemption (YBE) of $3,500 and the Year's Maximum Pensionable Earnings (YMPE) of $57,400 in 2019. The full funding of these additional CPP benefits is intended to replace 33.33 percent of all future retired Canadians' average income, compared with the current 25 percent CPP replacement rate (Runchey 2019). In addition, the second set of changes will increase Yearly Additional Maximum Pensionable

Earnings (YAMPE) by 14 percent beginning in 2024-25. However, some critics have suggested that the steady increment of YMPE of $57,400 in 2019, $58,700 in 2020, $61,600 for 2021, and $64,900 for 2022 may pose a significant short-term economic burden on lower- to middle-income Canadians, particularly following the adverse impact of the COVID-19 pandemic on the economy. That said, the successful implementation of the CPP enhancement as noted above would further strengthen the RIS's ability to achieve its objectives of poverty reduction and income replacement (Runchey 2019).

Limitations

Although this thesis aimed to determine the adequacy of the RIS for middle-income retired Canadians, there are limitations experienced in this research. The first limitation was data gathering.

The most potentially useful source of data to investigate the questions raised in this thesis was the Longitudinal Administrative Data formerly used by researchers to analyze income tax returns from the Canada Revenue Agency. Unfortunately, with the discontinuation of this data set, it became necessary to pay for a custom data set from Statistics Canada to organize data by age cohorts and income quintiles to enable the investigation of the research questions for this thesis.

Moreover, requirements to access historical LAD, including security clearance, getting the thesis approved by some government agencies, and being confined to a specific location, further complicated the use of historical data. The latter requirement was impracticable given the COVID-19 pandemic and related public health restrictions. Furthermore, data on labour force attachment are not cross-referenced with income data to help determine whether the employment status of older Canadians, including but not

limited to those over 65, was full-time or part-time. Such data would provide additional evidence to help ascertain the nature of employment income, whether voluntary or involuntary. Statistics Canada confirmed that it does not segment data on differences in pension benefits between the private and public sector employment, which would have provided additional evidence on the extent of pension inequality between private and public sector employees.

The scope of the thesis research and the need to pay for available data were also reflected in methodological choices made in commissioning data. Data commissioned was based on periodic years 2000, 2005, 2010, 2015, and 2018 instead of data for each year from 2000 to 2018. Similarly, the selection of Canada's four largest provinces and Nova Scotia as the basis for province-specific research was determined to be a more effective use of the researcher's time than the investigation of data for all the provinces and territories of Canada. Furthermore, the shortcomings of the data for analysis include the difficulty in sorting out income from unattached seniors at the beginning of the period from survivors of couple families, one of whose members may have died during the period of comparison. The data also indicate that not all seniors have access to all sources of retirement income, particularly pillar three and pillar four of the RIS.

This research recommends that more extensive research at an advanced level is needed to determine the adequacy of the RIS on middle-income retired Canadians. The research should include data from Canada and all provinces and territories as well as across a range of years; for example, data on each year from 2000 to 2020 should be analyzed. Further research is recommended on seniors' pre-retirement and post-retirement living standards in the upper-income quintile across the age cohorts of 55-59, 60-64, 65-69, 70-

74, and 75 years and over. The research will help to determine if they are better off or worse off at retirement and if they benefit from the RIS or are disadvantaged by the RIS and other social policies.

Conclusion

This research focused on the adequacy of the RIS on middle-income retired Canadians, and to analyze this, we looked at all the sources of the RIS from the first pillar to the fourth pillar across age cohorts and income quintiles. It also considered retired Canadians in couple families and unattached individuals showing the varying impact of the adequacy of the RIS in this classification and how it affects the employment income of Canadians aged 65 years and over, especially for middle-income quintiles. The study assumed that the RIS influences employment income such that the adequacy or lack thereof determines if retired Canadians would be engaged in involuntary employment. However, from the data analysis of this thesis, we found out that the RIS is indeed adequate for most middle-income retired Canadians, and surprisingly, there is no significant relationship between the RIS and employment income. Thus, this thesis finds that other variables outside of the RIS make retired Canadians continue or seek employment.

BIBLIOGRAPHY

Baldwin, Bob. *Assessing the Retirement Income Prospects of Canada's Future Elderly*: A Review of Five Studies." *Commentary # 310.* Toronto: C.D. Howe Institute, September, 2016. https://www.cdhowe.org/sites/default/files/attachments/research_papers/mixed/Commentarypercent20456_0.pdf

---. "The evolving wealth of Canadians approaching retirement." *In The Baldwin Reader*, Toronto: C.D. Howe Institute, March 28 2019. https://www.cdhowe.org/sites/default/files/attachments/research_papers/mixed/Workingpercent20Paperpercent200328_web.pdf

---. "The shifting ground of pension design: reflections on risk and reporting." *In the Baldwin Reader*. Commentary *# 571*. Toronto: C.D. Howe Institute, May, 2020. https://www.cdhowe.org/sites/default/files/attachments/research_papers/mixed/Commentary_571.pdf

Baldwin, Bob and Richard Shillington. *The unfinished business of pension reform*. Montreal: Institute for Research on Public Policy, June, 2017. https://irpp.org/research-studies/unfinished-business-pension-reform-in-canada/.

Beach, Charles M. *Canada's Aging Workforce: Participation, Productivity, and Living Standards*. Ottawa; Bank of Canada, 2008. https://www.bankofcanada.ca/wp-content/uploads/2010/09/beach.pdf

Canada Pension Plan Advisory Board. *Report of the Committee on the Investment of the Canada Pension Plan Fund*. Ottawa: Minister of Supply and Service Canada, 1991.

Civilization.ca. *The History of Canada's Public Pensions*. Accessed December 13, 2019. https://www.historymuseum.ca/cmc/exhibitions/hist/pensions/cpp-m1915_e.html

Cross, Philip. *The reality of retirement income in Canada*. Vancouver: Fraser Institute, April 2014. https://www.fraserinstitute.org/sites/default/files/reality-of-retirement-income-in-canada.pdf

Department of Finance, Canada. *An Information Paper for Consultations on the Canada Pension Plan*. Ottawa: Department of Finance. Released by the Federal, Provincial and Territorial Governments of Canada. 1996.

Di Matteo, Livio. *An Analysis of Public and Private Sector Employment Trend in Canada*. 1990-2013, June 2015. https://www.fraserinstitute.org/sites/default/files/analysis-of-public-and-private-sector-employment-trends-in-canada.pdf.

Fields, Andrew, Sharanjit Uppal, and Sebastien LaRochelle-Cote. *The Impact of Aging on Labour Market Participation Rates*. Released date: June 14, 2017. Statistics Canada. https://www150.statcan.gc.ca/n1/pub/75-006-x/2017001/article/14826-eng.htm

Government of Canada. 1981. "Proceeding of the National Pensions Conference." Ottawa: Ministry of Supply and Service Canada, 1981.

---. "Financing the Canada Pension Plan." *Government of Canada*. Ottawa: National Council of Welfare. 1982.

---. "*Pension Reform*." Ottawa: National Council of Welfare. Government of Canada. Ministry of Supply and Service Canada. 1990.

---. "Annual Report of the Canada Pension Plan." *Government of Canada*. 2014-2015. 2015. https://www.canada.ca/en/employment-socialdevelopment/programs/pensions/reports/annual-2015.html

---. "Address the Disparity in Private Sector – Public Sector Wages, Pension and Benefits." *Government of Canada*. 2018. https://open.canada.ca/en/idea/address-disparity-private-sector-public-sector-wages-pensions-and-benefits

---. "Sources of Retirement Income." *Government of Canada*. February 1, 2019. https://www.canada.ca/en/financial-consumer-agency/services/retirement-planning/sources-retirement-income.html

---. "Canada Pension Plan Enhancement." *Government of Canada.* 2019. https://www.canada.ca/en/services/benefits/publicpensions/cpp/cpp-enhancement.html

Hamilton, Malcolm. *Do Canadians Save Too Little*? Commentary # 428 (Toronto: C.D. Howe Institute, June). 2015. file:///C:/Users/User/Downloads/SSRN-id2615026.pdf

Hazel, Myriam. *Reasons for working at 60 and beyond*. Cat. 71-222X (Ottawa: Statistics Canada, December 18, 2018). https://www150.statcan.gc.ca/n1/pub/71-222-x/71-222-x2018003-eng.htm

Hicks, Peter. *Later Retirement: The Win-Win Solution*. Commentary # 345. Toronto: C.D. Howe Institute, March 2012. https://www.cdhowe.org/sites/default/files/attachments/research_papers/mixed/Commentary_345_0.pdf

Kesselman, Jonathan R. *Expanding Canada Pension Plan Retirement Benefits: Assessing Big CPP Proposals*. The School of Public Policy, SPP Research Paper, University of Calgary. Vol 3, Issue 6. October 2010. https://www.policyschool.ca/wp-content/uploads/2016/03/kesselman-cpp-online.pdf

Lacasse, Dajean. *The Evolution of the Canada Pension Plan, Its Expansion, and the Aging Population*. Queen's Policy Review 8:1 (summer), 2017. https://www.queensu.ca/sps/qpr/sites/webpublish.queensu.ca.qprwww/files/files/2017/04percent20-percent20Dajeanpercent20Lacassepercent20-percent20Thepercent20Evolutionpercent20ofpercent20thepercent20Canadapercent20Pensionpercent20Plan.pdf

Lammam, Charles, Taylor Jackson, and Joel Emes. *Expansion of the Canada Pension Plan, and the Unintended Effect on Domestic Investment*. Fraser Institute, 2018.

https://www.fraserinstitute.org/studies/expansion-of-the-canada-pension-plan-and-the-unintended-effect-on-domestic-investment.

LaRochelle-Cote, Sebastien, Garnett Picot, and John Myles. *Income Replacement during the Retirement Years*. 328, (August 2010). Accessed May 12, 2020. https://www150.statcan.gc.ca/n1/en/pub/75-001-x/2010108/pdf/11331-eng.pdf?st=y-PgYfLA.

Mazer, Alex, and Jonathan Weisstub. *The Evolution of the Canadian Pension Model: Practical lessons for building world-class pension organization*. Washington, DC: CommonWealth/World Bank Group, September 2017.

Milloy, Mike. *Canadian Income Survey, 2019*. Finance and Treasury Board, Government of Nova Scotia. March 2.3, 2021. https://www.novascotia.ca/finance/statistics/topic_news.asp?id=16662&fto=24x&rdval=2021-03

Mintz, Jack M., and Wilson Thomas A. *Reform Proposal for Replenishing Retirement Savings*. The School of Public Policy, SPP Research Paper, University of Calgary. Vol 6, Issue 9. February 2013. https://search-proquest-com.ezproxy.uleth.ca/docview/2200369293?pq-origsite=summon

Moore, Kevin D., William B.P. Robson, and Alexandre Laurin. *Canada's Looming Retirement Challenge: Will Future Retirees be Able to Maintain Their Living Standards Upon Retirement?* (December 17, 2010). C.D. Howe Institute Commentary Pension Paper No. 317. Available at SSRN: https://ssrn.com/abstract=1749542 or http://dx.doi.org/10.2139/ssrn.1749542 Also - https://www.deslibris.ca/en-US/Read.aspx?ID=226411

Morissette, Rene, and Theresa Hanqing Qui. *Turbulence or Steady Course? Permanent Layoffs in Canada, 1978-2016*. 76 (June 2020). Accessed June 05, 2020. https://irpp.org/wp-content/uploads/2020/06/Turbulence-or-Steady-Course-Permanent-Layoffs-in-Canada-1978-2016.pdf?mc_cid=783a11d0d4&mc_eid=8ae221c41e.

Omololu, Enoch. *Retirement Benefits: 10 Strategies to Minimize the Old Age Security (OAS) Clawback*. April 3, 2021. https://www.savvynewcanadians.com/strategies-minimize-old-age-security-clawback/

Ostrovsky, Yuri, and Grant Schellenberg. *A Note on Pension Coverage and Earnings Replacement Rates of Retired Men: A Closer Look at Distributions*. July 2010. Accessed June 05, 2020. https://publications.gc.ca/collections/collection_2010/statcan/11F0019M/11f0019m2010326-eng.pdf

Ostrovsky, Yuri, and Grant Schellenberg. *Pension Coverage, Retirement Status, and Earning Replacement Rates Among a Cohort of Canadian Seniors*. December 2009. Accessed May 05, 2020. https://www150.statcan.gc.ca/n1/pub/11f0019m/11f0019m2009321-eng.pdf

Runchey, Doug. *Understanding and Calculating the Enhanced CPP Changes*. December 18, 2019. https://retirehappy.ca/enhanced-cpp/

Schuetze, Herbert J. *Self-Employment and Retirement in Canada: The Labour Force Dynamics of Older Workers*. Canadian Public Policy / Analyse de Politiques 41, no. 1: 65–85. 2015. http://www.jstor.org/stable/24365153

Statistics Canada. *Income Composition in Canada*. 2010 modified on July 25, 2018. https://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-014-x/99-014-x2011001-eng.cfm.

---. ” Income Composition in Canada.” *Statistics Canada*. 2011 https://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-014-x/99-014-x2011001-eng.cfm

---. ” Income Replacement Rate Among Canadian Seniors: The Effect of Widowhood and Divorce.” *Statistics Canada*. June 2012. https://www150.statcan.gc.ca/n1/pub/11f0019m/11f0019m2012343-eng.htm

---. “Income Replacement Rate among Canadian Seniors: The Effect of Widowhood and Divorce.” *Statistics Canada*. June 2012. https://www150.statcan.gc.ca/n1/pub/11f0019m/11f0019m2012343-eng.htm

---. “Low Income Lines, 2010 to 2011.” *Statistics Canada*. Income Research Paper Series, June 2012. https://www150.statcan.gc.ca/n1/en/pub/75f0002m/75f0002m2012002-eng.pdf?st=Qf2yhhoE

---. “Market Basket Measure (MBM).” *Statistics Canada*. Dictionary, Census of Population, 2016. Release date: May 3, 2017. https://www12.statcan.gc.ca/census-recensement/2016/ref/dict/pop165-eng.cfm

---. “Working seniors in Canada.” *Statistics Canada*. Census in Brief. Release date: November 29, 2017. https://www12.statcan.gc.ca/census-recensement/2016/as-sa/98-200-x/2016027/98-200-x2016027-eng.cfm

---. “Survey of Financial Security, 2016.” *Statistics Canada*. Released date: December 7, 2017. https://www150.statcan.gc.ca/n1/daily-quotidien/171207/dq171207b-eng.htm

---. “Low Income Measure: Comparison of Two Data Sources, T1 Family File and 2016 Census of Population.” *Statistics Canada*. Release date: April 5, 2018. https://www150.statcan.gc.ca/n1/pub/75f0002m/75f0002m2018002-eng.htm

---. “Canadian Income Survey, 2017.” *Statistics Canada*. The Daily, Published on Tuesday, February 26, 2019. https://www150.statcan.gc.ca/n1/en/daily-quotidien/190226/dq190226b-eng.pdf?st=xxFNKhyj

---. “Canadian Income Survey, 2017.” *Statistics Canada*. Release date: February 26, 2019. https://www150.statcan.gc.ca/n1/daily-quotidien/190226/dq190226b-eng.htm

---. “Registered Pension Plan Membership, by Sector and Type of Plan.” *Statistics Canada*. June 19, 2019. https://www150.statcan.gc.ca/n1/daily-quotidien/190619/t001f-eng.htm

---. “Defining disposable income in the Market Basket Measure.” *Statistics Canada*. Release date: December 20, 2019. https://www150.statcan.gc.ca/n1/pub/75f0002m/75f0002m2019014-eng.htm

---. “Canadian Income Survey, 2018.” *Statistics Canada*. Release date: February 24, 2020. https://www150.statcan.gc.ca/n1/daily-quotidien/200224/dq200224a-eng.htm

---. “Market Basket Measure (MBM) thresholds for the reference family by Market Basket Measure region, component, and base year.” *Statistics Canada*. Release date: March 23, 2021. Table 11-10-0066-01. 2021. DOI: https://doi.org/10.25318/1110006601-eng

--- “Income Statistics by Economic FamilyType and Income Source.” *Statistics Canada.* Release date: March 23, 2021. https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=1110019101

Totrov, Serguei, *Canada's Retirement Income System*. Accessed April 1, 2020. Company's website https://www.totrov.com/en/pension-rrsp-2/pension-system/.

Van Santvoort, Albert. *Canadian Consumers Are Less Ready for a Recession than They Were 11 Years Ago.*" Business in Vancouver, September 26, 2019, Canadian consumers are less ready for a recession than they were 11 years ago - Economy, Law & Politics | Business in Vancouver (biv.com)

Wolfson, Michael C. *Projecting the Adequacy of Canadians' Retirement Income: Current Prospects and Possible Reforms*. April 29, 2011. Institute for Research on Public Policy. https://irpp.org/research-studies/projecting-the-adequacy-of-canadians-retirement-incomes/

Zarepour, Morvarid. *The Determinants of Older Canadians' Labour Force Attachment*. Published, August 2014. https://ruor.uottawa.ca/bitstream/10393/31682/1/Zarepour_Morvarid_2014_researchpaper.pdf

Appendices

Appendix 4.1

Sources of Income across Quintiles – Percent with Income Sources

British Columbia

Couples									
		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$30,421.39	$42,951.70	$67,278.36	$30,969.20	$42,466.59	$66,442.50	$31,017.38	$41,930.52	$65,019.31
CPP	87.23	96.15	98.58	87.16	97.56	99.22	81.13	97.43	98.97
OAS/GIS	91.02	96.68	98.49	95.02	98.70	99.48	97.52	99.44	99.74
Other Govt Transfers	97.64	94.87	15.49	98.30	96.01	13.38	98.51	96.60	14.26
Sub-total: transfer income	**275.89**	**287.70**	**212.56**	**280.47**	**292.26**	**212.08**	**277.16**	**293.47**	**212.98**
RPP	23.76	67.40	85.14	27.92	82.72	95.19	28.30	86.38	97.63
RRSP	6.86	14.57	21.60	3.80	7.82	10.45	1.29	4.02	5.61
Sub-total: third pillar income	**30.61**	**81.96**	**106.74**	**31.72**	**90.55**	**105.65**	**29.59**	**90.40**	**103.24**
Employment Income	22.46	46.19	68.27	12.71	34.15	57.61	5.36	25.11	48.35
Investment Income	38.89	54.34	63.96	33.03	54.77	68.17	36.44	63.00	78.48
Other Income	16.55	28.23	36.84	12.32	25.51	36.96	11.32	24.67	38.83
Sub-total Investment Income	**55.44**	**82.57**	**100.80**	**45.35**	**80.28**	**105.12**	**47.77**	**87.67**	**117.30**

Unattached									
		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$28,688.13	$46,254.51	$70,433.64	$28,426.44	$46,103.62	$70,247.27	$27,781.45	$44,868.29	$69,076.24
CPP	95.07	94.19	90.41	97.93	98.87	98.55	97.60	98.47	98.33
OAS/GIS	94.01	91.52	86.08	98.79	98.94	97.70	99.59	99.60	99.17
Other Govt Transfers	98.81	56.31	14.47	98.79	53.58	12.00	98.93	58.69	12.21
Sub-total: transfer income	**287.89**	**242.02**	**190.97**	**295.52**	**251.39**	**208.24**	**296.11**	**256.75**	**209.71**
RPP	53.77	68.07	62.03	74.43	88.32	88.24	81.19	95.20	96.61
RRSP	12.82	16.90	17.51	7.64	10.10	10.91	4.47	6.17	7.09
Sub-total: third pillar income	**66.59**	**84.97**	**79.54**	**82.07**	**98.42**	**99.15**	**85.66**	**101.37**	**103.69**
Employment Income	45.22	65.93	74.10	31.67	51.02	55.88	17.33	38.58	40.26
Investment Income	41.31	50.57	58.71	44.66	58.10	70.55	57.92	75.09	87.02
Other Income	23.62	30.19	37.60	23.85	34.06	45.58	23.08	39.31	54.97
Sub-total Investment Income	**64.93**	**80.76**	**96.31**	**68.51**	**92.16**	**116.12**	**81.00**	**114.40**	**141.99**

Appendix 4.2

Distribution of Income across Quintiles – Percent by Income Sources

British Columbia

Couples									
		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$30,421.39	$42,951.70	$67,278.36	$30,969.20	$42,466.59	$66,442.50	$31,017.38	$41,930.52	$65,019.31
CPP	17.51	26.97	22.04	15.98	29.35	22.82	15.78	31.21	23.21
OAS/GIS	60.79	35.66	19.83	68.27	37.23	21.29	71.14	37.60	21.86
Other Govt Transfers	5.88	2.34	1.19	5.60	2.24	1.08	5.54	2.03	1.05
Sub-total: transfer income	**84.18**	**64.97**	**43.06**	**89.85**	**68.82**	**45.20**	**92.46**	**70.84**	**46.12**
RPP	4.89	18.14	33.61	5.33	21.93	41.15	4.40	22.07	42.78
RRSP	0.77	2.12	3.30	0.25	0.81	1.18	0.06	0.36	0.57
Sub-total: third pillar income	**5.67**	**20.26**	**36.91**	**5.59**	**22.75**	**42.33**	**4.46**	**22.44**	**43.36**
Employment Income	5.16	8.29	13.46	1.53	3.38	5.93	0.24	1.21	2.26
Investment Income	3.17	4.34	4.71	2.11	3.47	4.75	2.06	4.15	6.45
Other Income	1.81	2.13	1.85	0.91	1.59	1.79	0.79	1.37	1.81
Sub-total Investment Income	**4.98**	**6.47**	**6.56**	**3.03**	**5.06**	**6.54**	**2.84**	**5.52**	**8.26**

Unattached									
		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$28,688.13	$46,254.51	$70,433.64	$28,426.44	$46,103.62	$70,247.27	$27,781.45	$44,868.29	$69,076.24
CPP	24.70	18.40	12.83	28.68	21.02	14.96	33.04	22.60	15.22
OAS/GIS	30.30	14.23	8.36	31.61	16.26	10.36	31.25	16.87	10.81
Other Govt Transfers	3.96	2.17	1.62	2.99	1.52	1.42	2.88	1.58	1.10
Sub-total: transfer income	**58.96**	**34.80**	**22.80**	**63.28**	**38.80**	**26.74**	**67.16**	**41.05**	**27.12**
RPP	19.07	31.87	27.83	25.22	43.35	45.54	24.38	45.04	51.11
RRSP	2.63	3.44	3.61	1.15	1.76	1.99	0.61	0.85	0.90
Sub-total: third pillar income	**21.70**	**35.31**	**31.45**	**26.36**	**45.10**	**47.53**	**24.99**	**45.89**	**52.01**
Employment Income	12.70	22.56	35.37	4.51	8.64	13.54	0.85	1.97	2.65
Investment Income	4.36	4.89	7.57	3.82	5.12	9.13	5.40	8.54	14.53
Other Income	2.28	2.45	2.80	2.03	2.33	3.05	1.59	2.55	3.69
Sub-total Investment Income	**6.64**	**7.34**	**10.38**	**5.85**	**7.45**	**12.19**	**6.99**	**11.09**	**18.22**

Appendix 4.3 - Sources of Income across Quintiles – Percent with Income Sources

Alberta

Couples		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$30,755.87	$42,337.30	$67,331.38	$31,460.43	$41,780.11	$66,272.26	$32,442.18	$41,380.32	$64,325.84
CPP	84.98	96.94	98.89	85.61	97.96	99.74	83.67	96.92	99.51
OAS/GIS	84.51	97.62	98.55	40.29	50.00	68.80	92.52	99.78	99.92
Other Govt Transfers	98.12	99.09	98.20	97.84	99.35	98.44	97.28	99.49	98.53
Sub-total: transfer income	**267.61**	**293.65**	**295.65**	**223.74**	**247.31**	**266.98**	**273.47**	**296.18**	**297.96**
RPP	28.17	53.29	77.82	33.09	67.31	93.34	34.01	70.41	95.18
RRSP	6.10	13.15	21.70	2.16	5.91	10.03	#VALUE!	3.82	5.81
Sub-total: third pillar income	**34.27**	**66.44**	**99.52**	**35.25**	**73.23**	**103.37**	**34.01**	**74.23**	**100.98**
Employment Income	39.91	36.62	59.02	32.37	25.91	45.29	23.81	17.03	30.66
Investment Income	39.44	50.23	65.24	40.29	50.00	68.80	43.54	59.99	79.31
Other Income	23.00	24.49	34.62	20.86	22.04	34.40	#VALUE!	21.59	36.88
Sub-total Investment Income	**62.44**	**74.72**	**99.86**	**61.15**	**72.04**	**103.20**	**#VALUE!**	**81.57**	**116.19**

Unattached		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$27,111.95	$46,668.45	$72,196.77	$26,491.98	$46,539.71	$72,210.68	$26,795.79	$45,109.85	$69,787.28
CPP	96.08	94.10	91.10	97.88	99.09	98.64	97.11	98.86	99.37
OAS/GIS	96.65	91.95	86.19	99.37	98.83	97.67	99.85	99.73	99.37
Other Govt Transfers	99.62	94.85	25.03	99.66	94.01	18.25	99.68	93.67	23.15
Sub-total: transfer income	**292.35**	**280.90**	**202.32**	**296.91**	**291.93**	**214.56**	**296.64**	**292.26**	**221.90**
RPP	31.25	59.98	55.61	45.53	83.72	84.85	56.01	92.05	94.99
RRSP	9.55	17.92	20.00	5.21	10.94	11.07	3.17	6.01	6.47
Sub-total: third pillar income	**40.80**	**77.90**	**75.61**	**50.74**	**94.66**	**95.92**	**59.18**	**98.05**	**101.46**
Employment Income	25.24	54.94	69.68	14.32	36.20	46.21	7.23	17.26	23.57
Investment Income	30.74	48.50	55.35	32.53	56.38	69.90	49.93	76.08	87.49
Other Income	14.74	26.50	33.81	13.69	30.47	43.88	15.81	37.61	54.22
Sub-total Investment Income	**45.48**	**75.00**	**89.16**	**46.22**	**86.85**	**113.79**	**65.74**	**113.69**	**141.71**

Appendix 4.4 - Distribution of Income across Quintiles – Percent by Income Sources

Alberta

Couples		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$30,755.87	$42,337.30	$67,331.38	$31,460.43	$41,780.11	$66,272.26	$32,442.18	$41,380.32	$64,325.84
CPP	20.29	27.08	22.47	17.75	28.10	23.54	15.63	28.63	23.61
OAS/GIS	43.36	38.54	20.12	52.80	41.39	21.90	57.11	42.12	23.23
Other Govt Transfers	14.82	8.46	2.08	15.40	8.49	1.68	14.96	8.73	2.35
Sub-total: transfer income	**78.48**	**74.07**	**44.67**	**85.95**	**77.98**	**47.12**	**87.70**	**79.48**	**49.19**
RPP	7.73	12.16	28.83	9.62	15.13	37.97	9.36	14.53	38.55
RRSP	1.20	2.08	3.63	0.24	0.58	1.19	0.00	0.33	0.58
Sub-total: third pillar income	**8.93**	**14.23**	**32.47**	**9.86**	**15.71**	**39.16**	**9.36**	**14.86**	**39.13**
Employment Income	8.32	7.17	16.06	0.93	2.76	7.55	-1.56	1.08	3.45
Investment Income	3.22	3.32	5.05	2.58	2.50	4.57	3.65	3.51	6.30
Other Income	1.06	1.20	1.75	0.69	1.04	1.60	0.00	1.08	1.92
Sub-total Investment Income	**4.28**	**4.52**	**6.80**	**3.27**	**3.55**	**6.17**	**3.65**	**4.58**	**8.22**

Unattached		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$27,111.95	$46,668.45	$72,196.77	$26,491.98	$46,539.71	$72,210.68	$26,795.79	$45,109.85	$69,787.28
CPP	23.84	18.51	12.88	26.39	21.31	15.08	29.11	22.59	15.43
OAS/GIS	39.87	14.59	8.05	43.06	16.75	10.20	39.81	17.54	11.21
Other Govt Transfers	11.91	3.38	1.60	10.49	2.44	1.19	10.76	2.67	1.41
Sub-total: transfer income	**75.62**	**36.48**	**22.54**	**79.94**	**40.50**	**26.47**	**79.68**	**42.81**	**28.05**
RPP	10.12	27.38	24.43	13.21	39.80	42.62	14.06	42.09	48.04
RRSP	1.98	4.18	4.21	0.74	1.94	2.25	0.41	0.88	0.83
Sub-total: third pillar income	**12.10**	**31.56**	**28.64**	**13.94**	**41.74**	**44.87**	**14.46**	**42.97**	**48.87**
Employment Income	8.38	25.09	39.76	2.91	11.25	17.80	0.77	3.08	5.18
Investment Income	2.59	4.89	6.80	2.12	4.54	8.03	3.86	8.27	13.84
Other Income	1.30	1.98	2.26	1.09	1.96	2.83	1.22	2.87	4.06
Sub-total Investment Income	**3.89**	**6.88**	**9.06**	**3.21**	**6.50**	**10.86**	**5.08**	**11.15**	**17.90**

Appendix 4.5 - Sources of Income across Quintiles – Percent with Income Sources

Ontario

Couples		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$30,860.28	$42,985.08	$67,920.02	$31,298.11	$42,679.06	$67,075.98	$31,470.98	$42,281.24	$65,499.91
CPP	84.53	97.53	99.07	80.28	98.12	99.59	70.39	97.91	99.53
OAS/GIS	91.62	98.36	99.18	93.86	99.13	99.73	96.91	99.66	99.85
Other Govt Transfers	99.65	99.60	98.37	99.66	99.74	98.25	99.63	99.72	97.87
Sub-total: transfer income	**275.81**	**295.50**	**296.62**	**273.80**	**296.99**	**297.57**	**266.93**	**297.29**	**297.26**
RPP	18.80	65.23	85.59	22.96	79.38	96.02	23.00	83.01	97.87
RRSP	5.57	13.71	21.05	2.63	6.83	10.06	1.17	4.38	5.69
Sub-total: third pillar income	**24.37**	**78.94**	**106.64**	**25.59**	**86.20**	**106.08**	**24.17**	**87.38**	**103.56**
Employment Income	19.21	38.53	61.75	11.68	27.63	49.61	6.44	20.69	39.37
Investment Income	27.59	45.98	58.11	25.12	48.71	63.78	28.97	60.12	76.91
Other Income	12.71	23.12	33.33	9.93	21.38	34.84	9.05	21.74	38.35
Sub-total Investment Income	**40.30**	**69.10**	**91.44**	**35.04**	**70.09**	**98.63**	**38.02**	**81.86**	**115.26**

Unattached		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$27,991.46	$46,762.92	$71,799.50	$27,688.81	$46,510.30	$72,172.87	$27,598.82	$45,400.49	$70,752.97
CPP	95.70	95.26	92.07	98.07	99.04	98.95	97.90	98.86	98.87
OAS/GIS	96.28	93.52	89.20	99.25	99.16	98.56	99.76	99.68	99.42
Other Govt Transfers	99.94	98.71	96.71	99.94	98.87	97.20	99.94	98.72	96.34
Sub-total: transfer income	**291.91**	**287.48**	**277.97**	**297.27**	**297.07**	**294.70**	**297.59**	**297.26**	**294.63**
RPP	43.31	68.08	65.67	63.73	89.32	90.85	72.91	95.75	97.57
RRSP	11.29	17.76	20.12	6.74	10.10	11.68	4.49	6.70	7.84
Sub-total: third pillar income	**54.60**	**85.85**	**85.80**	**70.47**	**99.42**	**102.54**	**77.40**	**102.45**	**105.41**
Employment Income	30.87	56.11	63.62	18.26	37.74	41.05	8.52	21.22	22.92
Investment Income	33.57	45.28	54.73	36.76	53.03	66.56	52.24	73.10	84.69
Other Income	19.47	29.07	34.82	20.01	33.57	42.67	20.77	39.55	52.07
Sub-total Investment Income	**53.04**	**74.35**	**89.55**	**56.77**	**86.60**	**109.23**	**73.01**	**112.65**	**136.76**

Appendix 4.6 - Distribution of Income across Quintiles – Percent by Income Sources

Ontario

Couples		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$30,860.28	$42,985.08	$67,920.02	$31,298.11	$42,679.06	$67,075.98	$31,470.98	$42,281.24	$65,499.91
CPP	16.46	28.20	22.44	14.24	30.27	23.34	12.73	31.35	23.79
OAS/GIS	60.67	36.54	19.63	67.01	37.60	21.19	71.18	38.18	21.93
Other Govt Transfers	11.05	5.54	2.01	10.22	5.27	1.85	9.86	5.40	2.13
Sub-total: transfer income	**88.18**	**70.28**	**44.08**	**91.47**	**73.14**	**46.38**	**93.77**	**74.94**	**47.85**
RPP	3.83	16.59	34.56	4.43	19.66	42.01	3.73	19.33	42.56
RRSP	0.57	1.84	2.95	0.22	0.67	1.07	0.07	0.36	0.51
Sub-total: third pillar income	**4.40**	**18.43**	**37.52**	**4.65**	**20.33**	**43.08**	**3.80**	**19.69**	**43.07**
Employment Income	4.06	7.03	13.51	1.56	2.75	5.74	0.09	0.86	2.11
Investment Income	2.05	2.78	3.39	1.53	2.62	3.44	1.82	3.50	5.48
Other Income	1.30	1.48	1.50	0.80	1.16	1.36	0.52	1.02	1.49
Sub-total Investment Income	**3.36**	**4.26**	**4.89**	**2.32**	**3.78**	**4.80**	**2.34**	**4.52**	**6.97**

Unattached		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$27,991.46	$46,762.92	$71,799.50	$27,688.81	$46,510.30	$72,172.87	$27,598.82	$45,400.49	$70,752.97
CPP	25.32	18.62	13.05	29.32	21.37	14.90	32.76	22.78	15.12
OAS/GIS	34.63	14.08	8.32	35.41	16.06	10.17	33.51	16.70	10.61
Other Govt Transfers	9.35	3.87	1.80	8.21	3.38	1.50	7.85	3.65	1.93
Sub-total: transfer income	**69.30**	**36.57**	**23.17**	**72.94**	**40.82**	**26.56**	**74.12**	**43.13**	**27.66**
RPP	14.15	32.50	33.94	18.90	43.77	51.44	19.38	44.66	54.45
RRSP	2.17	3.48	3.78	0.87	1.62	1.95	0.53	0.83	0.90
Sub-total: third pillar income	**16.32**	**35.99**	**37.72**	**19.78**	**45.39**	**53.39**	**19.90**	**45.49**	**55.35**
Employment Income	9.74	21.67	31.35	3.11	7.87	11.16	0.53	1.64	2.23
Investment Income	2.70	3.60	5.39	2.55	3.84	6.41	4.20	7.49	11.79
Other Income	1.94	2.17	2.37	1.61	2.08	2.47	1.25	2.25	2.98
Sub-total Investment Income	**4.64**	**5.77**	**7.76**	**4.17**	**5.92**	**8.88**	**5.45**	**9.74**	**14.77**

Appendix 4.7 - Sources of Income across Quintiles – Percent with Income Sources

Quebec

Couples		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$31,535.64	$42,748.51	$68,478.63	$32,090.23	$42,211.81	$67,768.33	$32,185.46	$41,543.97	$66,754.75
CPP	96.33	99.43	99.67	96.94	99.76	99.89	95.60	99.65	99.81
OAS/GIS	98.56	99.61	99.75	99.25	99.91	99.92	99.76	99.93	99.94
Other Govt Transfers	98.42	98.12	26.22	98.51	98.61	22.24	98.43	98.71	22.81
Sub-total: transfer income	**293.30**	**297.16**	**225.64**	**294.71**	**298.28**	**222.05**	**293.79**	**298.30**	**222.56**
RPP	26.35	74.28	89.17	33.04	85.27	96.87	38.00	87.57	98.66
RRSP	3.46	9.80	16.65	1.64	5.27	7.84	1.57	4.51	5.73
Sub-total: third pillar income	**29.81**	**84.08**	**105.82**	**34.68**	**90.54**	**104.72**	**39.57**	**92.08**	**104.39**
Employment Income	18.86	39.01	56.91	11.48	26.97	42.56	5.97	16.55	29.88
Investment Income	23.90	37.57	50.57	24.09	40.89	57.09	33.11	53.73	72.33
Other Income	13.10	23.51	30.40	11.71	21.93	31.35	10.07	21.22	33.78
Sub-total Investment Income	**37.01**	**61.08**	**80.97**	**35.79**	**62.82**	**88.44**	**43.18**	**74.95**	**106.11**

Unattached		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$28,714.30	$47,254.34	$73,675.78	$28,319.00	$47,460.62	$74,670.69	$27,439.75	$46,627.83	$73,903.59
CPP	97.99	96.83	91.29	99.37	99.63	99.01	99.07	99.44	99.16
OAS/GIS	97.58	95.23	87.81	99.77	99.63	98.79	99.90	99.87	99.38
Other Govt Transfers	99.52	73.96	19.13	99.63	70.62	12.51	99.58	73.12	14.41
Sub-total: transfer income	**295.09**	**266.02**	**198.23**	**298.76**	**269.88**	**210.32**	**298.55**	**272.43**	**212.95**
RPP	60.96	74.46	66.03	78.09	91.82	89.57	82.26	96.70	97.48
RRSP	10.00	15.02	17.65	6.39	9.26	10.65	4.67	6.44	7.40
Sub-total: third pillar income	**70.96**	**89.47**	**83.68**	**84.48**	**101.08**	**100.22**	**86.93**	**103.15**	**104.88**
Employment Income	33.40	51.01	67.58	19.86	30.93	42.04	7.35	16.20	21.58
Investment Income	29.89	39.10	50.52	34.17	48.13	65.31	50.48	67.62	83.86
Other Income	19.48	24.17	37.44	19.81	28.14	45.23	19.60	33.92	54.04
Sub-total Investment Income	**49.37**	**63.27**	**87.96**	**53.99**	**76.27**	**110.54**	**70.08**	**101.54**	**137.89**

Appendix 4.8 - Distribution of Income across Quintiles – Percent by Income Sources

Quebec

Couples		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$31,535.64	$42,748.51	$68,478.63	$32,090.23	$42,211.81	$67,768.33	$32,185.46	$41,543.97	$66,754.75
CPP	23.18	27.57	21.11	22.98	28.63	21.29	23.22	29.84	21.48
OAS/GIS	63.98	37.74	19.76	66.52	39.21	21.27	66.75	40.22	21.85
Other Govt Transfers	6.24	4.04	1.35	5.67	3.31	0.59	5.57	3.35	0.39
Sub-total: transfer income	**93.40**	**69.35**	**42.21**	**95.17**	**71.15**	**43.16**	**95.54**	**73.42**	**43.71**
RPP	3.11	20.54	39.50	3.16	22.94	46.00	2.89	21.28	46.63
RRSP	0.26	1.08	1.95	0.07	0.44	0.69	0.09	0.42	0.56
Sub-total: third pillar income	**3.37**	**21.62**	**41.44**	**3.23**	**23.38**	**46.69**	**2.98**	**21.70**	**47.19**
Employment Income	1.46	5.54	11.61	0.11	2.23	5.16	-0.08	0.72	1.74
Investment Income	1.08	1.96	3.15	0.86	1.78	3.24	1.29	2.81	5.35
Other Income	0.69	1.53	1.58	0.63	1.46	1.75	0.27	1.35	2.00
Sub-total Investment Income	**1.76**	**3.49**	**4.73**	**1.48**	**3.24**	**4.99**	**1.57**	**4.16**	**7.35**

Unattached		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$28,714.30	$47,254.34	$73,675.78	$28,319.00	$47,460.62	$74,670.69	$27,439.75	$46,627.83	$73,903.59
CPP	24.54	17.86	12.25	27.13	18.98	13.56	30.51	20.15	13.62
OAS/GIS	31.62	13.68	7.98	33.41	15.96	10.21	33.66	16.72	10.60
Other Govt Transfers	6.86	3.00	1.44	5.35	1.64	0.64	5.28	1.47	0.53
Sub-total: transfer income	**63.02**	**34.54**	**21.67**	**65.88**	**36.57**	**24.42**	**69.45**	**38.33**	**24.75**
RPP	22.92	39.97	32.61	26.64	50.49	50.09	23.68	50.08	54.29
RRSP	1.53	2.32	3.31	0.73	1.17	1.84	0.63	0.89	1.02
Sub-total: third pillar income	**24.45**	**42.29**	**35.92**	**27.36**	**51.66**	**51.93**	**24.31**	**50.97**	**55.31**
Employment Income	8.68	18.74	33.55	2.84	6.59	12.12	0.48	1.48	2.42
Investment Income	2.15	2.76	5.61	2.13	3.22	7.75	4.09	6.54	12.72
Other Income	1.71	1.67	3.25	1.79	1.96	3.78	1.66	2.68	4.79
Sub-total Investment Income	**3.86**	**4.43**	**8.86**	**3.92**	**5.18**	**11.53**	**5.76**	**9.23**	**17.51**

Appendix 4.9 - Sources of Income across Quintiles – Percent with Income Sources

Nova Scotia

Couples		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$31,227.04	$42,414.95	$68,831.84	$31,822.75	$41,890.79	$67,338.61	$32,111.70	$41,436.32	$66,076.84
CPP	97.96	99.23	99.55	98.94	99.47	99.80	98.94	99.53	99.55
OAS/GIS	98.98	99.48	99.55	100.00	99.74	99.80	100.00	99.76	100.00
Other Govt Transfers	97.96	85.31	19.13	98.94	86.05	12.28	98.40	88.21	6.90
Sub-total: transfer income	**294.90**	**284.02**	**218.24**	**297.88**	**285.26**	**211.88**	**297.34**	**287.50**	**206.46**
RPP	25.00	73.71	87.59	30.69	83.95	96.44	32.45	86.79	98.89
RRSP	3.57	11.86	18.09	1.59	6.32	8.91	2.13	4.25	5.35
Sub-total: third pillar income	**28.57**	**85.57**	**105.68**	**32.28**	**90.26**	**105.35**	**34.57**	**91.04**	**104.23**
Employment Income	16.84	37.63	55.46	11.64	25.79	39.41	6.91	15.80	24.50
Investment Income	22.45	34.28	47.98	25.40	38.16	54.26	31.38	47.17	67.71
Other Income	9.18	15.46	23.77	7.41	15.79	27.92	8.51	17.92	32.07
Sub-total Investment Income	**31.63**	**49.74**	**71.75**	**32.80**	**53.95**	**82.18**	**39.89**	**65.09**	**99.78**

Unattached		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$27,672.21	$41,156.98	$58,931.55	$27,275.53	$40,852.16	$58,839.13	$26,941.67	$40,634.26	$58,750.98
CPP	98.34	97.38	95.24	98.94	99.34	99.13	98.71	98.77	98.43
OAS/GIS	98.10	95.64	92.26	99.36	99.34	98.26	99.85	99.69	99.22
Other Govt Transfers	99.29	49.71	21.43	99.36	46.84	15.65	99.32	51.54	14.51
Sub-total: transfer income	**295.72**	**242.73**	**208.93**	**297.66**	**245.51**	**213.04**	**297.88**	**250.00**	**212.16**
RPP	62.00	75.29	69.64	77.87	91.36	90.43	83.41	96.91	98.04
RRSP	9.50	15.70	19.64	6.60	8.64	11.30	4.02	5.09	7.06
Sub-total: third pillar income	**71.50**	**90.99**	**89.29**	**84.47**	**100.00**	**101.74**	**87.42**	**102.01**	**105.10**
Employment Income	35.15	48.26	64.88	17.87	29.90	39.13	6.97	12.81	15.29
Investment Income	25.65	38.66	49.40	28.51	46.84	64.35	39.62	61.42	80.78
Other Income	15.91	24.42	32.74	18.09	31.23	40.87	19.47	35.19	52.16
Sub-total Investment Income	**41.57**	**63.08**	**82.14**	**46.60**	**78.07**	**105.22**	**59.09**	**96.60**	**132.94**

Appendix 4.10 - Distribution of Income across Quintiles – Percent by Income Sources

Nova Scotia

Couples		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$31,227.04	$42,414.95	$68,831.84	$31,822.75	$41,890.79	$67,338.61	$32,111.70	$41,436.32	$66,076.84
CPP	27.46	28.16	20.68	27.91	29.70	21.17	28.74	30.83	21.45
OAS/GIS	62.71	36.99	19.56	64.69	38.76	21.23	64.18	39.21	21.72
Other Govt Transfers	3.41	3.18	2.47	2.94	2.53	1.37	2.72	2.37	0.70
Sub-total: transfer income	**93.58**	**68.34**	**42.71**	**95.54**	**70.98**	**43.77**	**95.64**	**72.41**	**43.87**
RPP	3.31	21.17	38.43	3.36	23.43	45.47	3.22	23.61	48.98
RRSP	0.31	1.40	2.37	0.10	0.57	0.83	0.10	0.34	0.46
Sub-total: third pillar income	**3.62**	**22.58**	**40.80**	**3.46**	**23.99**	**46.30**	**3.32**	**23.95**	**49.43**
Employment Income	1.35	6.37	13.01	-0.01	2.82	6.02	-0.29	0.87	1.89
Investment Income	0.97	1.70	2.42	0.71	1.35	2.56	0.84	1.95	3.42
Other Income	0.47	1.01	1.05	0.30	0.85	1.34	0.50	0.83	1.39
Sub-total Investment Income	**1.44**	**2.71**	**3.47**	**1.01**	**2.20**	**3.91**	**1.34**	**2.77**	**4.80**

Unattached		65-69			70-74			75+	
	Q2	Q3	Q4	Q2	Q3	Q4	Q2	Q3	Q4
Total income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average	$29,223.28	$48,633.72	$73,791.67	$28,641.49	$48,284.05	$74,339.13	$27,988.26	$46,783.18	$71,870.59
CPP	25.23	18.05	12.96	28.68	19.88	14.25	32.09	21.41	14.57
OAS/GIS	29.72	13.31	8.43	31.77	15.74	10.18	31.35	16.51	10.78
Other Govt Transfers	5.29	3.24	3.07	3.51	1.78	1.31	3.15	1.28	0.93
Sub-total: transfer income	**60.24**	**34.61**	**24.46**	**63.96**	**37.40**	**25.74**	**66.59**	**39.21**	**26.28**
RPP	24.39	39.26	32.54	28.61	49.04	49.40	28.70	51.74	56.34
RRSP	1.55	2.79	3.67	0.90	1.36	2.12	0.46	0.58	0.69
Sub-total: third pillar income	**25.94**	**42.05**	**36.22**	**29.51**	**50.40**	**51.52**	**29.16**	**52.32**	**57.03**
Employment Income	10.68	19.16	32.02	3.27	7.16	13.30	0.49	1.47	2.24
Investment Income	1.48	2.58	4.50	1.60	2.92	6.45	2.43	4.96	11.34
Other Income	1.66	1.61	2.81	1.67	2.12	3.00	1.32	2.04	3.11
Sub-total Investment Income	**3.14**	**4.19**	**7.31**	**3.27**	**5.04**	**9.45**	**3.75**	**7.00**	**14.45**