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Top Income Shares in Canada: Updates and Extensions

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Abstract:

This study updates to 2007 the empirical results for the period 1920-2000 of Saez and Veall (2005, 2007) using simpler methods that are applicable for the years 1982 and after. All the Saez and Veall findings are confirmed. The main new finding is that top income shares fell modestly in the years 2001 to 2003 but have since re-surged. In addition, it is shown that incomes after tax and transfer have also surged in the last 25 years (as Murphy, Roberts and Wolfson (2007) found in data up to 2004) and that the surges differ by provinces, with the greatest surges in British Columbia, Ontario and especially Alberta.

Acknowledgments: The LAD data cannot be directly accessed by researchers for reasons of confidentiality. I therefore have relied on computations provided by Statistics Canada. I thank Habib Saani of Statistics Canada for his excellent work on these computations and Brian Murphy of Statistics Canada for facilitating the process. I thank Wei Yang for further research assistance. Important financial support was provided by the Social Sciences and Humanities Research Council of Canada. As this is largely an update of my previous work with Emmanuel Saez, my debt to him is obvious. Stephen Gordon and Armine Yalnizyan have provided comments and encouragement regarding some preliminary work: this version does not yet incorporate all their valuable suggestions. All mistakes are mine alone.

INTRODUCTION

The personal income tax in Canada, introduced at the end of WWI, exempted all but those with very high incomes until WWII. Hence while personal income tax data for these early years cannot be used to study the entire income distribution, it does allow examination of the top end. Saez and Veall (2005, 2007) use Canadian tax and other kinds of data from 1920 to 2000 to examine top shares, that is the percentage of all income received by say the top 1% of recipients. Murphy, Roberts and Wolfson perform related calculations for 1982 to 2004 . These papers are part of a literature (e.g. Piketty and Saez, 2003; Atkinson, 2007; Atkinson and Piketty (2009); Atkinson and Piketty (forthcoming); Leigh (2009) and Saez (2009)) that has analyzed historical trends in top shares in a variety of countries.

These exercises revealed a remarkable surge in top shares in a number of countries in the last thirty years. This trend was much clearer in tax data than in income survey data, because survey data is often top-coded, obtained in categorical form with a relatively low top bracket or top-coded, or because high-income individuals are undersurveyed or systematically underreport (Frenette, Green and Picot, 2004). For example, Saez and Veall estimate the top 1% share as peaking at around 18% during the 1920's ("The Gilded Age") and 1930s but then falling to less than 8% around 1980. But after that the estimates surge dramatically, to close to 14% by 2000. Saez and Veall also perform a number of related analyses such as comparing Canadian trends with those in other countries, particular the United States, examining three and five year moving averages, using family as well as individual data and estimating changes in types of income (i.e. capital income versus wage income) received by those at the top.

Saez (2009) has provided updated estimates for the United States that indicate the top income surge in that country continued, at least until 2008. The purpose of this preliminary note is to examine recent trends regarding top income shares in Canada by providing new estimates for 2001 to 2007, as well as using a new methodology to provide alternative estimates for 1982 to 2000.

1. METHODOLOGY CHANGES

The new estimates that are provided in this paper are not exact updates, in that the methodology has been changed in two respects.

First, Saez and Veall (2005, 2007) did not calculate shares directly but instead used data by brackets (i.e. a histogram) combined with interpolation and extrapolation. Before 1982, this was the only available method. However, the Longitudinal Administrative Database (LAD, a 20% sample of all taxfiles, now comprising almost 5 million records) is available beginning 1982. Saez and Veall did not switch to direct calculation, opting for consistency throughout their study period.

Second, as for much of their time period, Saez and Veall only observe those with top incomes, they used national accounts data for the denominator in the top income share calculations and adult population estimates to determine the number in the top percentile. While beginning in 1982, the LAD makes direct calculation of a denominator straightforward and it is possible to use the top percentile of taxfilers rather than adults, Saez and Veall again did not use this approach. This was partly for consistency reasons but partly because taxfiler data missed a large number of low-income individuals who had no incentive to file, at least until the provision of the Goods and Services Tax Credit and new child benefit programs in the early 1990s. (Frenette, Green and Picot, 2004) find that coverage has been much higher since that time.

The estimates provided in this note are all direct calculations using LAD information exclusively, as in Murphy, Roberts and Wolfson (2004). Going forward, this seems more sensible than continuing to use interpolation/ extrapolation. With respect to coverage, the inclusion of the income of low-income individuals is probably unimportant for top share calculations (although note that the calculations presented below also include the negative incomes). Not including those who do not file in the count of individuals/families in calculating percentiles is potentially an issue of more importance which will be considered in future work. In any case, this note will present overlapping estimates from the original approach and the new approach.

2. RESULTS

While all the new calculations are available upon request, I will present some of the more important findings in graphical form, roughly following the order of discussion in Saez and Veall (2005).

To orient the reader, Table 1 gives some information about top shares in 2007. For example, individuals receiving income of at least $169,321 were in the top 1% in 2007. Such individuals had an average income of $200,700. Table 1 also provides the definition of income used in this paper. It is intended to be market income as reported for tax purposes and it is consistent for the 1982 to 2007 period.

Figure 1 shows how P99-100 (the share of total reported income received by the top 1% of filers) has changed over time. Income throughout this paper excludes capital gains. Results including capital gains are similar. It can be seen that at the beginning and the end of the 1982 – 2000 period, the new estimates are a bit below the original Saez and Veall ones. Figure 2 shows that the new estimates match the Saez and Veall estimates for P99.9-100 almost exactly. Figure 3 shows that the new estimates for P99.99-100 indicate higher top 0.01% shares (P99.99-100). In all cases, from 2001 to 2003 (the dot.com bust, 9/11 and the subsequent recession), the top shares fall. From 2004 to 2007, they rise again.

This is exactly the pattern in the United States (Saez, 2009) except that the top shares are greater there. (Note however, that Saez provides his calculation for family incomes and notwithstanding Figure 10 below, there are currently no exactly comparable values in this paper.) For example the top 1% share in the U.S. in 2007 has surged to close to 24% compared to the Canadian 14%. The top 0.01% share in the U.S. in 2007 was about 6% compared to about 2.5% in Canada.

Figures 4 and 5 confirm that the increase in the share of the top decile is concentrated in the top percentile. There has been little trend in either P90-95 (the bottom half of the top decile) or P95-99 (the top half of the top decile excluding the top percentile).

Figure 6 presents calculations that are possible with the LAD data from 1982 on but are not possible with earlier data (and hence have no counterparts in the earlier Saez and Veall paper, although similar calculations are in Murphy, Roberts and Wolfson, 2004). Top income shares are calculated using income after tax and transfers rather than using total income. (The precise definition is given in a note to Figure 6.) It can be seen that P99-100 shares for this income definition has also increased, from 6.5% in 1982 to almost 10% by 2007. The P90-95 and P95-99 shares were very stable over this period. While not shown in the graph, the P99.9-100 share more than doubled (from 1.8% to 3.9%) and P.99.99-100 almost share trebled (from 0.7% to 1.9%). These top shares are lower than the top shares for pre-tax income without transfers but the recent surge is comparable.

Figures 7A and 7B show how the composition of income has changed between 1946 and 2007 (The components of income are given in the notes below Figure 7A.) In 1946 (the first year in which it is possible to make composition calculations with tax income), those at the top end of the income distribution received largely capital income. By 2007, the majority of income for such individuals was wage and salary income. The values for 2000 (calculated by the new method) and 2007 are very similar to those for 2000 found by Saez and Veall (2005, 2007). Indeed the 2007 values indicate the shift towards wage and salary income at the top end has accelerated.

Figures 8A and 8B use data beginning 1972 (the earliest for reasonable decomposition of income by type) to emphasize that the top income surge has been a wage/salary income surge.

Saez and Veall suggested a possible explanation for the *Canadian* top income surge was that it was a response to the U.S. top income surge: highly paid Canadian executives required still higher pay to offset U.S. threats (or meet norms set in the U.S.) A supporting piece of evidence was that the surge was stronger in Canada outside Quebec and within Quebec for those who filed in English. There is at least the possibility that those who file in French in Quebec are more deeply attached to the Quebec French culture (and hence have a less credible threat to leave) or that norms set in the U.S. are more relevant in the rest of Canada or among the English in Quebec than they are in francophone Quebec. While these possible explanations are arguable, we

note that the new estimates (Figure 9) confirm the Saez and Veall estimates and suggest that the trend has continued.

Figure 10 confirms the Saez and Veall result that the surge is visible when one uses family as opposed to individual data. (Family income refers to "census family" including singles, that is singles plus the following if they live in the same dwelling: married couples and children, a couple living common law and the children or a lone partner with children. Children may be by birth, marriage or adoption regardless of age and marital status as long as they do not have their own spouse or children living in the dwelling. Grandchildren living with their grandparents but with no parents also constitute a census family.)

A possible explanation of the surge is that income has become more uncertain for high earners. It could be that while top shares have increased, that is because of bonuses or other types of payments that are not made every year so that not many individuals stay in the top. Saez and Veall found (and Figure 11 confirms with these new methods and for the additional years) that there is turnover. However, taking the top 0.1% as an example, the turnover seems small: someone in the top 0.1% in one year has more than a 60% chance to be there the next year, and even after three years that probability is still 30%. But whether one regards that turnover as small or not, Figure 12 follows Saez and Veall by showing that using three or five year moving averages does not change the basic finding of a surge.

Table 2 gives the top 1% share for all provinces for both income and income after tax and transfers for the years 1982 and 2007. The income surge is much less pronounced in the Maritime provinces and most extreme in Ontario, British Columbia and especially Alberta. The other provinces fall in between.

Table 3 reemphasizes the point by giving by province the lower bound of the top 1% percentile (that is the threshold for the top 1% for that province) and the average income of those in the top 1% percentile. It is evident that the differences between provinces have grown. In 1982, compared to the 5th highest province, Ontario's 1% threshold was about 20% higher and Alberta's was 40% higher. The comparable values for 2007 were 45% and 95%. In 1982, compared to the 5th highest province, the average income of those in the top 1% in Ontario was about 40% more and for Alberta it was 60% more. The comparable values for 2007 were 75% and 175%. Obviously top income growth in Alberta has been an important part of the increase in top incomes in Canada.

IV CONCLUSIONS

The most important conclusion is that the surge in top income shares identified by Saez and Veall (2005, 2007) has continued. All the Saez and Veall findings for 2000 are confirmed as extending to 2007: the surge is largely in wage income, it occurs for both individual and family income, it is evident even for income averaged over three or five years, it is less pronounced for those who file in French in Quebec and it appears more extreme as one moves towards the top of

the income distribution. A finding from Murphy, Roberts and Wolfson is confirmed to extend until 2007 as well: while top shares are less extreme for income after tax and transfers, the surge in such income is as marked as that for income before tax and transfers. Finally, it is shown that the surge is much smaller in the Maritime provinces and much greater in Ontario, British Columbia and especially Alberta, with the other provinces falling in between.

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Table 1 Thresholds and Average Incomes by Fractiles, Canada, 2007		
	Lower Bound	Average Income
P90-95	$64,363	$72,600
P95-99	$83,872	$108,700
P99-99.5	$169,321	$200,700
P99.5-99.9	$246,842	$358,000
P99.9-99.99	$621,297	$970,000
P99.99-P100	$1,843,601	$3,832,500
Note: Income here is intended to be “market income” reported for tax purposes and includes all wages and salaries, other employment including commissions, all self-employed income, income from partnerships including limited partnerships, dividend income, net rental income, investment income, annuity and pension income, income from registered retirement income withdrawasls and annuities, other income such as scholarship and grant income and alimony. It does not include Indian exempt employment income as the Longitudinal Administrative Database only began to include this data for recent years. It does not include capital gains.		

Fig. 1 Top 1% (P99-100) income shares, 1920 - 2007

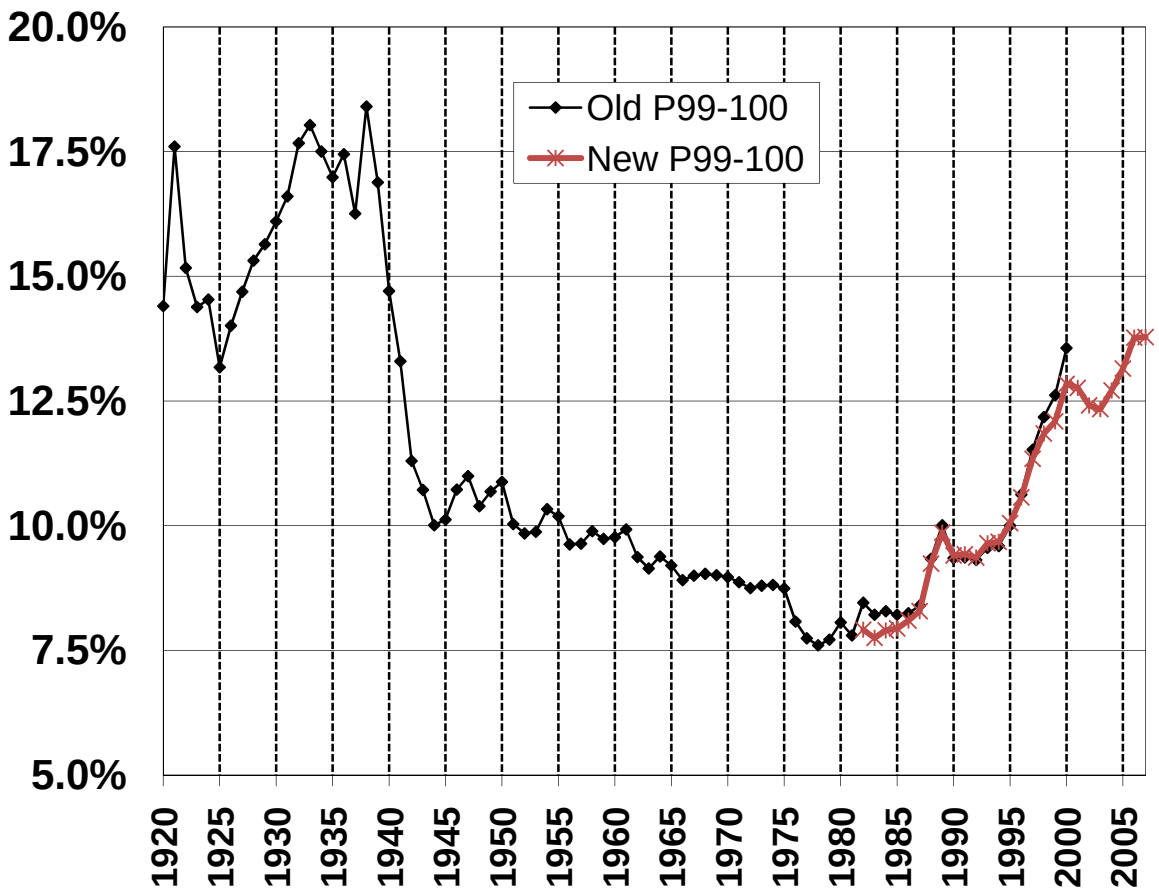


Fig. 2 Income share of the top 0.1% (P99.9-100), 1920 - 2007

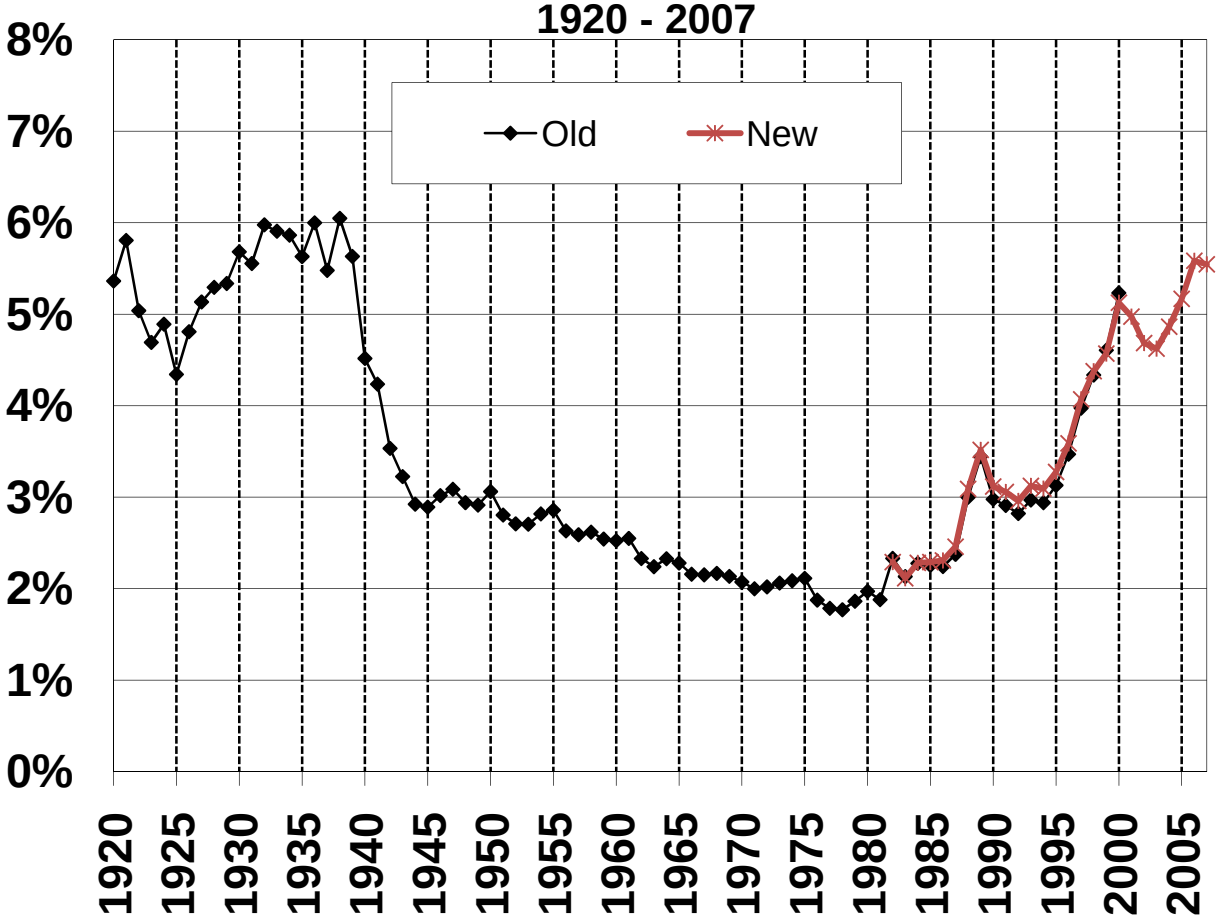


Fig. 3 Income share of the top 0.01% (P99.99-100), 1920 - 2007

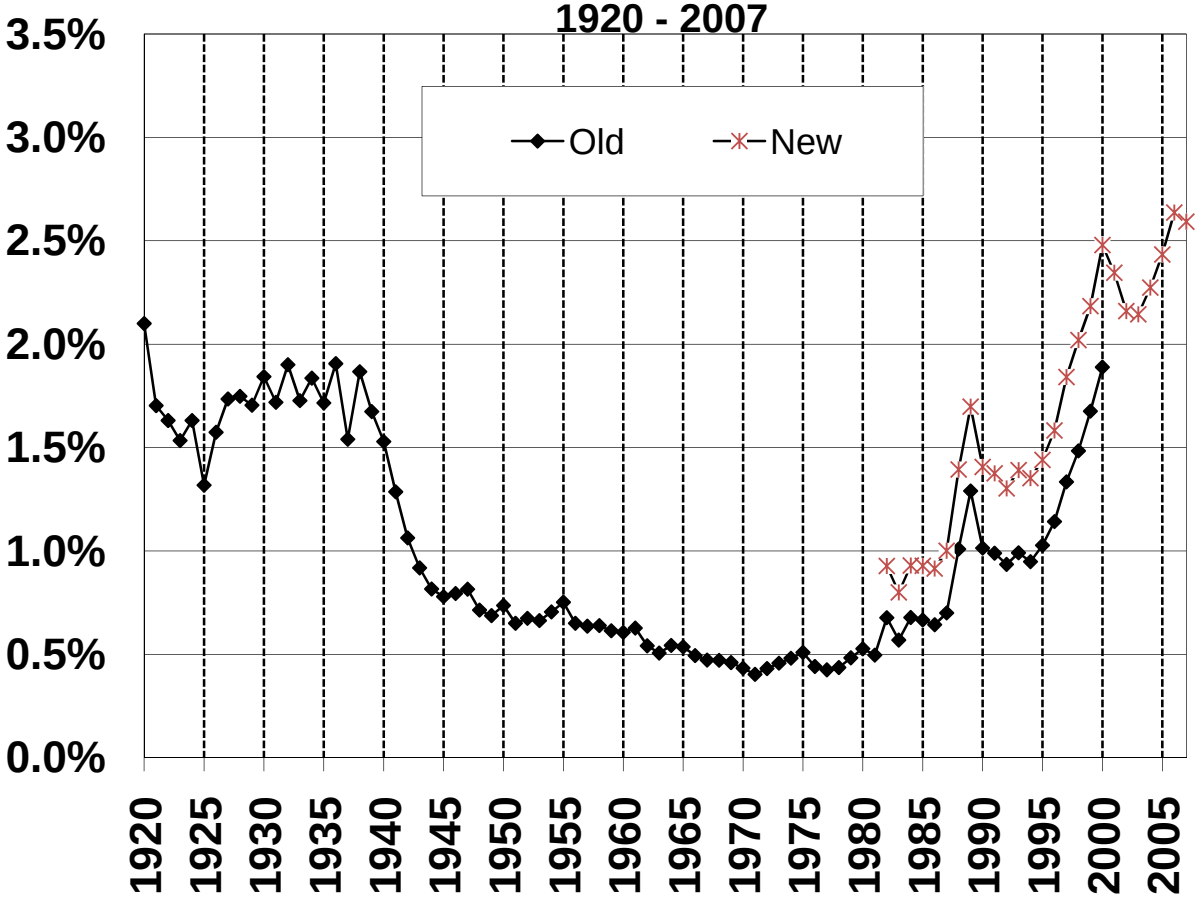


Fig. 4 P90-95 income shares in Canada, 1941 - 2007

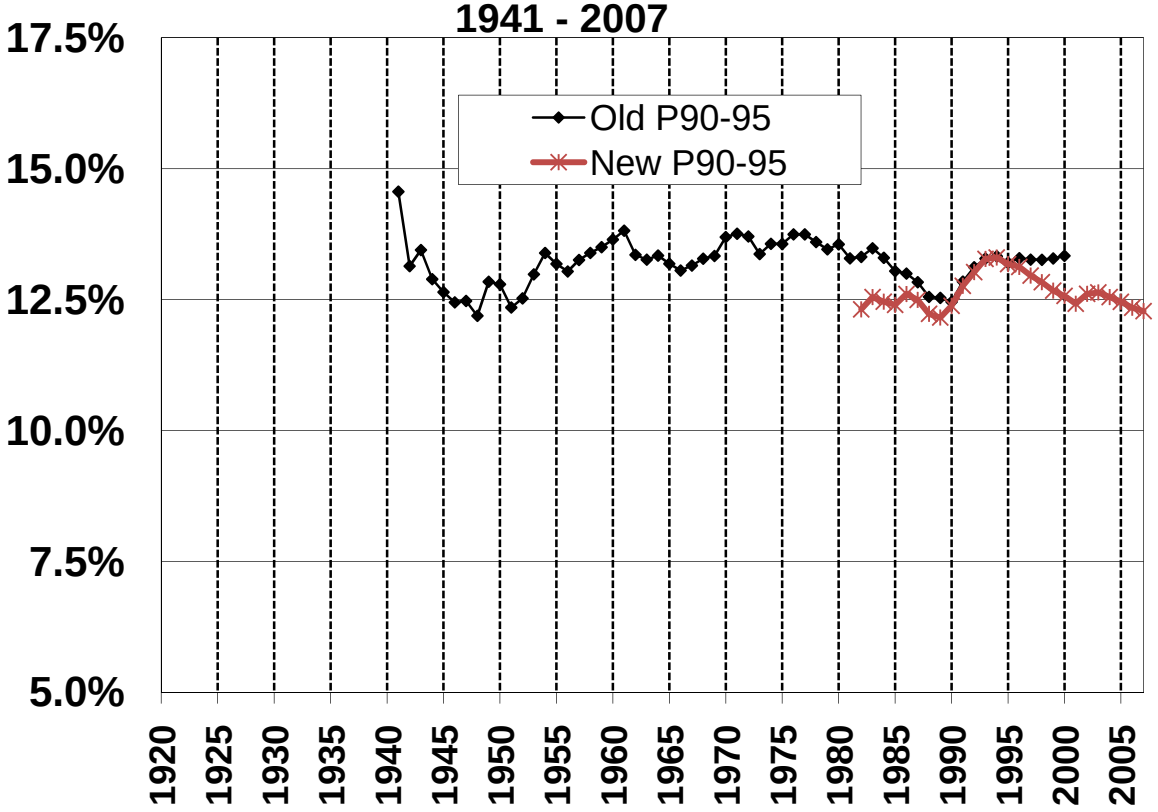


Fig. 5 P95-99 income shares in Canada, 1920 - 2007

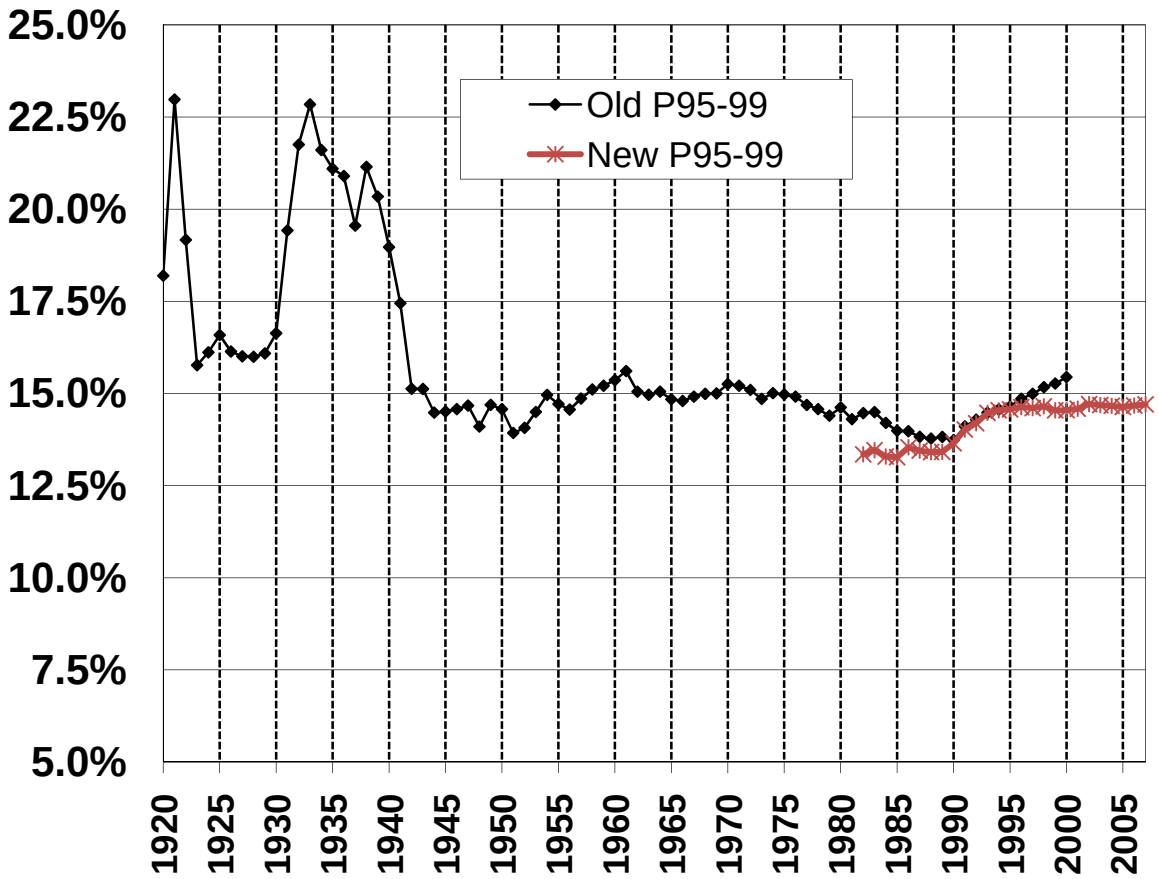
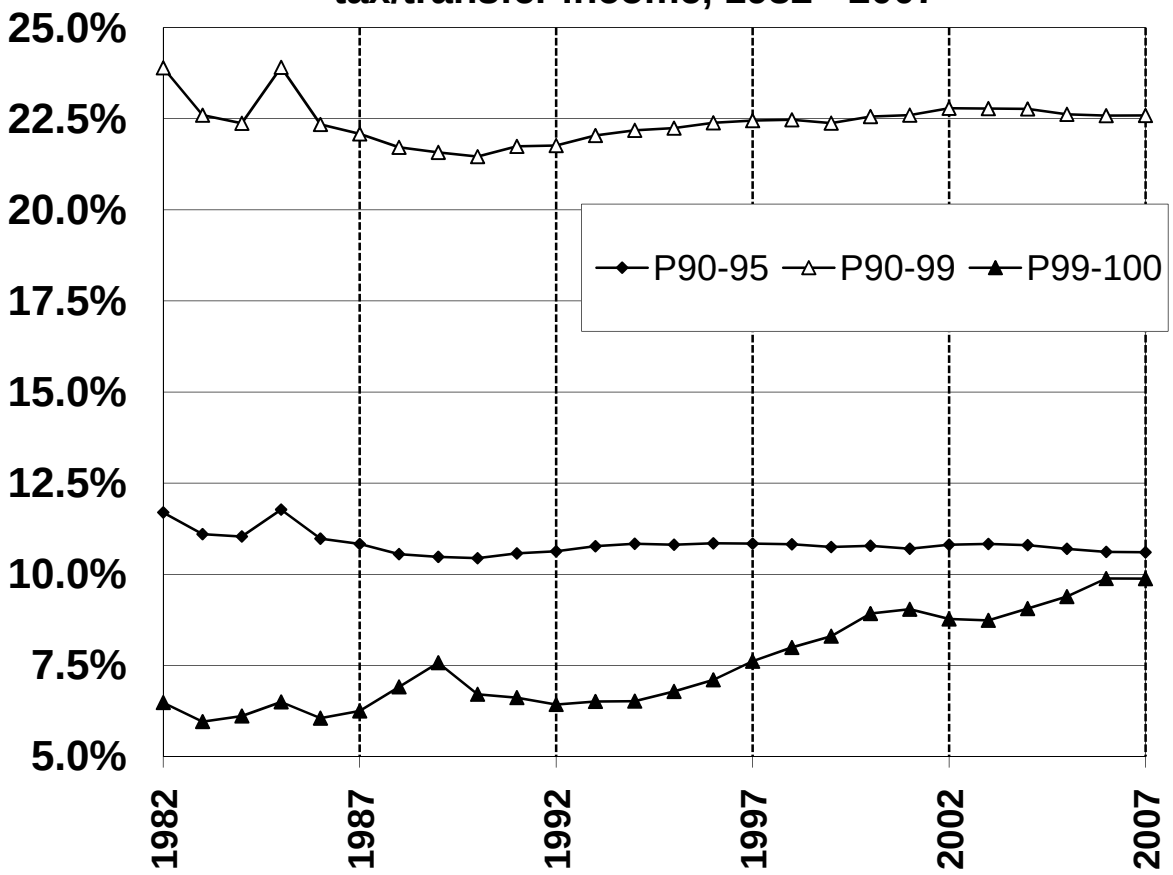
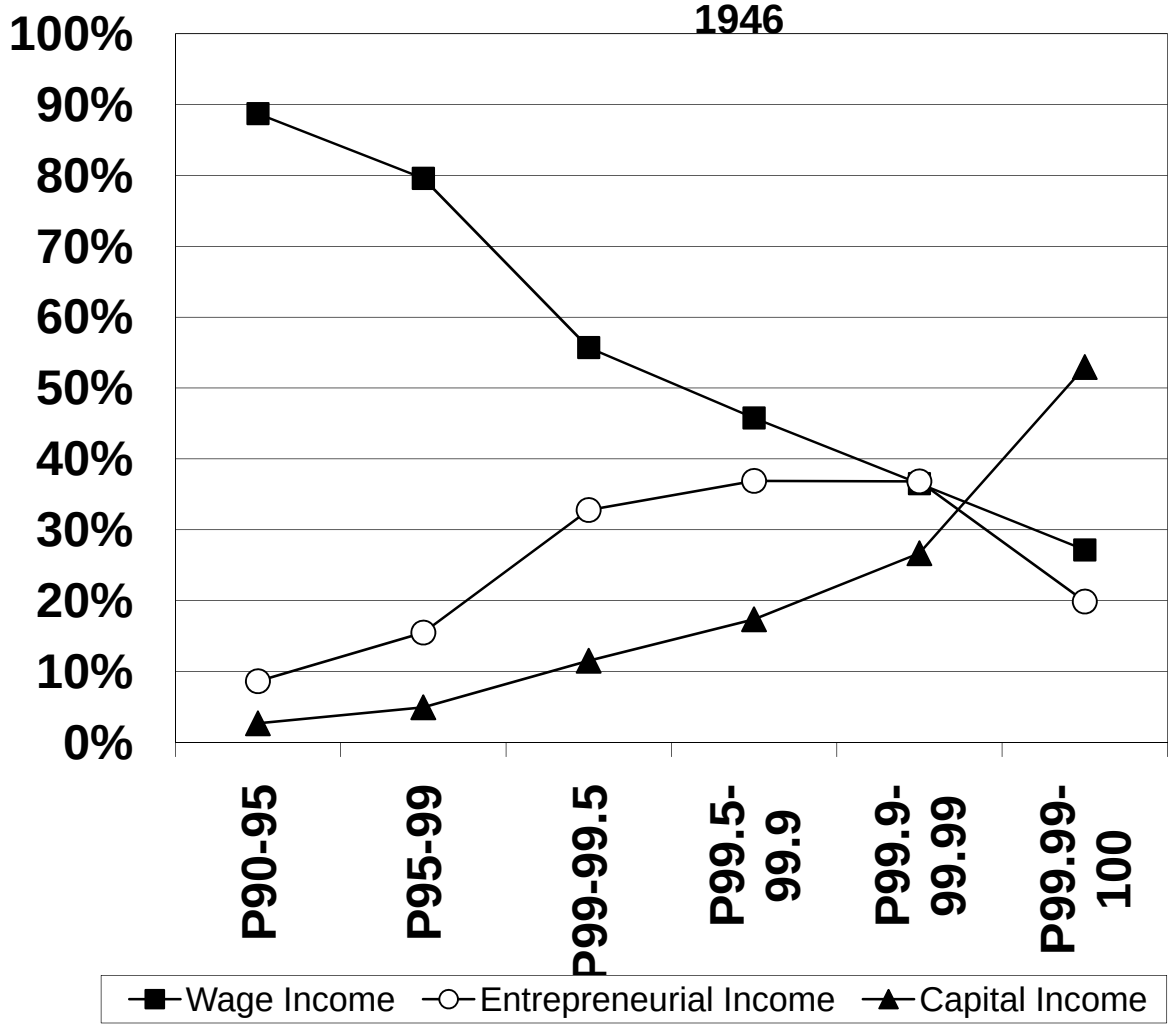


Fig. 6 P90-95, P90-99, and P99-100 shares, after-tax/transfer income, 1982 - 2007



Note: Income after tax and transfers is income as defined in Table 1 plus all transfer payments including the Quebec abatement less provincial and federal income taxes.

Fig 7A: Income composition within the top decile, 1946



For these calculations, wage income is wages, salaries, other employment income, pensions and RRSP income of those 65+. Entrepreneurial income is self-employed income. Capital income is dividend income, investment income, net rental income, partnership income, other income (includes scholarships and grants as well as certain kinds of capital income) and limited partnership income.

Fig. 7B: Income composition within the top decile, 2007

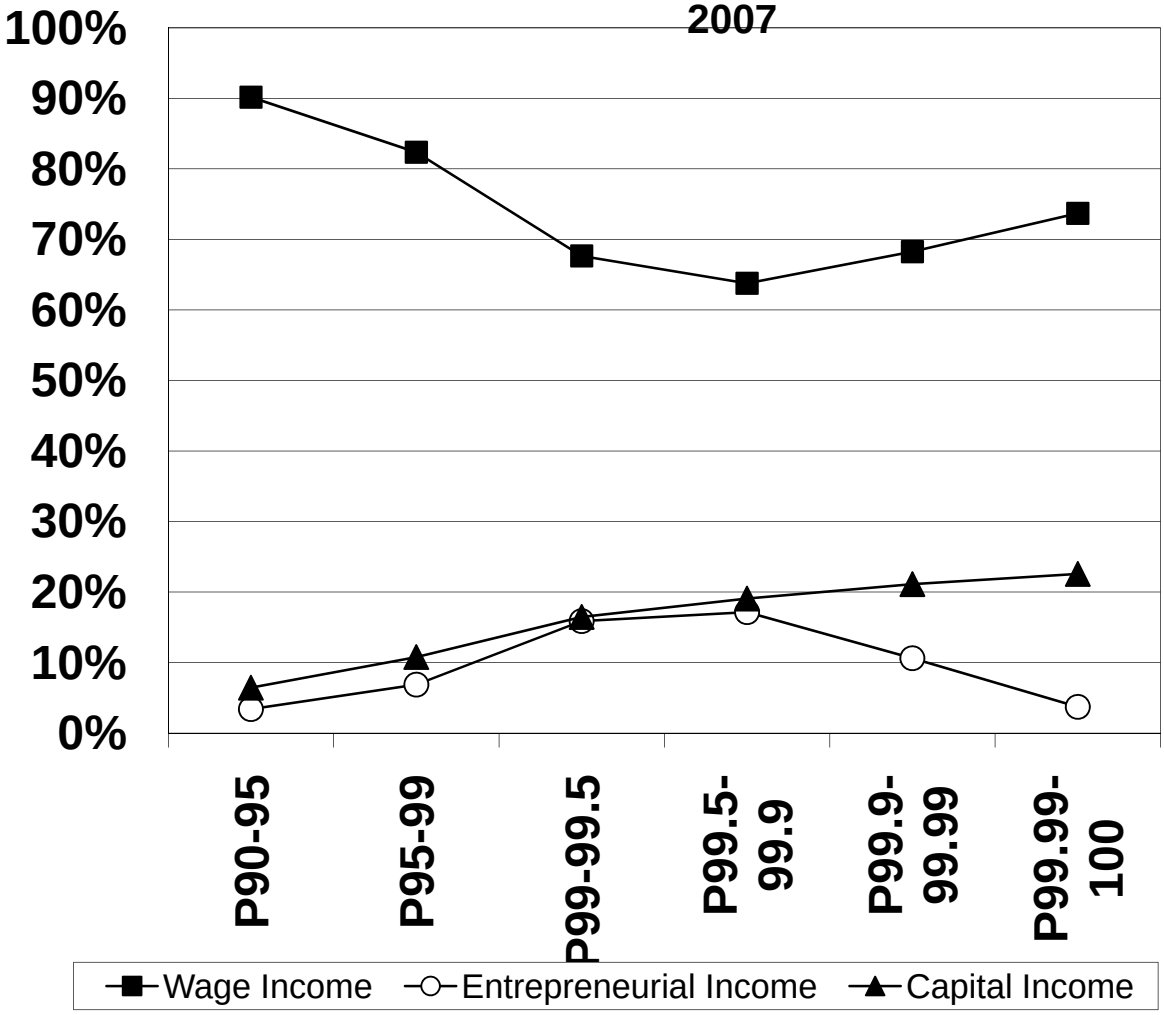


Figure 8A. Wage income shares of P90-95, P95-99, and P99-100, 1972 to 2007

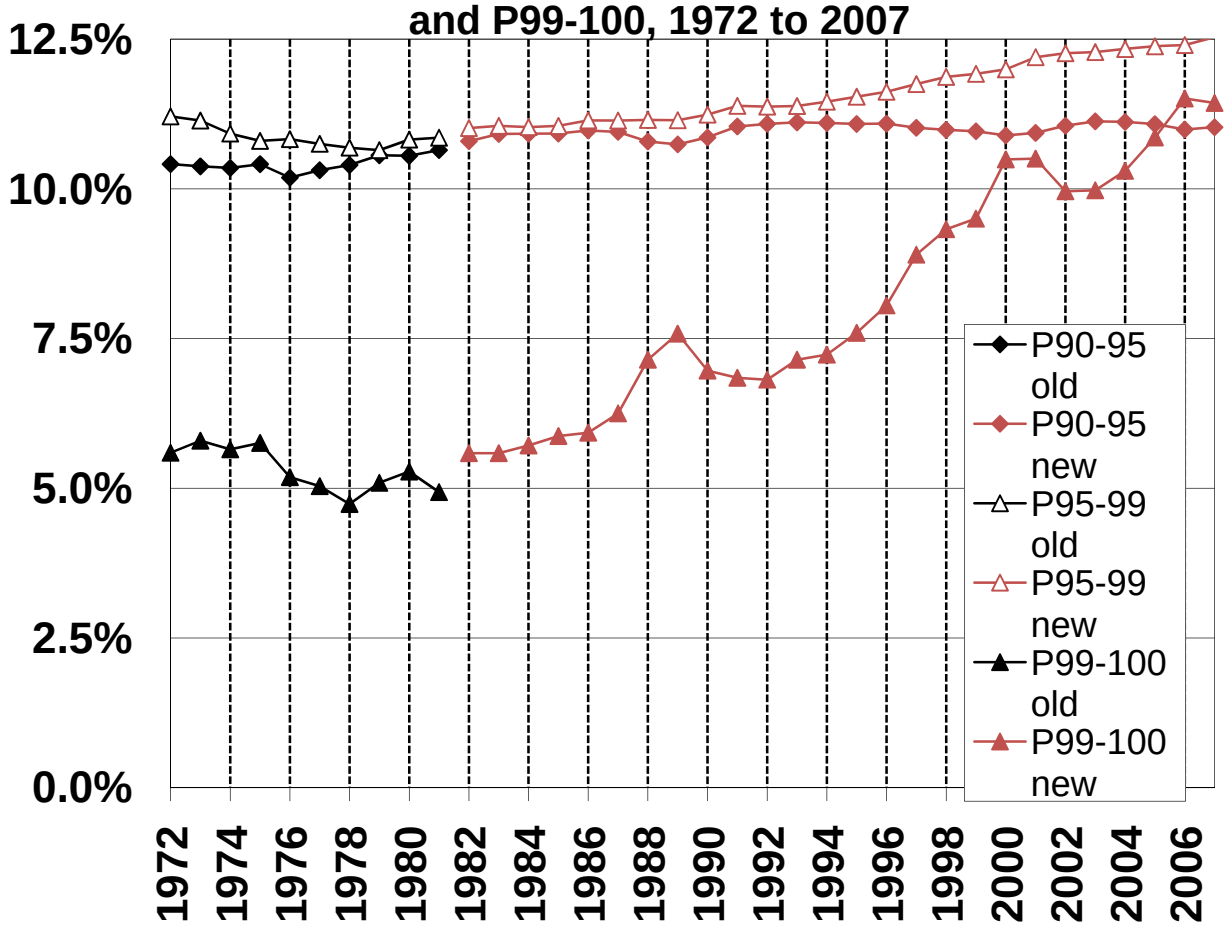


Fig. 8B. Top 0.1% wage income share in Canada, 1972 to 2007

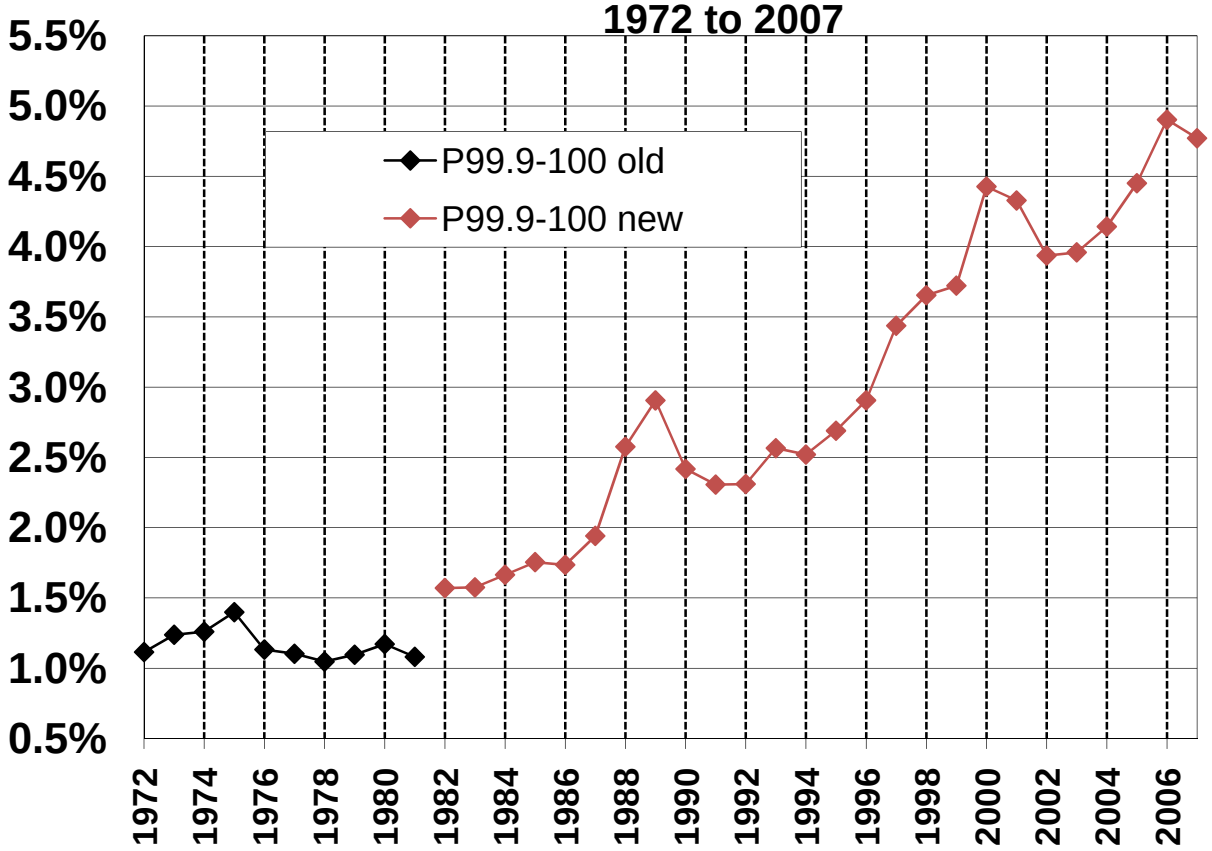


Fig. 9 Top 1% Wage Income Shares by Filing Language in Quebec and for Rest of Canada, `982 to 2007

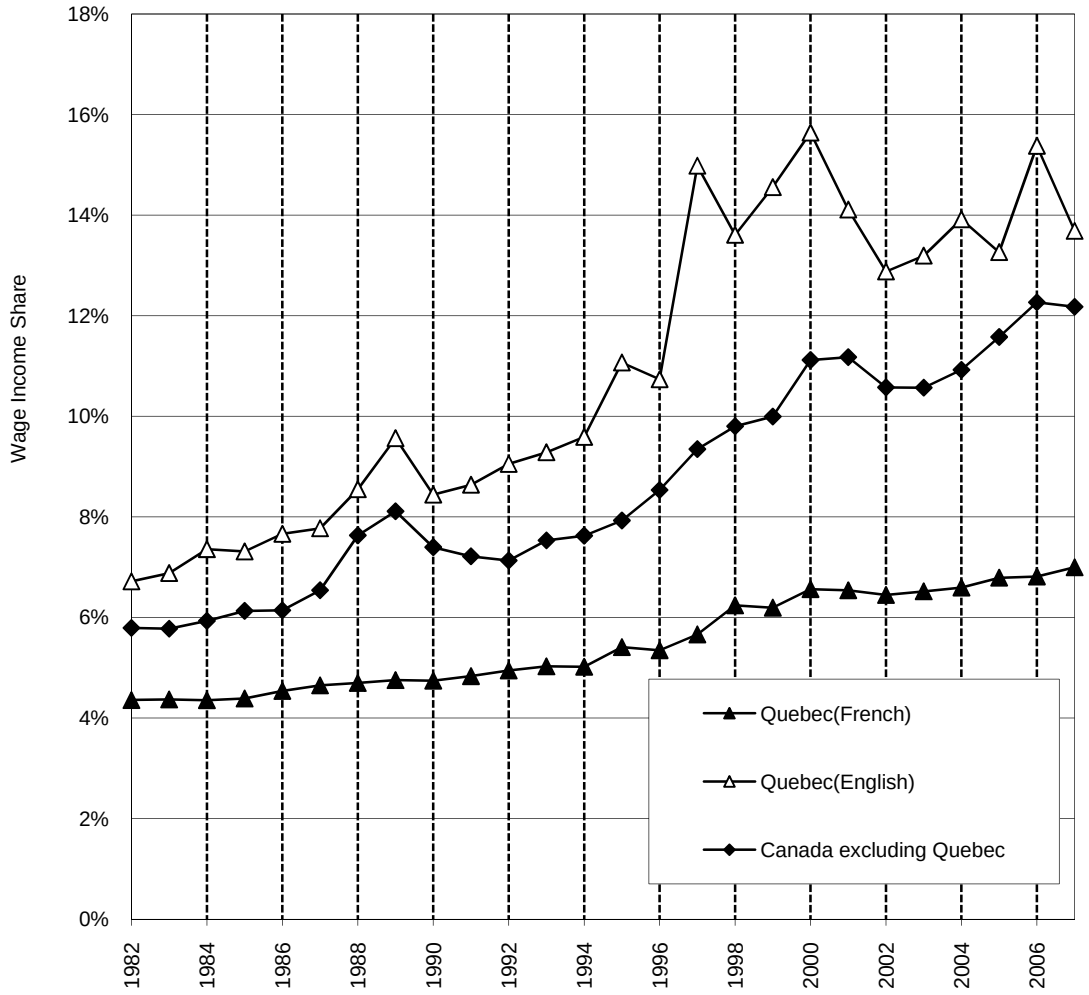


Fig.10 Wage income top 1% shares for individuals and families, 1982 to 2007

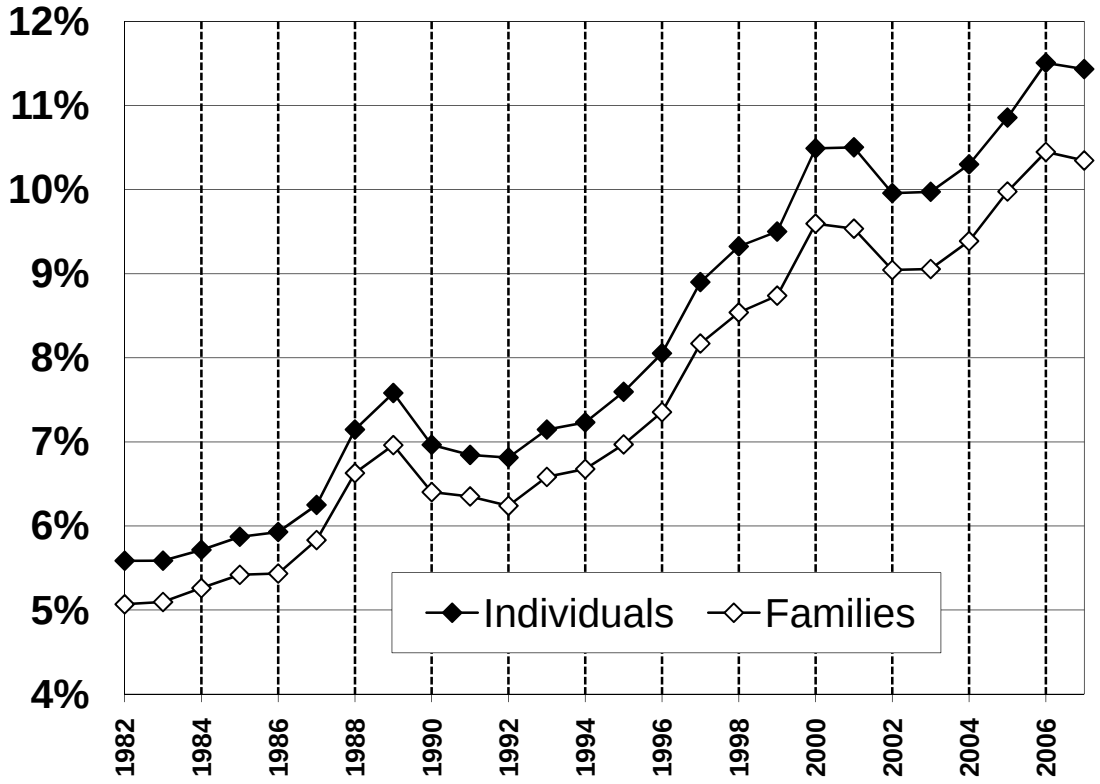


Fig.11: **Probability of staying in top 0.1% group, 1982 to 2007**

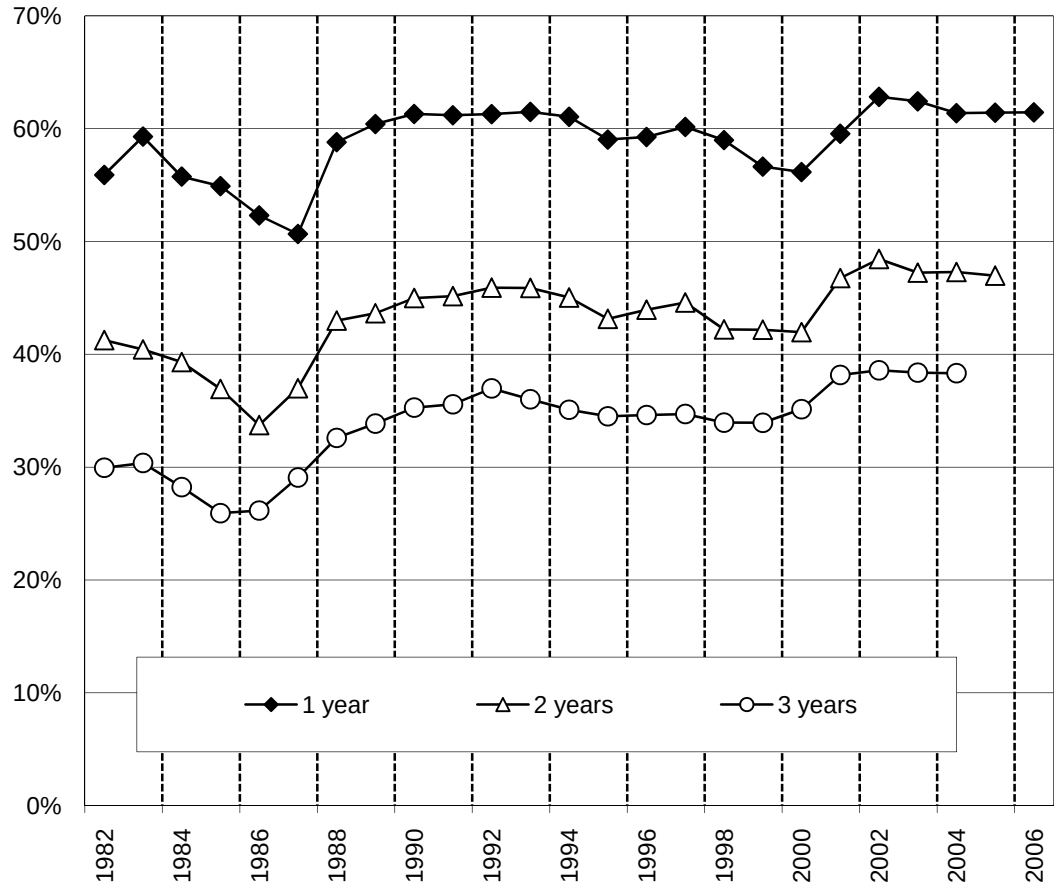


Figure 12: Top 0.1% Income share, centered averages over various years, 1982 to 2006

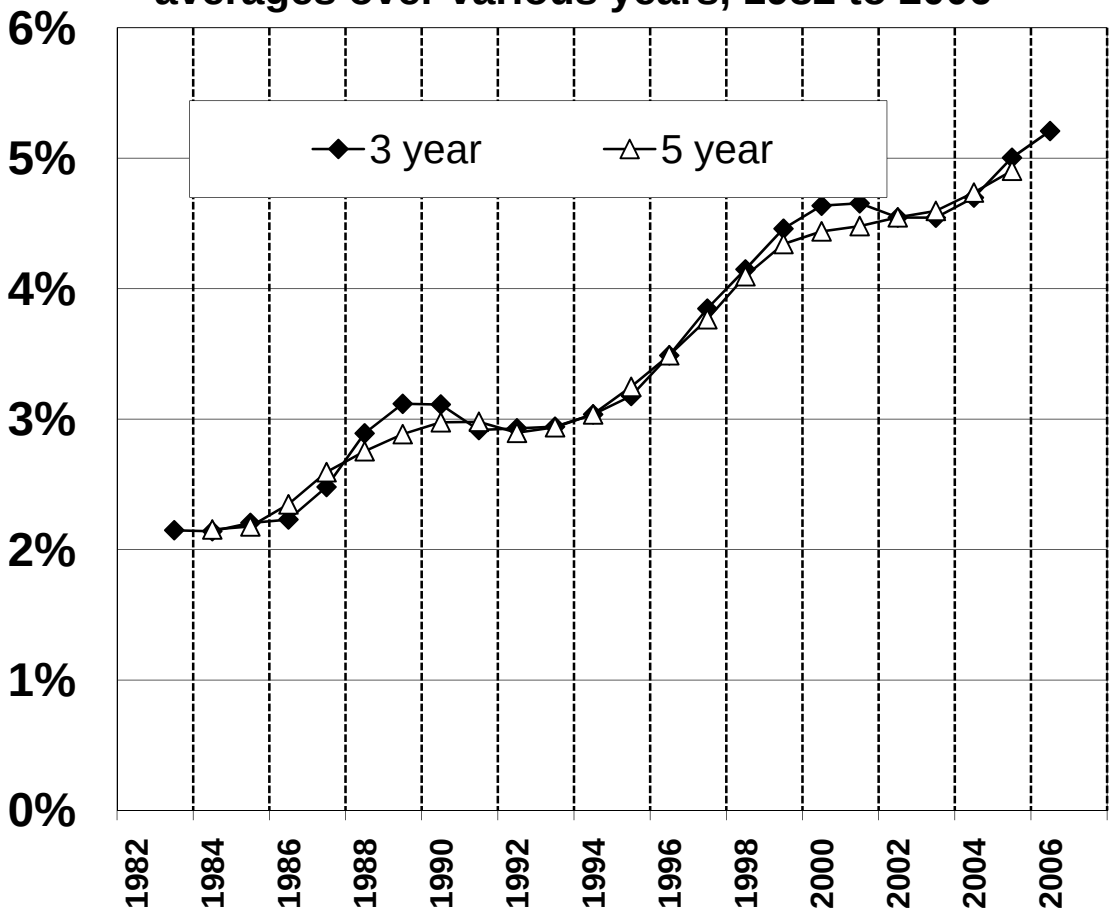


Table 2 Top 1% Shares by Province, 1982 and 2007				
	Income		Income after tax and transfers	
	1982	2007	1982	2007
NL	7.4	9.7	5.5	6.2
PEI	7.1	8.1	5.5	5.7
NS	7.6	9.8	6.0	6.8
NB	7.4	9.0	5.9	6.1
QC	7.2	11.3	5.4	7.6
ON	8.4	14.3	6.9	10.1
MB	7.1	10.2	5.7	7.3
SK	6.9	10.8	6.3	7.7
AB	8.2	17.6	7.1	14.0
BC	7.8	13.4	6.6	12.0
Canada	7.9	13.8	6.5	9.9

Table 3 Thresholds and Average Incomes for P99-100 Fractile, by Province, 1982 and 2007 (No Inflation Adjustment)				
	Lower Bound		Average Income	
	1982	2007	1982	2007
NL	$83,800	$116,000	$129,700	$198,000
PEI	$87,800	$104,700	$123,000	$169,900
NS	$98,200	$123,600	$158,200	$230,400
NB	$89,700	$111,400	$141,700	$194,800
QC	$104,700	$137,800	$161,600	$281,100
ON	$121,900	$186,600	$220,400	$443,600
MB	$99,200	$129,300	$151,800	$256,800
SK	$116,740	$136,200	$171,300	$289,400
AB	$140,700	$251,300	$249,200	$710,400
BC	$121,700	$163,100	$213,600	$391,800
Canada	$116,300	$169,321	$198,200	$403,500