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**THE TOP SHARES OF OLDER EARNERS IN CANADA**

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**QSEP Research Report No. 408**

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## **The Top Shares of Older Earners in Canada**

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July, 2006

**ABSTRACT:** Within the 65+ age group, the percentage of labour market income received by the top 1% of earners has increased from about 30% in 1982 to more than 60% in 2002. The trend is smooth, is roughly uniform across provinces and does not appear to have been accelerated by top marginal tax rate reductions in 1988. Hence there is little evidence from this time series that further marginal tax rate reductions would have an important permanent effect on aggregate labour supply for this age group. Moreover, it is unlikely that this period could provide evidence regarding aggregate labour supply effects for this group with respect to reductions in Old Age Security or Guaranteed Income Supplement clawbacks, because the top 1% of earners are above the income range served by these programs.

**JEL CLASSIFICATIONS:** H24, H55, J26

**KEYWORDS:** Income distribution of seniors, employment income of seniors

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## 1. Introduction

Both senior poverty and senior labour market participation have fallen dramatically in Canada over the last forty years. The former change and possibly the latter change are in large measure due to the introduction of the Guaranteed Income Supplement (GIS) and the Spousal Allowance (SpA), as supplements to Old Age Security (OAS), and the maturation of the Canada Pension Plan (CPP). However there is still substantial discussion of policies that could possibly increase nontransfer income among those over age 65. First, it is viewed that the current system would be more sustainable if some portion of transfers could be replaced by nontransfer income. Second, there is a concern expressed by some regarding the fall in average measured consumption at the time of retirement which may indicate that replacement rates from private and public income sources are suboptimally low as compared to the smooth lifetime consumption suggested by the standard life cycle model in economics. More broadly, it may be that disincentives in the tax/transfer system could be inefficiently reducing the contribution seniors could be making to economic output as a whole.

There are two types of nontransfer income that could be increased. One is capital income: private pension income or return from savings. Kesselman and Poschmann (2001) provide an effective discussion of this issue including proposing a new tax measure for Canada that would allow after-tax dollars to be contributed to an account that would allow both compounding and withdrawals to be tax-free. The second is labour income<sup>1</sup>: individuals could retire later<sup>2</sup> or work part-time during retirement.<sup>3</sup>

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<sup>1</sup> As compared to policies that increase saving for retirement, policies that increase senior labour income might have a faster impact on transfer system participation (as it would not depend upon the accumulation of savings) and are probably less vulnerable to difficulties associated with the timing of withdrawals that some types of saving-promoting policies might have. (For example, Fretz and Veall, 2000, note that a senior with a large RRSP may elect to withdraw it all in one year, sacrificing GIS for that year alone but

The main point of this note is that when considering policies that would affect the labour income, it should be recognized that employment income for those 65 and over has become very polarized. By 2002, more than 60% of all employment income earned by seniors was earned by those in the top 1% of the distribution. This group has incomes that are largely above the clawback ranges for GIS or OAS and hence face little marginal disincentive from these clawbacks. Hence a discussion that focuses on the disincentive effects on current aggregate senior employment earnings should likely focus on the same tax disincentives that might affect nonseniors as well. Moreover the increase in this polarization is smooth through the 1980s and 1990s and is broadly similar across provinces. This suggests that there is unlikely to be convincing time series evidence that significant tax changes (such as the change in the personal income tax system in 1988) have had a major effect on the evolution of top share employment income over the last twenty years.

Section 2 sets out the issues in the context of previous literature. Section 3 presents the empirical findings in tabular and graphical form. Section 4 concludes.

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maintaining GIS entitlement in other years. A related strategy would collapse the RRSP the year before GIS eligibility.) However saving-promoting policies have the advantage that they may increase the capital stock and hence productivity.

<sup>2</sup> Delaying retirement could be one of the easier ways for lifetime labour supply to adjust because many jobs have rather rigid hours requirements per week but would permit individuals to work later in life if they so wished. (Denton and Spencer, 2000, discuss increasing the standard retirement age in light of increasing life expectancy.) In some cases, the semi-retired choose employment which is particularly flexible and hence potentially most responsive to incentives. Baker (2002) studies the retirement incentives of the spousal allowance program while Baker, Gruber and Milligan (2003) study retirement incentive effects more broadly. Boothby et al. (2003) review barriers to continued labour market participation by older workers. Kuhn (2003) emphasizes the potential role of job-to-job mobility.

<sup>3</sup> In this context there is often reference to more flexible retirement arrangements (see e.g. Gunderson, 1998, Marshall, 2000).

## 2. Issues and Literature

There seems little doubt that the reduction in labour market earnings by seniors is at least partly attributable to the expansion of transfer programs as well as the CPP. In 1965, just 15% of all taxfilers between ages 65-69 were classed as having “pension” as their chief source of income. (The rest largely had their principal source of income from labour, through farming, fishing, sales, professional income, self employment, etc.) By 1967 when the Canada Pension Plan (CPP), Quebec Pension Plan (QPP) and the Guaranteed Income Supplement were introduced, this had climbed to 23% and rose steadily until it hit 50% by 1973.

However, it is not clear that the fall in labour earnings was due to the substitution or disincentive effect of clawbacks in the GIS system. It could be that this is the income effect of additional payments to seniors, magnified by the difficulty in borrowing against those payments earlier in life. It may be possible to reduce any disincentive effect by changing the clawback rate structure. But the only way to reduce an income or transfer effect is to reduce the amount of transfers (e.g. by delaying their onset), increasing poverty among those seniors who cannot work.<sup>4</sup> The problem is that the 1967 experience does not allow us to disentangle the magnitudes of these two effects.

However in the federal tax reform in 1988, there was a change in tax rates (without a big change in transfers) that might shed light on the possibility of stimulating senior labour supply through tax reductions. Sillamaa and Veall (2001) analyze the

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<sup>4</sup> There could also have been other sorts of effects, for example on social norms regarding the expectation of retirement.

response to this change for both nonsenior and senior populations.<sup>5</sup> Their results, in Table 1<sup>6</sup>, would indicate that while senior taxable income as a whole was not very sensitive to changes in tax rates, the taxable income received by high-income seniors was very sensitive.

Table 1		
Tax-Price Elasticity Estimates from Sillamaa and Veall (2001), by Income Class		
	24 < 1986 age < 62	1986 age > 64
No income restriction	0.26	0.29
1986 Income > \$15K	0.38	0.30
1986 Income > \$25K	0.41	0.57
1986 Income > \$60K	1.00	1.10
1986 Income > \$75K	1.32	1.93
1986 Income > \$100K	1.67	3.12
The t-statistics of these values all exceed 5 and are typically much greater. Samples excluded individuals who changed provinces, residents of Quebec and those who did not pay at least \$625 tax in 1986 and \$700 in 1989. Detailed results and discussion are available in the original article.		

The results matched previous findings that high-income taxpayers are more responsive to tax rate changes than low-income taxpayers (see e.g. Lindsey, 1987; Feldstein, 1995; Navratil, 1995; Slemrod, 1996; Auten and Carroll, 1999; Goolsbee,

<sup>5</sup> Veall (2000) studies the effects of this change on retirement saving through RRSPs.

<sup>6</sup>Sillamaa and Veall posited the underlying model

$$Y_{it} = \mu_i + \gamma_t + \beta \log(1-MTR) + X'_i \alpha_t + \varepsilon_{it} \quad (1)$$

where  $Y_{it}$  is the earnings of individual  $i$  at time  $t$ ,  $\mu_i$  is the fixed effect for individual  $i$  and  $\gamma_t$  is a pure time effect.  $MTR$  is the marginal tax rate faced by that individual at that time period.  $\beta$  is called a “tax-price elasticity” and is a measure of sensitivity of earnings to the tax rate.  $X'_i$  is a row vector of observations on individual  $i$  on variables that do not vary over time but may have a time-varying effect on  $Y_{it}$  (an effect summarized by  $\alpha_t$ ) and  $\varepsilon_{it}$  is a random error. (1) was then first-differenced to yield:

$$\Delta Y_{it} = \Delta \gamma_t + \beta \Delta \log(1-MTR_t) + X'_i \Delta \alpha_t + \Delta \varepsilon_{it} \quad (2)$$

where  $\Delta$  denotes the 1989 value of a variable less the 1986 value of that same variable.

2000; Gruber and Saez, 2002). They also fit the conventional wisdom that seniors might be more responsive because many workers have little opportunity to change their labour supply because of the nature of their jobs but seniors have the additional margin of the retirement decision. However, Sillamaa and Veall note two important caveats about these results. First, because the year 1990 included the run-up to the Goods and Service Tax implementation on January 1, 1991 and the beginning of a serious recession, their first differencing (see footnote 6) used only the years 1986 and 1989. Hence the estimates were short-run. It is possible (see e.g. Blundell, Duncan and Meghir, 1998; Slemrod, 1996, 1998; Goolsbee, 2000) that these largely reflect intertemporal shifting and hence overstate the long-run values. Second, because the 1988 change in tax rates was not randomly assigned but was dependent upon income, *the estimates are vulnerable to misspecification*. In particular, some of the biggest marginal rate tax cuts were applied to high-income individuals. If there were other nontax reasons that income growth was higher for those with higher initial income (i.e. there are other reasons for rising inequality), the estimated tax response for high-income individuals would be high even if tax-responsiveness were zero.

Continuing in this latter vein, in the 1988 change in federal tax rates there were three ranges of significant marginal rate change: a significant increase of approximately 15 percentage points in the marginal tax rate for some with very low taxable incomes, a decrease of roughly four to nine percentage points in marginal tax rates for some mid-range taxable incomes (\$13,197 to \$36,952) and a decrease of approximately eight percentage points in marginal tax rates for those at high taxable incomes (more than \$63,347). According to Table 1, the first two ranges are associated with comparatively



small tax response elasticities but the high range has a high tax response. Hence if as Table 1 suggests, the tax-response elasticities are much higher at higher income, the tax changes of 1988 should have yielded an increase in the share of income received by top earners.<sup>7</sup> Saez and Veall (2005) analyze the top share for the general population extensively over this period. They show that in the few years around 1988 there indeed was an increase in top shares for the general population but it was a spike: the effect was not persistent suggesting that the long-run responses could be much less than those estimated by Sillamaa and Veall for the short run.

Saez and Veall did not do these calculations separately for the senior population. The next section will fill that gap. Besides the implications for the responsiveness of seniors to labour market incentives, the top shares may be of interest regarding such issues as income inequality among seniors.

### **3. Empirical Findings**

The data source is the Statistics Canada Longitudinal Administrative Database, the same data source used by Sillamaa and Veall (2001) and Saez and Veall (2005). Most of the calculations focus on senior (age 65 and over) taxfilers only. Table 2 provides a snapshot of various thresholds in 2002. So for example in that year for Canadian seniors as a whole, the top one per cent thresholds for before tax income, market income (all income excluding government transfer payments), employment income not including self-employment income and employment income including self-employment income

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<sup>7</sup> A clawback of OAS income was introduced in 1989 for those with high incomes, but, as shall be discussed, those in the top one per cent normally were in the range of complete clawback, and hence the clawback induced no change in their marginal rates.

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were \$127,400, \$115,800, \$40,500 and \$49,600 respectively. Thresholds vary by provinces, so that for example the top one per cent of total income earners in Newfoundland were those with total incomes \$74,200 and above. In Alberta, the top one per cent of total income earners were those with total incomes \$143,700 or more.

Table 2				
Income Thresholds for Top One Per Cent, Seniors, 2002, by Province				
	Type of Income:			
	Total	Market	Employment (without self- employment income)	Employment (with self-employment income)
Canada	\$127,400	\$115,800	\$40,500	\$49,600
Newfoundland	\$74,200	\$61,900	\$20,100	\$27,000
PEI	\$94,200	\$82,000	\$25,000	\$31,700
Nova Scotia	\$103,500	\$92,300	\$29,000	\$34,100
New Brunswick	\$91,300	\$79,600	\$25,000	\$30,400
Quebec	\$109,900	\$98,400	\$31,400	\$38,400
Ontario	\$145,100	\$133,400	\$46,300	\$57,000
Manitoba	\$104,000	\$93,100	\$35,000	\$41,500
Saskatchewan	\$105,500	\$93,800	\$28,000	\$43,500
Alberta	\$143,700	\$132,400	\$56,300	\$64,500
British Columbia	\$126,400	\$115,300	\$42,100	\$48,500

Note that these are threshold incomes. As Table 3 notes, mean incomes for those in the top one per cent are much higher. For example for Canada as a whole in 2002, the top one per cent of senior total income earners (i.e. seniors with total incomes exceeding \$127,400) had a mean market income of \$304,600 and the top one per cent of senior employment earners had a mean employment income of \$164,600. This compares to an

average for all senior taxfilers of about \$15,000 market income and \$2700 employment income respectively.

Table 3 Mean Incomes for Top One Per Cent and All Taxfilers, Seniors, 2002, by Gender and Marital Status					
		Type of Income:			
		Total	Market	Employment (without self- employment income)	Employment (with self- employment income)
All	Top 1% (39,775)	\$316,100	\$304,600	\$141,100	\$164,600
	All (3,976,250)	\$26,700	\$15,000	\$2,100	\$2,700
All Male	Top 1% (28,250)	\$341,200	\$329,700	\$156,400	\$175,900
	All (1,746,075)	\$33,600	\$21,000	\$3,700	\$4,700
Single Male	Top 1% (4,650)	\$318,800	\$307,000	\$155,800	\$177,700
	All (409,625)	\$28,900	\$15,900	\$2,100	\$2,600
Married Male	Top 1% (23,600)	\$345,600	\$334,100	\$156,400	\$175,700
	All (1,336,450)	\$35,000	\$22,600	\$4,200	\$5,400
All Female	Top 1% (11,525)	\$254,500	\$243,100	\$91,500	\$114,200
	All (2,230,150)	\$21,400	\$10,300	\$910	\$1,100
Single Female	Top 1% (6,600)	\$241,500	\$230,100	\$99,100	\$126,200
	All (1,270,875)	\$23,200	\$10,800	\$640	\$740
Married Female	Top 1% (4,925)	\$271,700	260,600	\$86,800	\$107,100
	All (959,300)	\$18,900	\$9,800	\$1,300	\$1,500

Within the top one per cent of senior income earners, about two-thirds are men and about one-third are women. Within this group, mean total income is about one-third higher for the men and male mean employment income is about 70 per cent higher. In addition, married men outnumber single men by five to one, although marital status differences in mean income for men are not large. There are more single women than married women in the group with married women having higher mean total and market income while single women have higher employment income.

Given the general picture of the current composition of the top one per cent of senior income earners, let us now turn to the trend over the 1982 to 2002 period, which is the full LAD sample period. This is presented in a series of graphs.

Figure 3.1 plots the top one per cent shares for market income, employment income including self-employment income and employment income not including self-employment income. Examining the market income line around 1988, it is difficult to see any sign of a 1988 spike. There is more evidence of a 1988-89 spike for the two employment income measures (consistent with the Sillamaa and Veall results) but it is clear that these are evidence of short-run rather than long-run responses. Rather the dominant feature of the graphs is a long-term trend towards increased top shares. For market income, in 1982, the top one per cent of market income earners took in about 13% of all market income earned by seniors. By 2002, this had increased to 21%.

This is a substantial increase and substantial polarization. (The corresponding numbers for the population as a whole are reported in Saez and Veall as being 8% in 1982 and 13% in 2002.) But this trend pales in comparison to the change in employment income shown in Figure 3.1. For all employment income, the top one per cent share

increases from 32% in 1982 to over 60% in 2002. And the increases are even sharper when self-employment income is excluded.

Figure 3.2 shows total senior income as a share of all income. It can be seen that there has been an upward drift in the share seniors earn of all market income, from a little more than 7 per cent in 1982 to a little more than 9 per cent in 2002. The corresponding change in employment income (whether or not self-employment income is included) has been small and remains below 2 per cent of all employment income in 2002.

Finally Figure 3.3 reminds us that while there have been huge changes for the top 1% of senior income earners, they are relatively small from the perspective of the entire population. The top one per cent of the senior population has increased its share of all market income from about 1.0% in 1982 to about 1.8% in 2002. There has been a corresponding increase in employment income but in 2002 it was still just over 1.0 % of all employment income.

In Appendix 1 available upon request, Figures A1.1 to A1.10 give comparable graphs for employment income (including self-employment income) for all provinces, from Newfoundland to British Columbia. They can be summarized rather easily. All look more or less like the Canada-wide graphs. In particular, while sometimes there is a spike around 1988, there is no evidence of long-run persistence in responsiveness to that tax change. And celebrated cuts in top marginal tax rates in the last part of the sample period (in British Columbia, Alberta, Ontario and most recently Saskatchewan) appear to have had little effect on the top share: universally, top shares were increasing more rapidly during the 1980s before both provincial and federal cuts in top marginal tax rates than they increased during the 1990s when there were cuts in top marginal tax rates.

Appendix 2 (also available upon request) provides comparable tables and graphs for the 55-64 age group. Probably the most striking contrast with the 65+ age group results is that the top 1% is much more male dominated. (As in the 65+ group, within men, married men are more than proportionately represented.) Overall, there has been significant polarization in this age group as well, with the share of employment income received by the top 1% of earners rising from about 9% in 1982 to 17% in 2002. However, in this age range the bulk of employment income is still earned by those at lower incomes. There are also more striking differences across provinces. More detailed study of this age group will be left for further research, as it is clear that the conclusions for the 65+ age group do not necessarily carry over.

#### **4. Conclusions**

Of all the employment income earned by the older population in 1982, the top one per cent of such earners received about 32%. This fraction increased steadily during the 1980s and the 1990s so that by 2002, it was over 60%. This trend is broadly similar across provinces and does not appear to have been accelerated by top marginal tax rate reductions in 1988. Hence there is little evidence from this time series that further marginal tax rate reductions would have an important permanent effect on aggregate labour supply for this age group. Moreover, it is unlikely that this period could provide evidence regarding aggregate labour supply effects for this group with respect to reductions in Old Age Security or Guaranteed Income Supplement clawbacks, because the top 1% of earners are above the income range served by these programs.

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**Figure 3.1**  
**Top 1% Senior Incomes as Share of All Senior Income, 1982 - 2002**

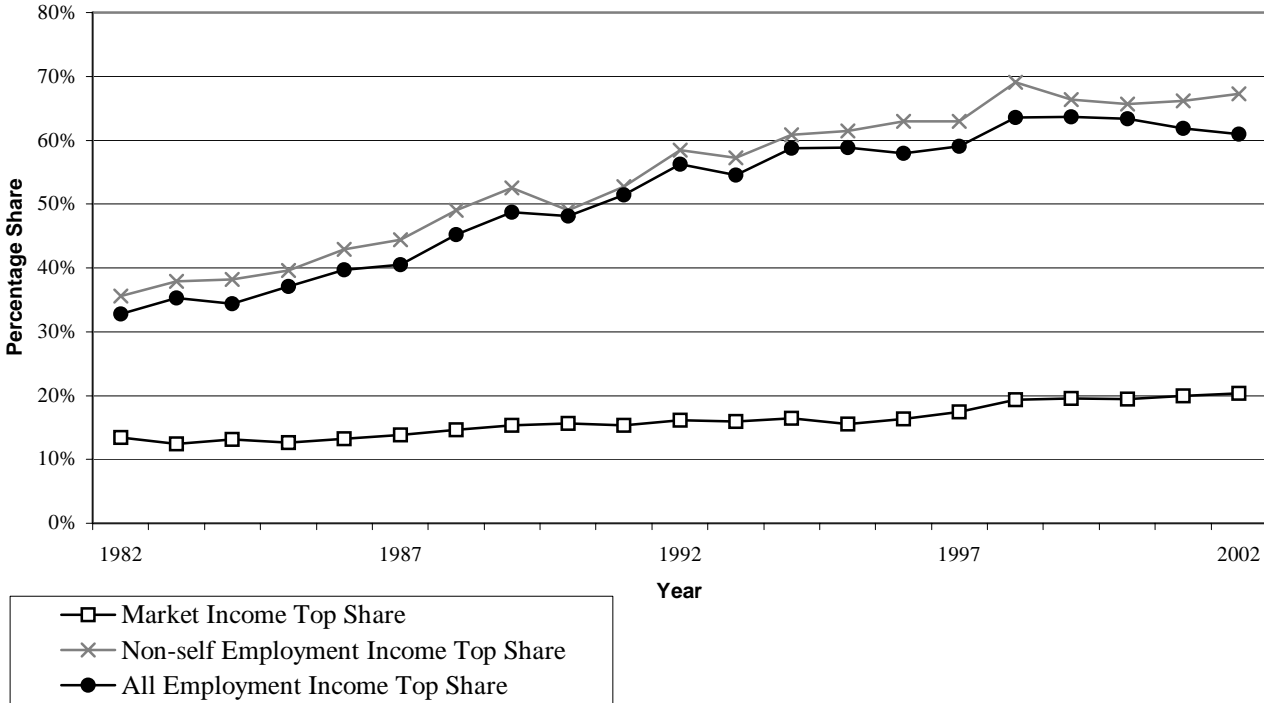
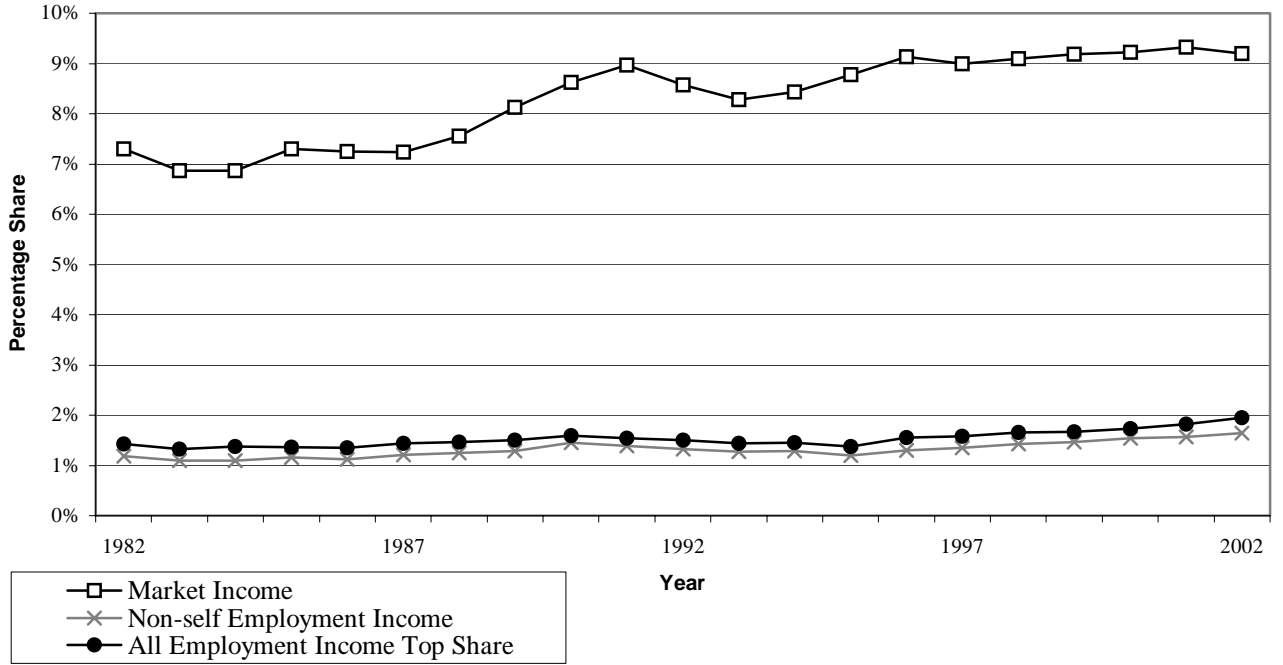
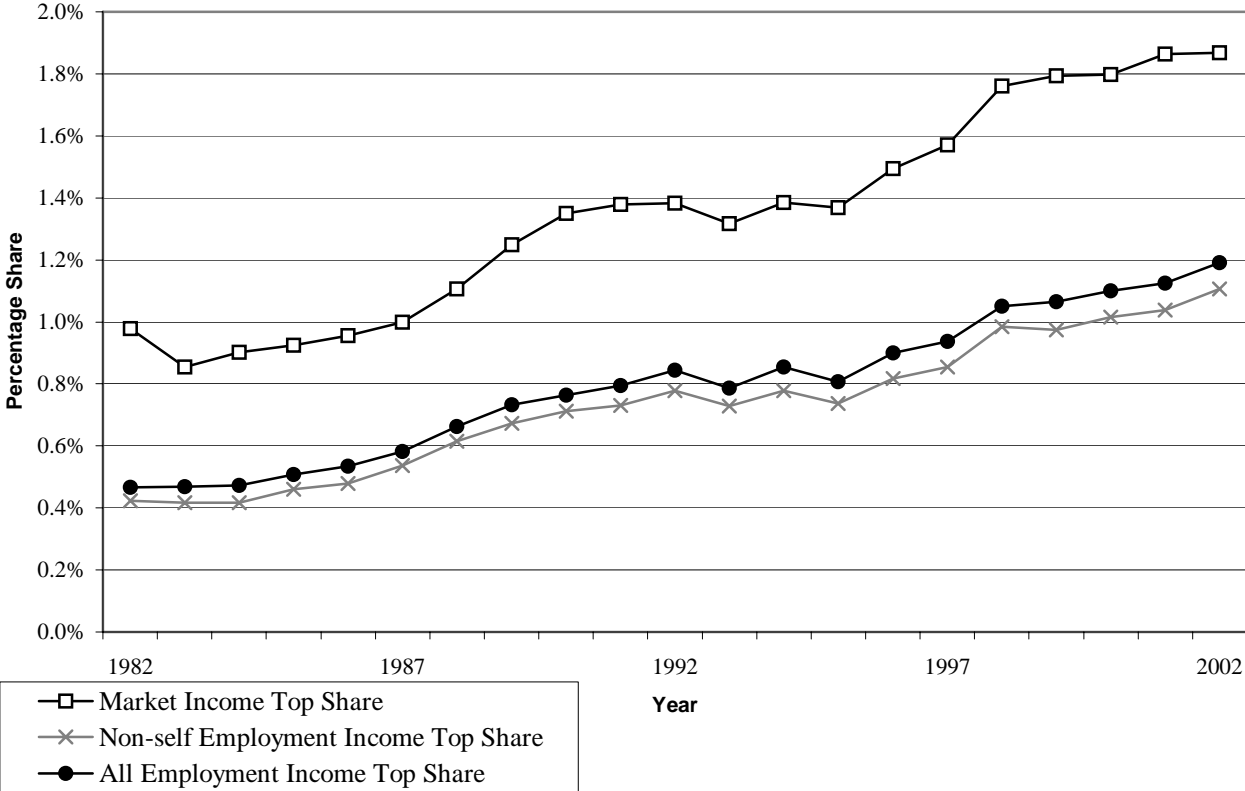


Figure 3.2  
Senior Income as Share of all Income, 1982 - 2002



**Figure 3.3**  
**Top 1% Senior Incomes as Share of all Income, 1982 - 2002**



Appendix 1

Provincial Graphs

Figure A1.1  
Newfoundland, Senior Employment Income, 1982 - 2002

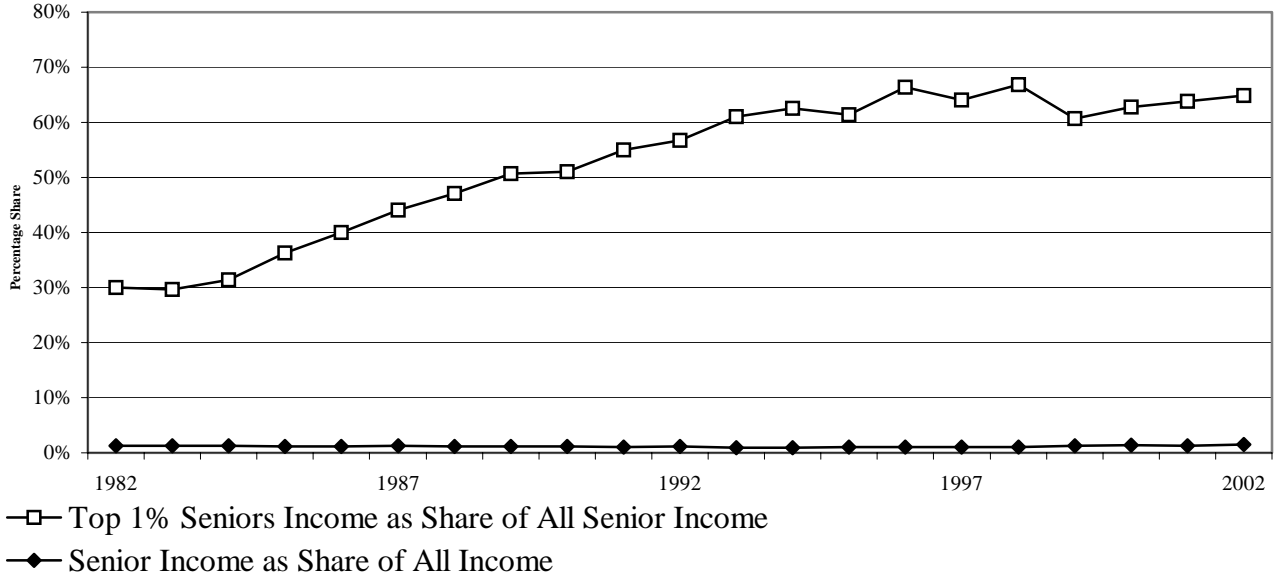


Figure A1.2  
Prince Edward Island, Senior Employment Income, 1982 - 2002

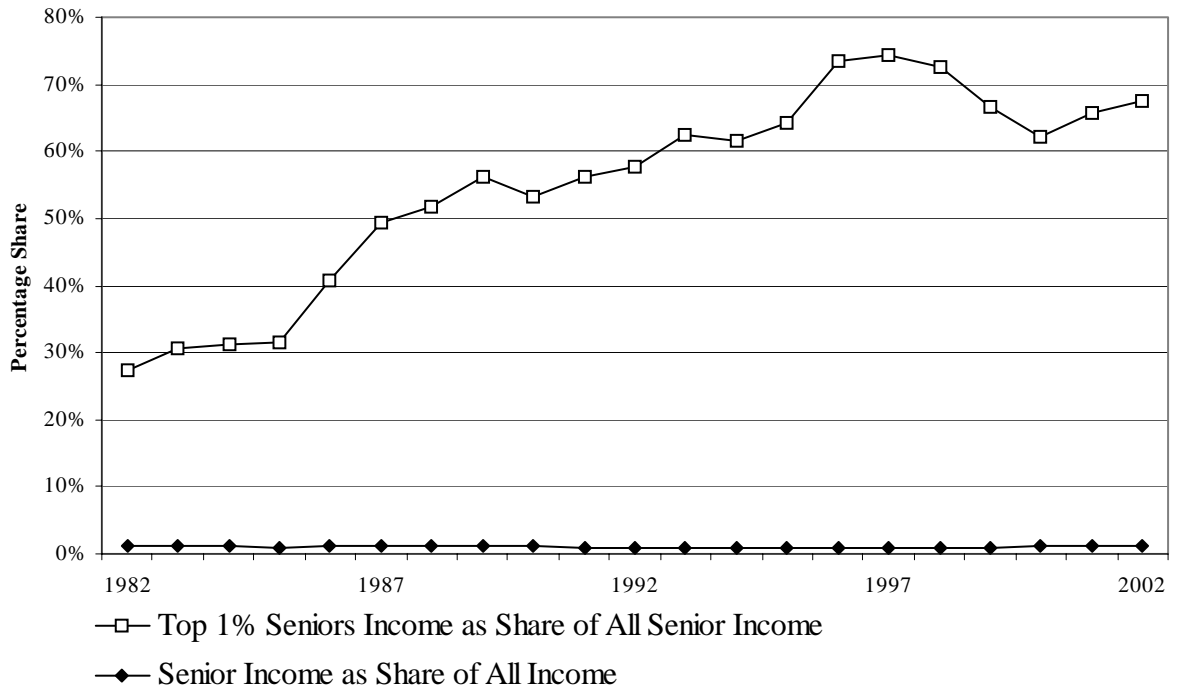


# Top Shares of Older Earners in Canada

**Figure A1.3**  
Nova Scotia, Senior Employment Income, 1982 - 2002



**Figure A1.4**  
New Brunswick, Senior Employment Income, 1982 - 2002

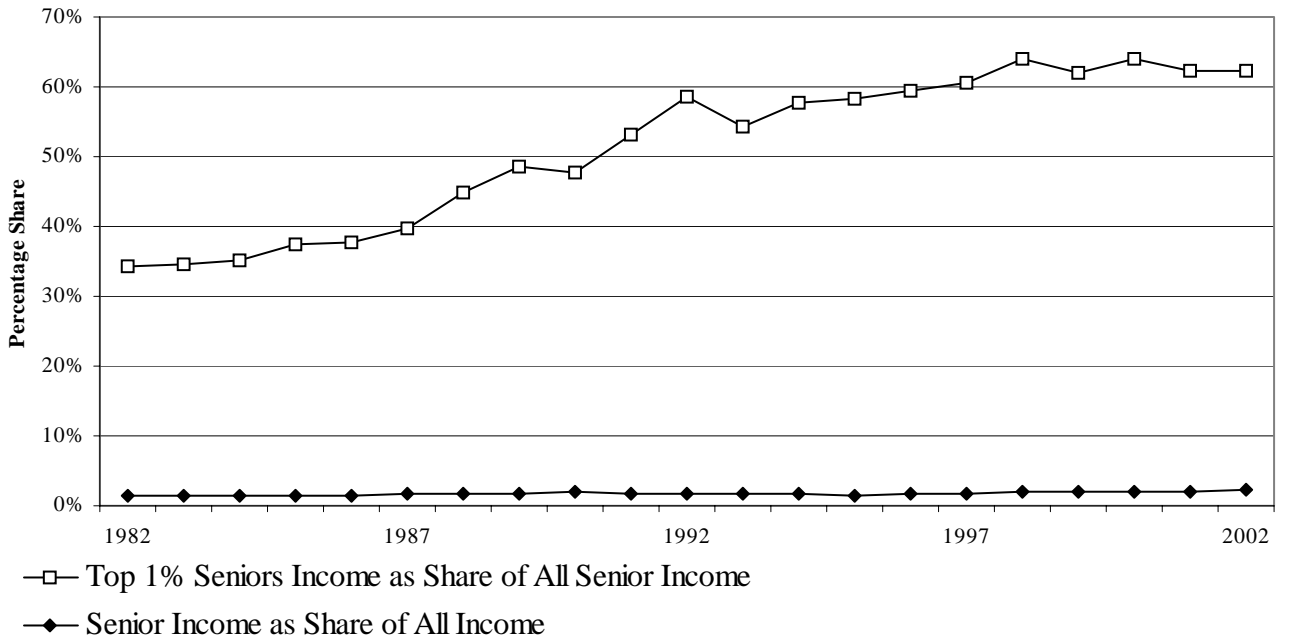


# Top Shares of Older Earners in Canada

**Figure A1.5**  
Quebec, Senior Employment Income, 1982 - 2002

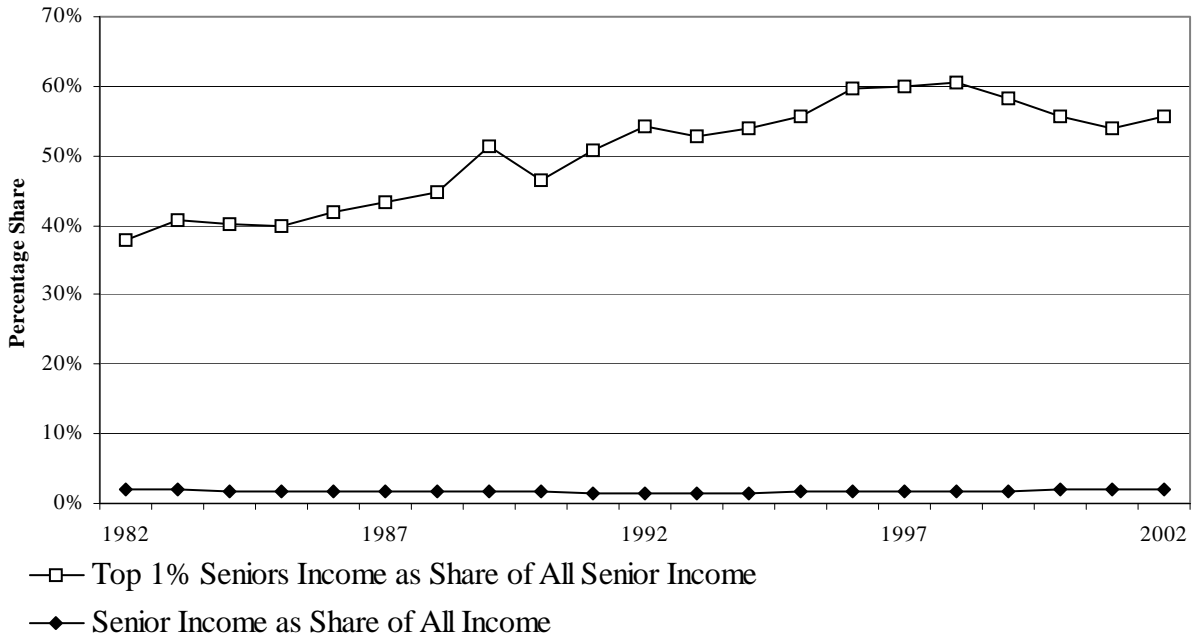


**Figure A1.6**  
Ontario, Senior Employment Income, 1982 - 2002

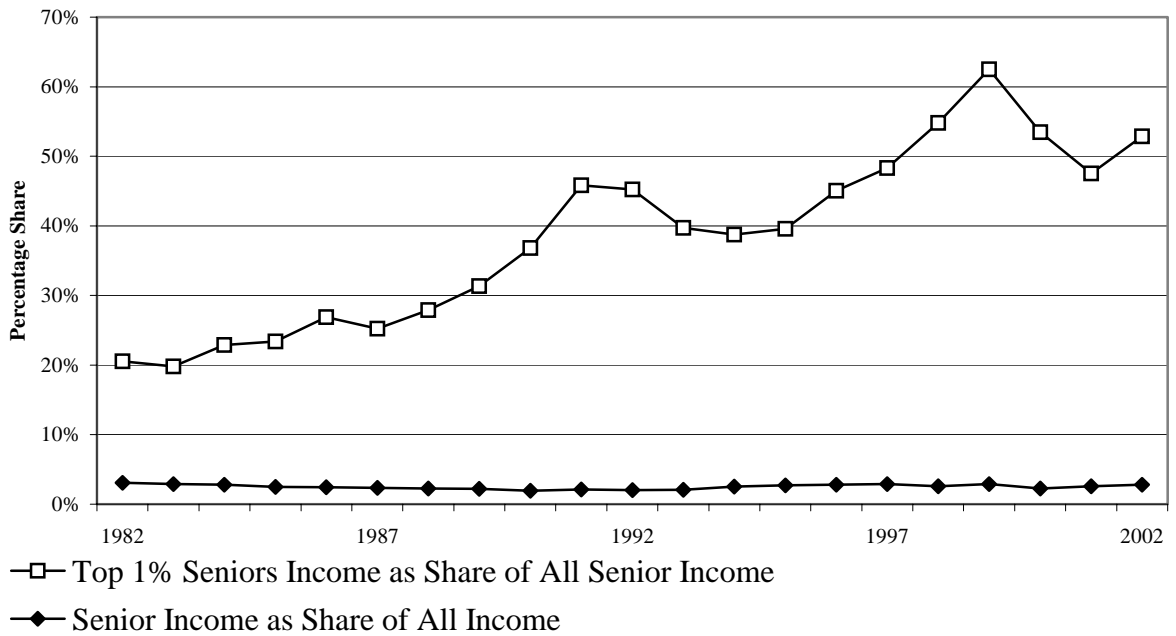


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**Figure A1.7**  
**Manitoba, Senior Employment Income, 1982 - 2002**

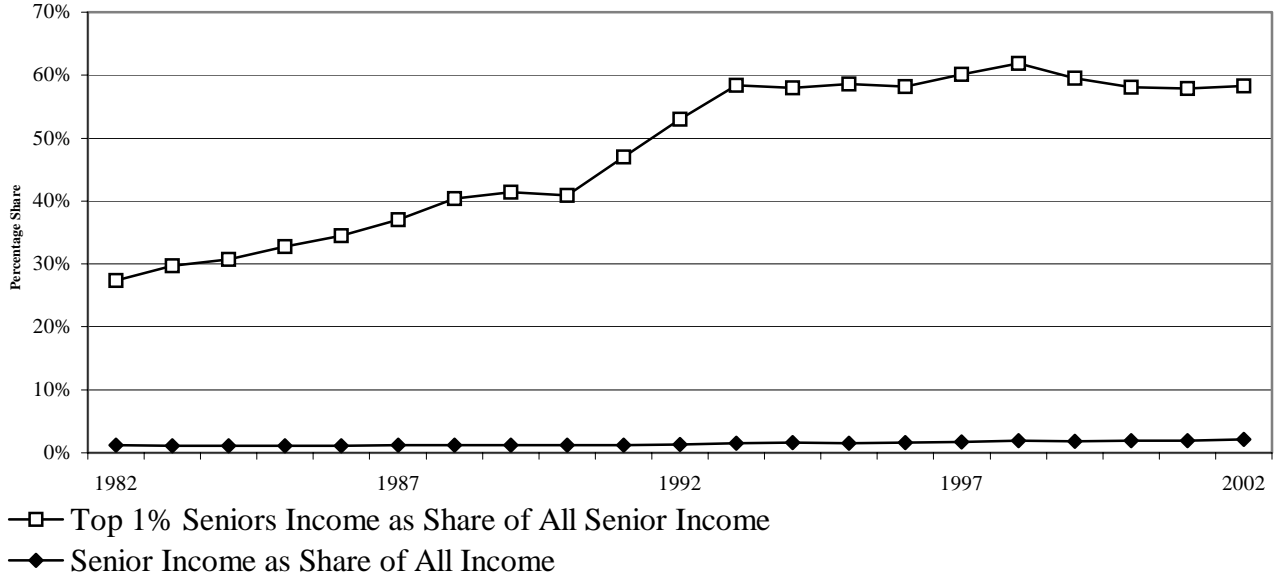


**Figure A1.8**  
**Saskatchewan, Senior Employment Income, 1982 - 2002**

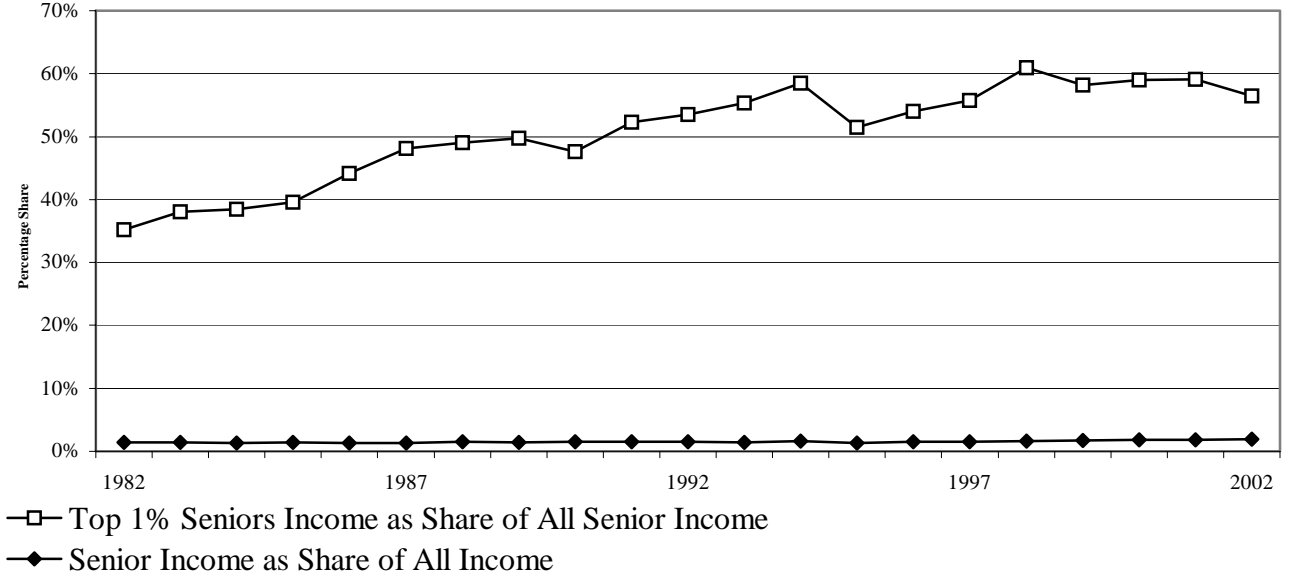


# Top Shares of Older Earners in Canada

**Figure A1.9**  
Alberta, Senior Employment Income, 1982 - 2002



**Figure A1.10**  
British Columbia, Senior Employment Income, 1982 - 2002





**Appendix 2**

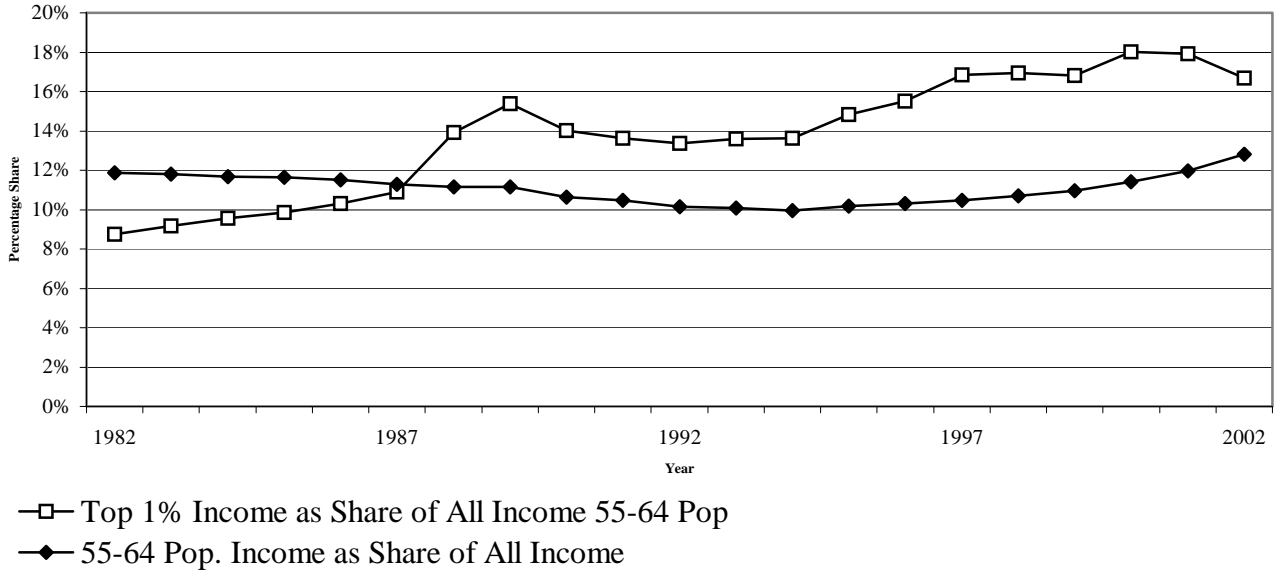
**Tables and Graphs for Taxfilers Aged 55-64, Canada**

Table A2.1				
Income Thresholds for Top One Per Cent, Taxfilers Ages 55-64, 2002, by Province				
	Type of Income:			
	Total	Market	Employment (without self- employment income)	Employment (with self-employment income)
Canada	\$204,400	\$203,500	\$143,000	\$172,100
Newfoundland	\$129,700	\$126,300	\$ 99,100	\$104,800
PEI	\$133,900	\$133,900	\$ 99,500	\$115,700
Nova Scotia	\$153,800	\$153,100	\$114,100	\$131,000
New Brunswick	\$135,500	\$135,200	\$102,900	\$113,700
Quebec	\$164,500	\$163,900	\$111,800	\$134,600
Ontario	\$247,400	\$246,800	\$166,600	\$209,500
Manitoba	\$163,700	\$162,400	\$117,500	\$137,300
Saskatchewan	\$144,100	\$144,100	\$110,300	\$122,100
Alberta	\$277,600	\$277,600	\$215,500	\$234,300
British Columbia	\$190,400	\$189,700	\$144,700	\$162,500

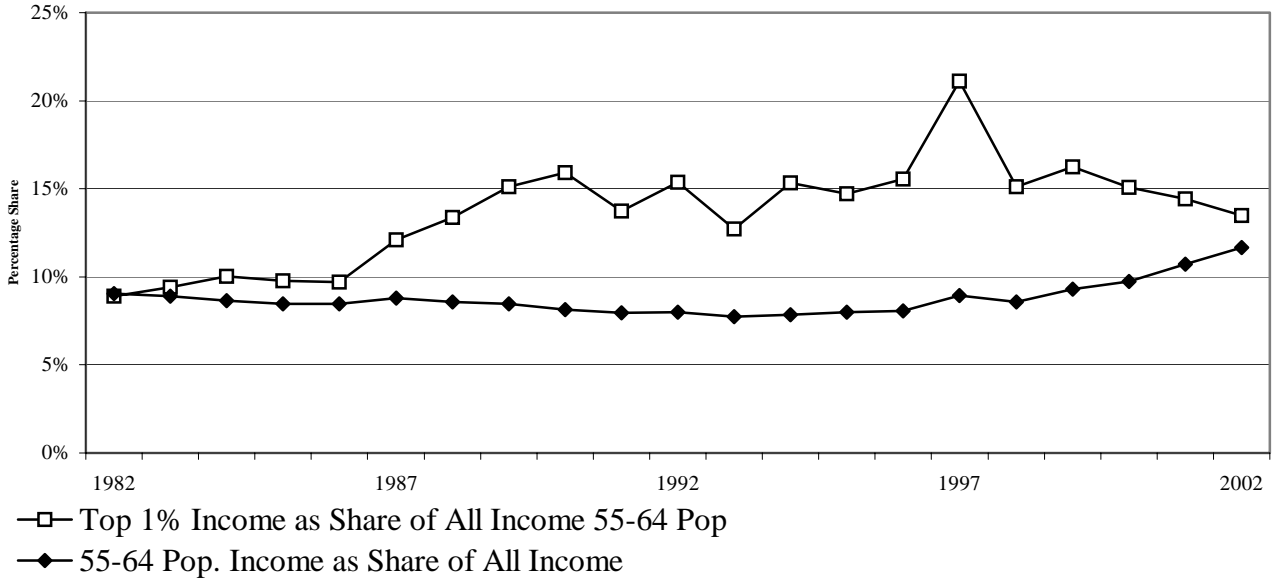
Table A2.2 Mean Incomes for Top One Per Cent and All Taxfilers, Ages 55-64, 2002, by Gender and Marital Status					
		Type of Income:			
		Total	Market	Employment (without self- employment income)	Employment (with self- employment income)
All	Top 1% (29,200)	\$485,100	\$484,300	\$354,000	\$401,700
	All (2,921,600)	\$36,300	\$33,100	\$21,400	\$24,100
All Male	Top 1% (25,725)	\$494,500	\$493,200	\$359,700	\$407,500
	All (1,483,000)	\$48,000	\$44,600	\$29,000	\$33,100
Single Male	Top 1% (2,425)	\$499,000	\$497,400	\$376,000	\$412,800
	All (283,700)	\$34,300	\$29,600	\$19,300	\$21,800
Married Male	Top 1% (23,300)	\$494,100	\$492,800	\$358,100	\$407,000
	All (1,199,300)	\$51,300	\$48,100	\$31,300	\$35,800
All Female	Top 1% (3,475)	\$415,000	\$417,100	\$303,600	\$346,400
	All (1,438,575)	\$24,200	\$21,200	\$13,700	\$14,800
Single Female	Top 1% (975)	\$400,800	\$405,600	\$294,500	\$321,900
	All (437,400)	\$27,300	\$22,300	\$14,000	\$14,900
Married Female	Top 1% (2,500)	\$420,600	\$421,500	\$306,400	\$355,000
	All (1,001,175)	\$22,900	\$20,700	\$13,500	\$14,700

# Top Shares of Older Earners in Canada

**Figure A2.1**  
Canada, Population 55-64 Employment Income, 1982 - 2002

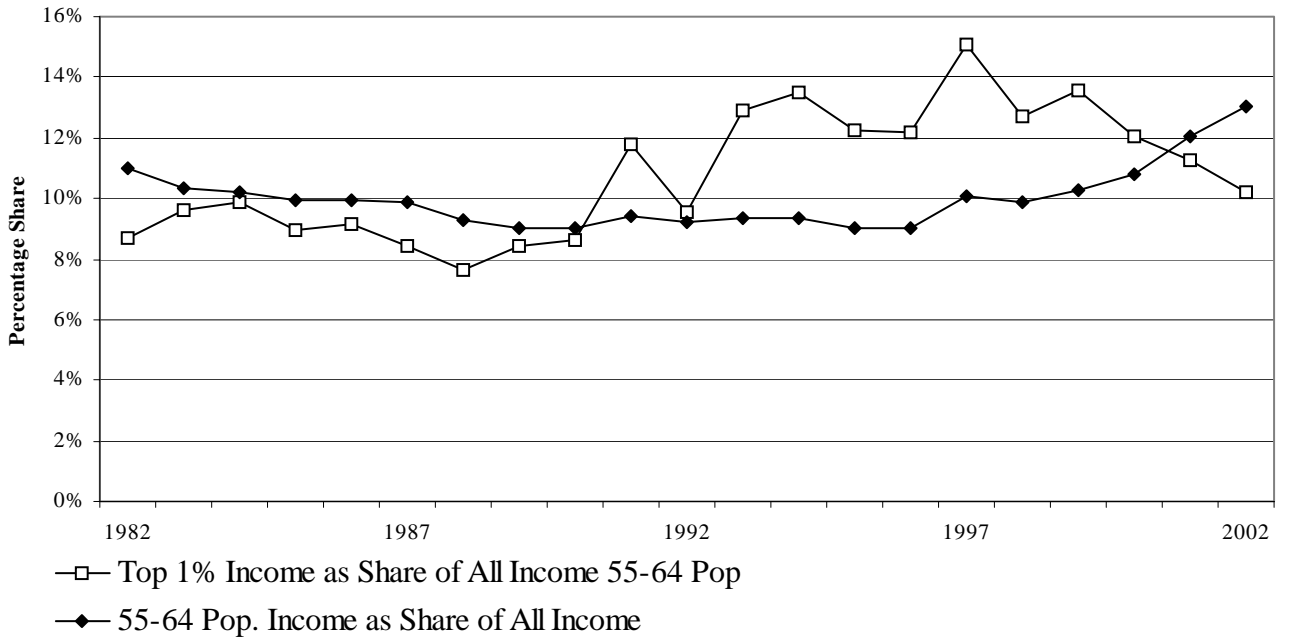


**Figure A2.2**  
Newfoundland, Population 55-64 Employment Income, 1982 - 2002

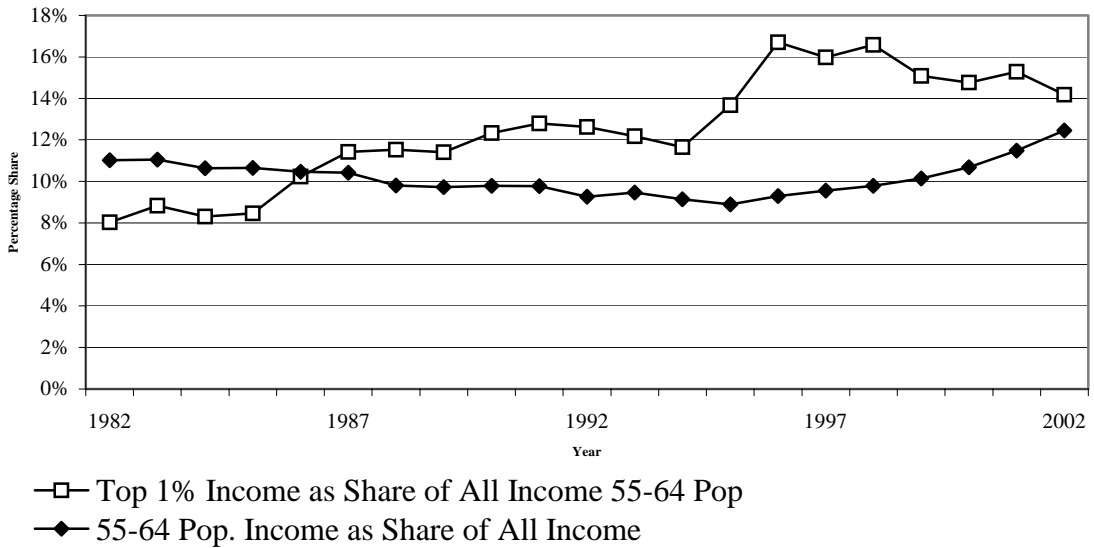


# Top Shares of Older Earners in Canada

**Figure A2.3**  
**Prince Edward Island, Population 55-64 Employment Income, 1982 - 2002**

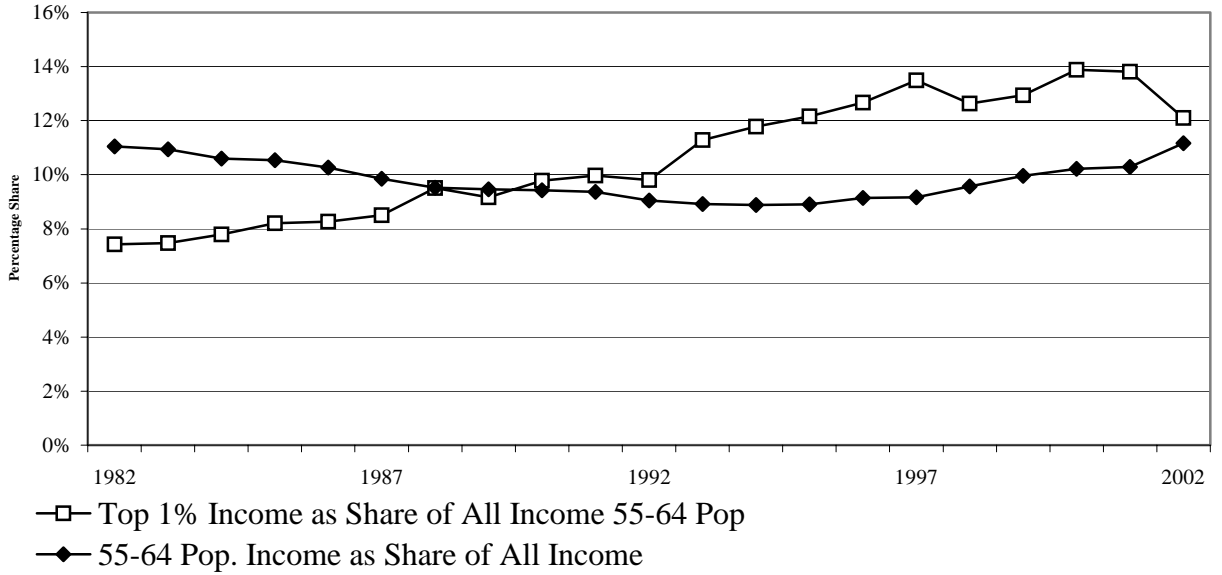


**Figure A2.4**  
**Nova Scotia, Population 55-64 Employment Income, 1982 - 2002**

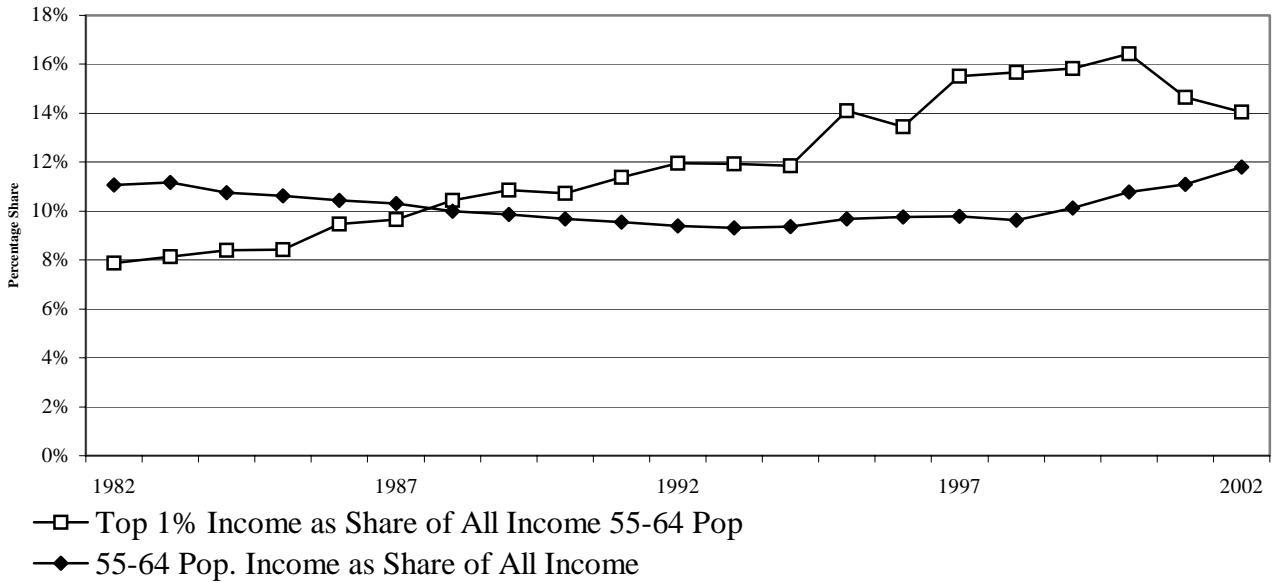


# Top Shares of Older Earners in Canada

**Figure A2.5**  
New Brunswick, Population 55-64 Employment Income, 1982 - 2002

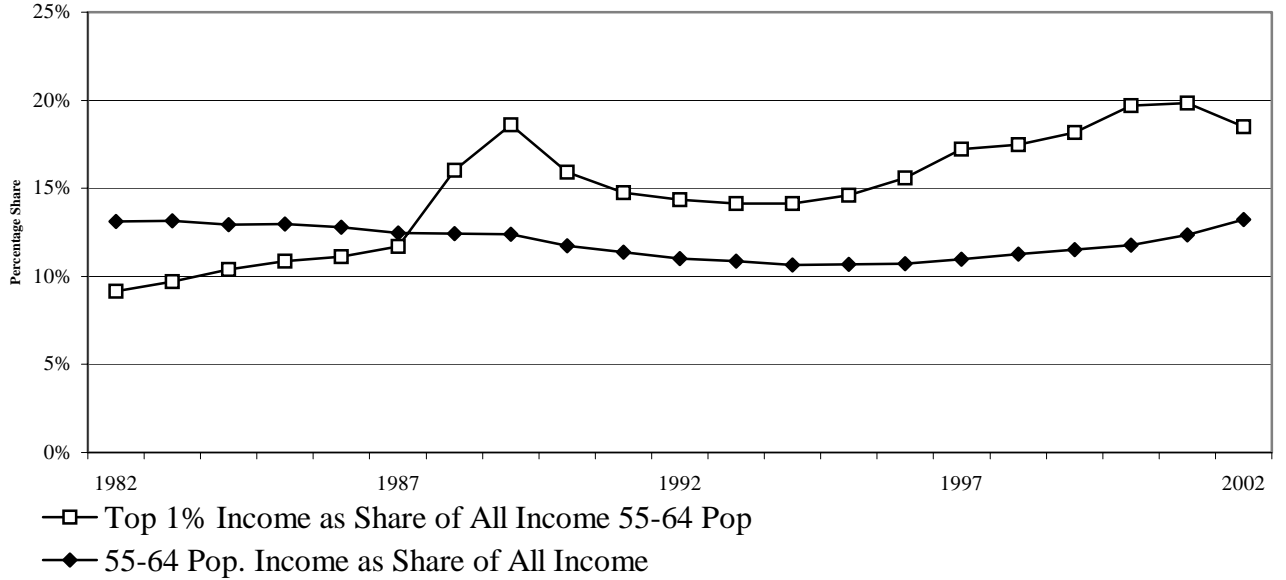


**Figure A2.6**  
Quebec, Population 55-64 Employment Income, 1982 - 2002

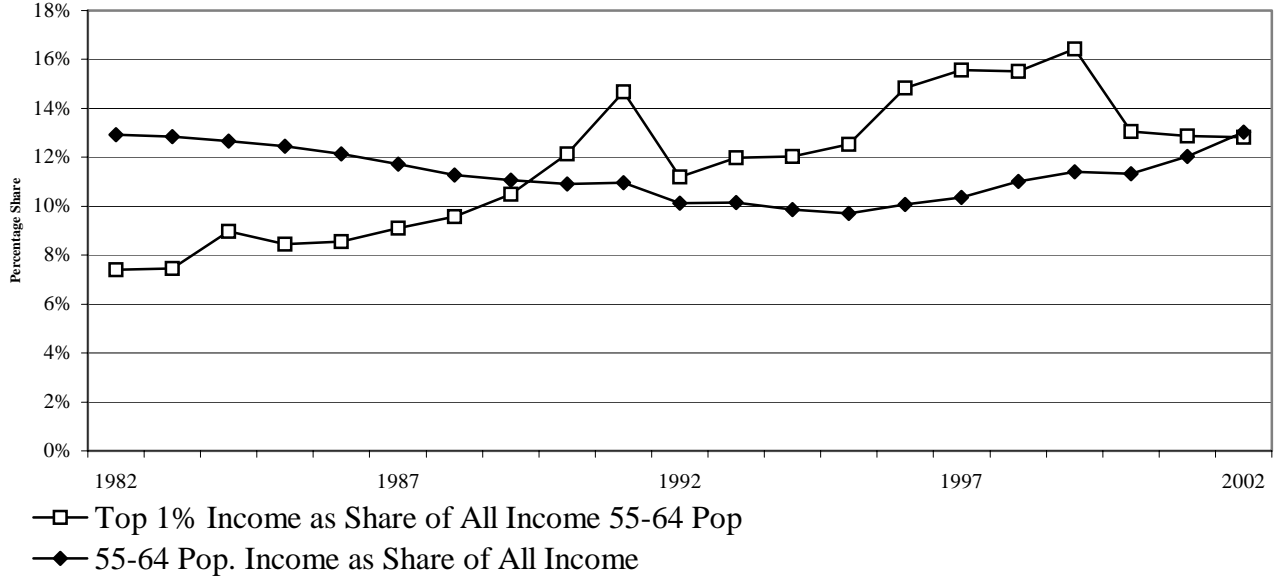


# Top Shares of Older Earners in Canada

**Figure A2.7**  
Ontario, Population 55-64 Employment Income, 1982 - 2002

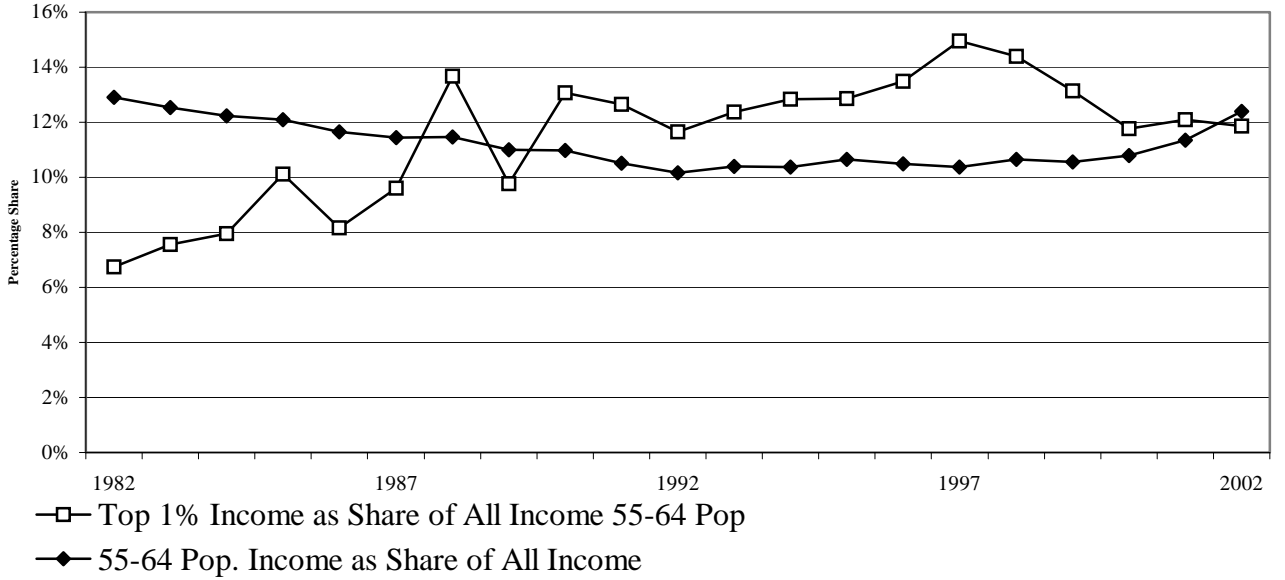


**Figure A2.8**  
Manitoba, Population 55-64 Employment Income, 1982 - 2002

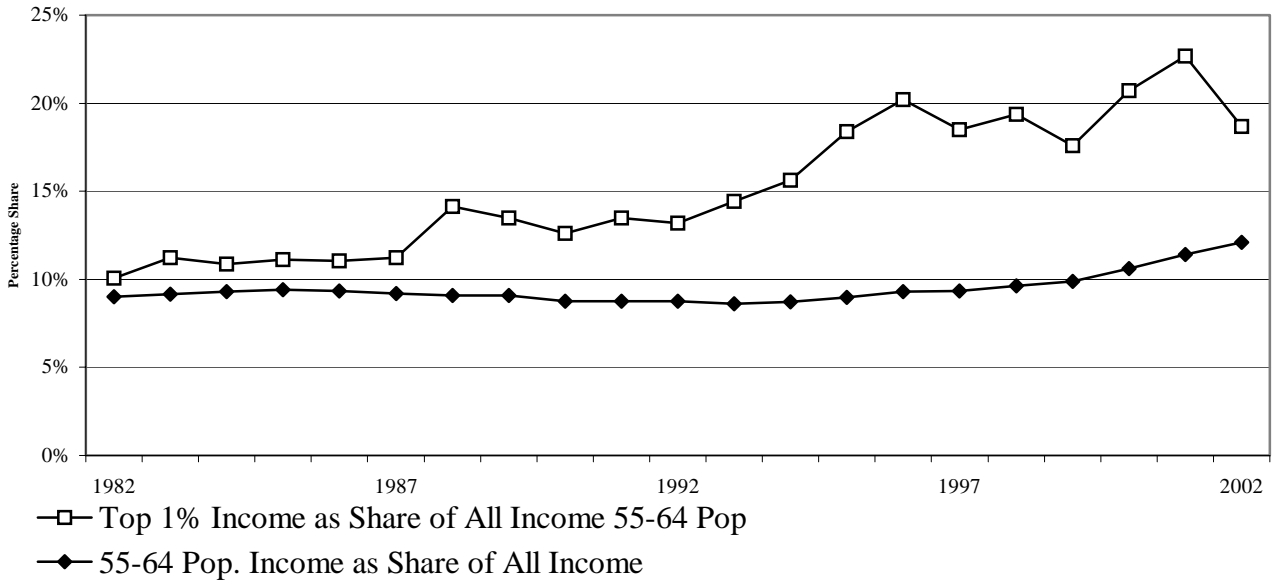


# Top Shares of Older Earners in Canada

**Figure A2.9**  
Saskatchewan, Population 55-64 Employment Income, 1982 - 2002

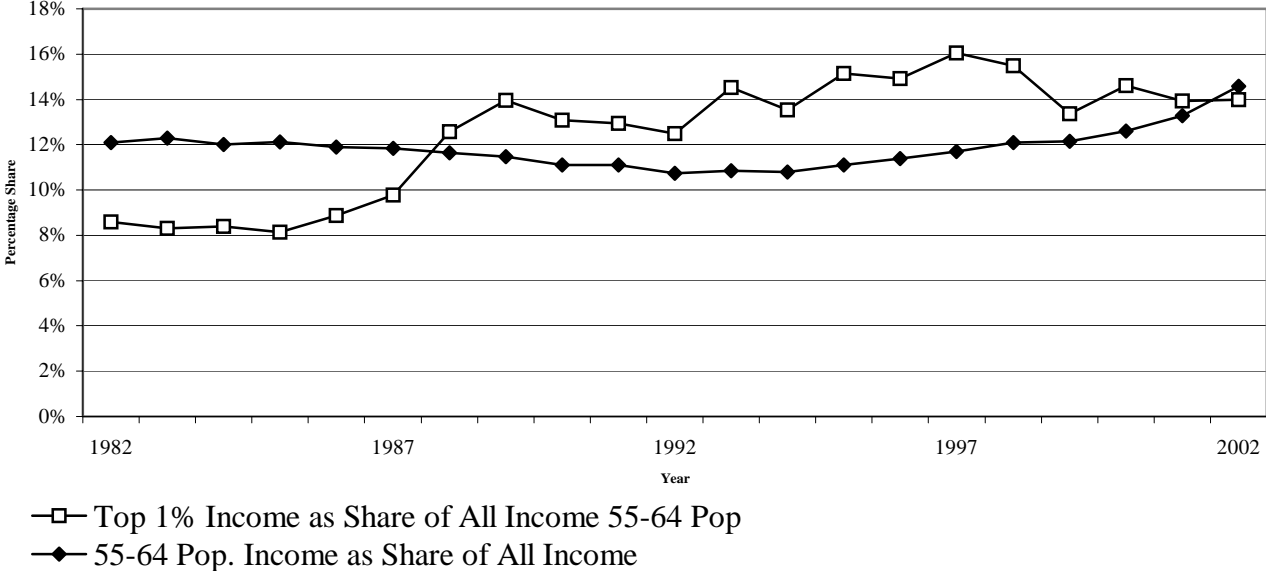


**Figure A2.10**  
Alberta, Population 55-64 Employment Income, 1982 - 2002



# Top Shares of Older Earners in Canada

Figure A2.11  
British Columbia, Population 55-64 Employment Income, 1982 - 2002





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