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Income Trajectories of High Income Canadians: 1982-2005

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Abstract

The recent rise in the incomes of Canadians at the top of the income distribution is well documented but the reasons for this rise are not fully understood. What is certain is that the rising income shares are partly a result of changing individual income trajectories over time. This paper uses a longitudinal administrative database to explore the mobility patterns of high income Canadians. Using tax data with large sample sizes allows an examination of the highest income earners and the paper emphasizes statistics on the top 5%, 1%, 0.1% and 0.01% of tax filers.

Specifically the analysis is concerned with locating changes to the income mobility patterns of high income Candians over time. The paper examines the year over year transitions to and from high income as well as the duration of high income earners at the top over a five year period. We find a slight increase in the income stability of high income Canadians and a corresponding decline in the proportion of all filers who make it to the high end at some point during a fixed time period.

Friedman has hypothesized that higher incomes represent a return for higher risk. Given the recent rise in income shares we might expect to see higher variability in those incomes. The paper compares the growth rate and variability of individual income trajectories to see if an increase in income growth is accompanied by an increase in variability. We find that while the growth rate in incomes follows economic cycles the variability in these trajectories is much more consistent over time but does tend to follow the same trend. Mixed signals from competing methods indicate further work to refine the methodology and add explanatory variables.

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Introduction

Over the past decade income inequality has risen in Canada with income shares rising especially fast for the top 5% of incomes (Heisz, 2007). Unlike increases in income inequality in the 1970's, the current upswing would appear to be heavily influenced by a well documented rise of incomes at the upper end of the income distribution (Murphy, Roberts and Wolfson 2007, Saez and Veall 2003).

In a recent review of 25 years of income inequality in Canada, Osberg argues that "the key issue to explain in Canada is the 'pulling away' of the very top end of the income distribution, particularly since the mid-90s" (Osberg 2008). Some researchers have argued that this recent increase in pay at the top is driven by the removal of social norms regarding pay inequality (Piketty, 2006). Others believe that the growth remains consistent with theories of skill biased technological change, superstars, greater scale and their interaction (Kaplan, 2007). There is a further question of the ways in which changes in taxation rules have affected the way in which high income Canadians are compensated for their work by their employers or the ways in which the self-employed or investors structure their income. Underlying any of these and many other explanations are the individual income trajectories of high income individuals, that is, their income mobility.

In a 2003 study of top incomes in Canada, Saez and Veall briefly examined whether the increases in high incomes were accompanied by increased mobility and found that mobility at the top is modest and that there was virtually no change since 1982(Saez & Veall, 2003). However, Friedman and Savage have argued that choice amongst different occupations is a choice between different degrees of uncertainty and risk (Friedman and Savage, 1948). Occupations vary as to their level of anticipated return with 'riskier' jobs returning a higher rate of return or income. Thus if we observe a higher rate of return (higher incomes) then consistent with Friedman we would also expect higher 'risk' or variability in those incomes. This paper does not operationalize the Friedman hypothesis or speak to the 'risk' of higher income occupations but rather to examine the relationship between the trend in the growth of incomes and their variability.

This study is not primarily concerned with identifying underlying causes to the recent rise in high incomes. Rather we extend the Saez and Veal mobility analysis and ask if patterns of income receipt are different for the very rich now than in the past? Are the trajectories of high income earners any steeper? Is there more variability now than in the past? This paper will use longitudinal administrative tax data to describe and explore changes in the income trajectories of the high income population. We will examine the actual trajectories of high income earners over a 24 year period to see if these patterns have changed.

The paper begins with a brief description of the data sources and methods for examining income mobility that will be used. We then document the rising shares of income in Canada followed by an examination of some transition probabilities. Lastly the paper presents the results of two linear techniques to describe the changes in the trend and

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variability of individual income trajectories. It extends the work from Saez and Veall by examining two linear techniques to describe the changes in the trend and variability of individual income trajectories over a longer period (eight years) to try to better capture economic cycles. The paper concludes with a short summary and suggestions for future directions.

Data Sources and Methods

In order to study high income trajectories a longitudinal dataset is required with sufficient sample size to identify the very highest incomes. This study makes use of 24 years of data in the Longitudinal Administrative Databank (LAD) at Statistics Canada. This is a 20% longitudinally linked sample of income tax records from 1982 through 2005. As such the annual sample sizes are large with 4.8 million filers in 2006.

Because the LAD is based on individuals who filed a tax return the population does not fully represent the entire Canadian population[1]. In 1982 78% of Canadians age 15 or over filed a tax return. By 2005 this rate had risen to almost 90%. At the same time the female labour force participation rate rose from 52% to 62% which would have resulted in a number of new filers. In addition, the increase in filing behaviour was affected by the requirement to file a tax return in order to receive certain means tested government transfers such as the sales tax credit from 1986 and the child tax benefit from 1992. While these trends will affect the relative rise in income shares (the increase in the shares would have likely been smaller if the proportion of tax filers had been constant through that period[2]), it is expected that this should not significantly impact the trajectories of the highest income Canadians (who would have been filing tax returns in any case).

Throughout the paper we primarily make use of total income. While the composition of total income is one important factor in the rise of top income shares (Saez and Veall, 2003), high income earners usually have multiple sources of income as well as the ability to structure and time the receipt of that income to minimize taxes. In that we are looking at overall income mobility this study focuses on the variability in total income. Our definition of income is not identical to the total income found on the tax form as our purpose is to examine the economic well-being of filers and not their tax liability or personal tax base. As such we have used actual capital gains and actual dividends instead of the taxable version of these variables[3].

[1] The LAD starts with a population of filers and then imputes spouses and dependants, many with zero incomes. In 2005 the LAD covered an estimated 97% of the population. This analysis restricts itself to filers who actually filed a tax return.

[2] We simulated the impact of a 12% increase in filers with zero incomes on the 1982 LAD and this increased the income share of the top 5% of filers by 1.5% and the share of the top 1% of filers by 0.5%.

[3] The definition of income on LAD reflects the definition of income appropriate to the filing of income taxes and does vary slightly over time as income items are added or removed from the tax form. The main difference is in the addition of several transfer payments related to the benefit determination of various transfer programs. The variables included in out definition of income for any given year may be found in Appendix B.

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The paper splits the income distribution into a number of different quantiles. We make frequent reference to the top 1, the top 0.1 and the top 0.01. These refer to the 1% of filers with the highest incomes, the top 1/10th of 1% of filers, and the top 1/100th of 1% of filers. This latter group contains about 2,400 filers in 2005 for which the LAD has a sample of nearly 480 indicating the sample sizes are still large for these very high income quantiles. We do not specify the income levels associated with membership in these groups as these have been recently documented (Murphy, Roberts, and Wolfson, 2007).

In the course of analysis this paper slices the 24 years of data using four different time periods; 1 year, 2 years, 5 years and 8 years. We begin by using a one year (cross-sectional) period to document the rising shares of income. The 2 year periods are then used to examine year-over-year patterns of mobility. This section is followed by a look at five year panels to describe longer term patterns of duration at the high end of the income distribution. The final section uses 8 year panels to examine the trajectories of high income Canadians.

The sample selection varies somewhat depending on the panel length. In all cases we have excluded information for deceased filers in the year of their death. Also, while the LAD creates imputed records for non-filing spouses and dependants these records are excluded from this analysis of individual tax filers. Other exclusions are mentioned in the relevant sections[4].

Several methods have been applied to the LAD to study the growth in high incomes. In their study of the evolution of high incomes in Canada, Saez and Veall asked if there was a concurrent increase in mobility with the rising income shares. They also examined the probability of remaining in the top 0.1 income group for one, two and three years. This paper will use some similar techniques to search for changes in mobility at the high end.

The study will also use a technique similar to the one used by Mirer in 1974 when he examined income mobility using the first years of the Panel Study of Income Dynamics. (Mirer, 1974). He used a basic log linear regression to estimate for each family a growth trend and an estimate of variability and examined these across a measure of permanent income. The study found that variability had a U shaped distribution by income level. The approach of describing the trend and variability of income growth will be used to characterize trajectories.

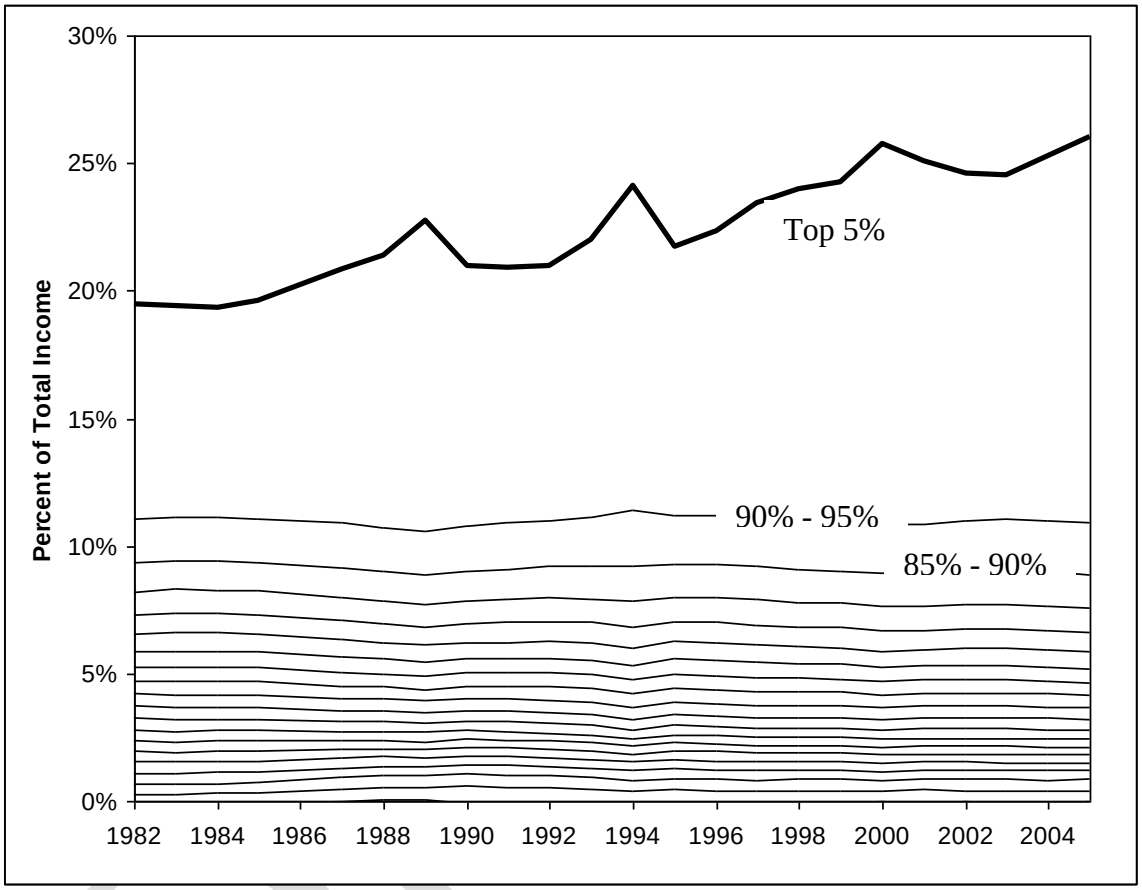
Rising shares of incomes

As we noted earlier, the rise in income shares at the high end of the income distribution has been well documented. Based on an analysis of quintiles, survey based distributional statistics have shown the increased income shares to be limited to the top 20% with all other quintile groups experiencing declining or steady shares of income (Statistics

[4] Appendix C contains a table showing the sample sizes using each of the different panel lengths.

Canada, 2007). More detailed analysis using tax data have shown that the increase of the last 25 years begins much higher up the income distribution with the top 1% of tax filers (Saez & Veall 2003, Murphy, Roberts and Wolfson 2007). Figure 1 below shows the total income shares by vingtile.

Figure 1: Total Income Shares by Total Income Vingtile and Year



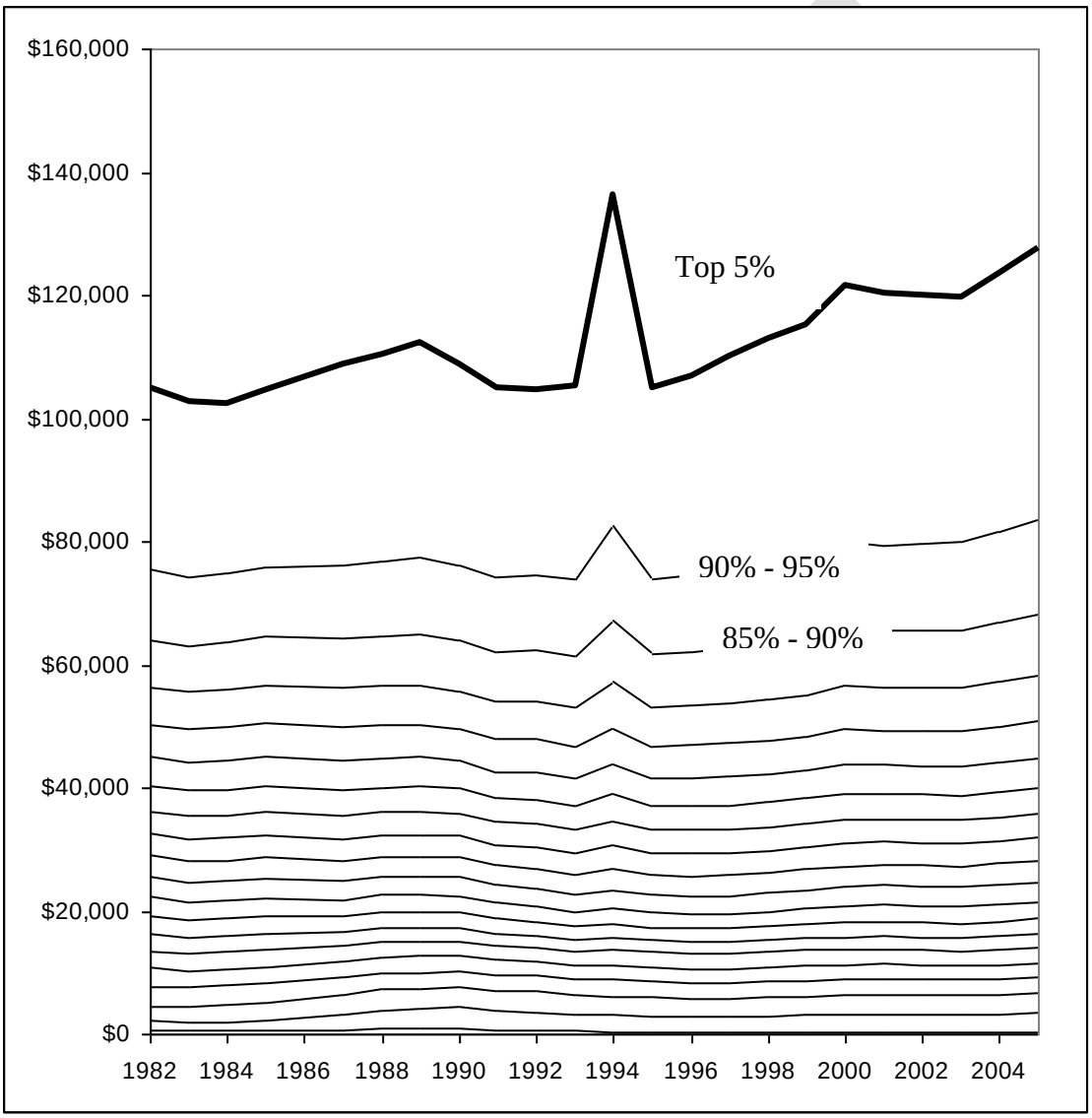
Source: Statistics Canada, Special Tabulations from the LAD.

Figure 1 divides the population of all filers into twenty groups, one for each total income vingtile. All lines are relatively flat though there is some increase in the lowest vingtiles and some decline in the middle vingtiles. The top most line represents the share of top vingtile and increases from below 20% in 1985 to over 25% in 2005.

There are three peaks in 1989, 1994, and 2000 for individuals in the top 5%. The 1989 peak occurred prior to the 1991 recession while the 2000 peak was just before the stock market readjustment of 2001. The 1994 peak is caused by a surge in capital gains income. The year 1994 was the last year of the $100,000 lifetime capital gains exemption and many filers sold capital holdings in order to crystallize their capital gains and take advantage of a tax provision that was ending.

While income shares have been fairly stable in all vingtiles except the top one, median income has risen (mostly after 1994) in the top five vingtiles, as can be seen from figure 2 below. The peak in 1994 due to the increase in capital gain can be observed in almost half of the distribution. There are also increases in the median income in the bottom six vingtiles, even though they are more difficult to see because of the scale. Caution has to be used however when examining the lowest vingtiles because of the differences in filing rates.

Figure 2: Median Total Income by Total Income Vingtile and Year, Constant 2007 Dollars.

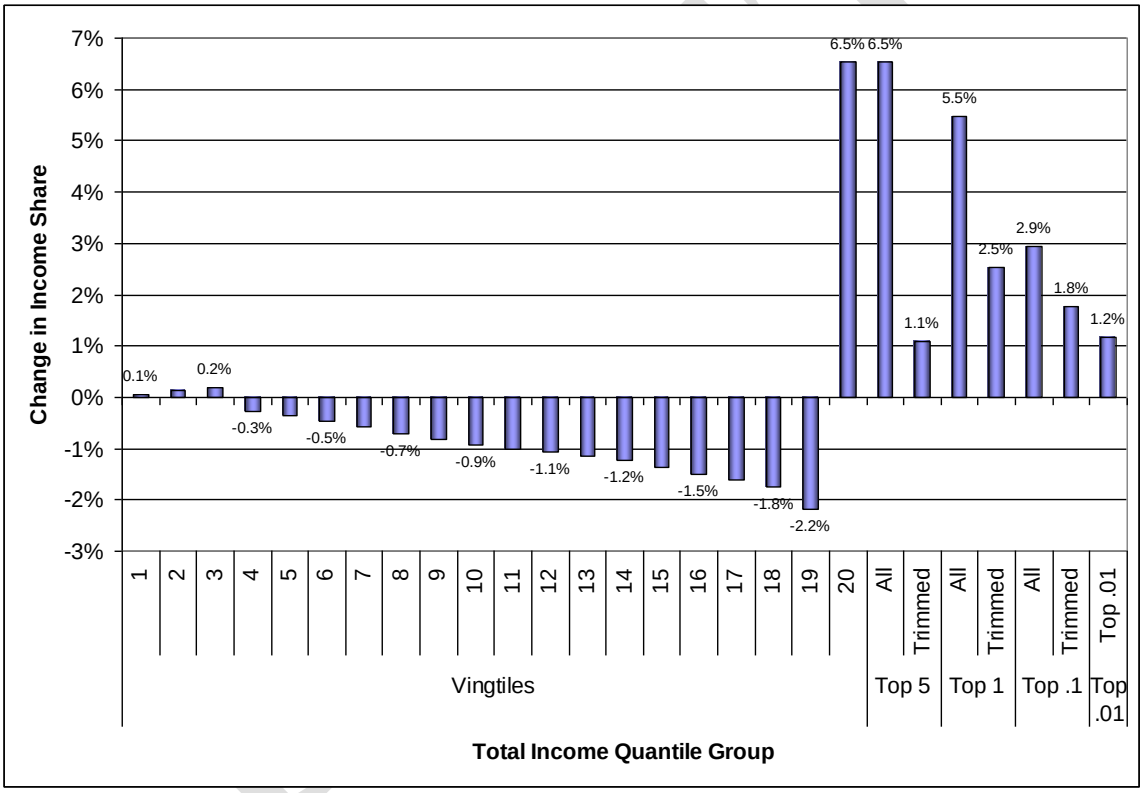


Source: Statistics Canada, Special Tabulations from the LAD.

As Saez and Veall had noted, the rise in income shares is dominated by a large growth concentrated mostly in the top 1% of the distribution. Figure 3 shows the absolute

difference in income shares between 1982 and 2005. The vertical axis shows the actual difference while the horizontal axis is broken up into various quantile groups. The first 20 bars correspond to the 20 vingtiles in figure 1 above and we can see a slight increase in shares for the first three vingtiles were followed by an increasing decline in share over the subsequent 16 vingtiles and finally the share of the top vingtile increases by 6.5%. The change in each quantile group at the top of the income distribution has been decomposed into two groups; for example the Top 5 All bar represents all filers in the Top 5 while the Top 5 Trimmed bar represents the increase among the people in the top 95% to 99%. That is, the top 5% trimmed or exclusive of the next highest category, which in this case is the top 1%. It can be seen that the increase in the 95% to 99% is much smaller (at 1.1%) than the increase observed in the top 1% (which grew by 5.5%).

Figure 3: Absolute Change in Income Shares for Various Total Income Quantiles Between 1982 and 2005



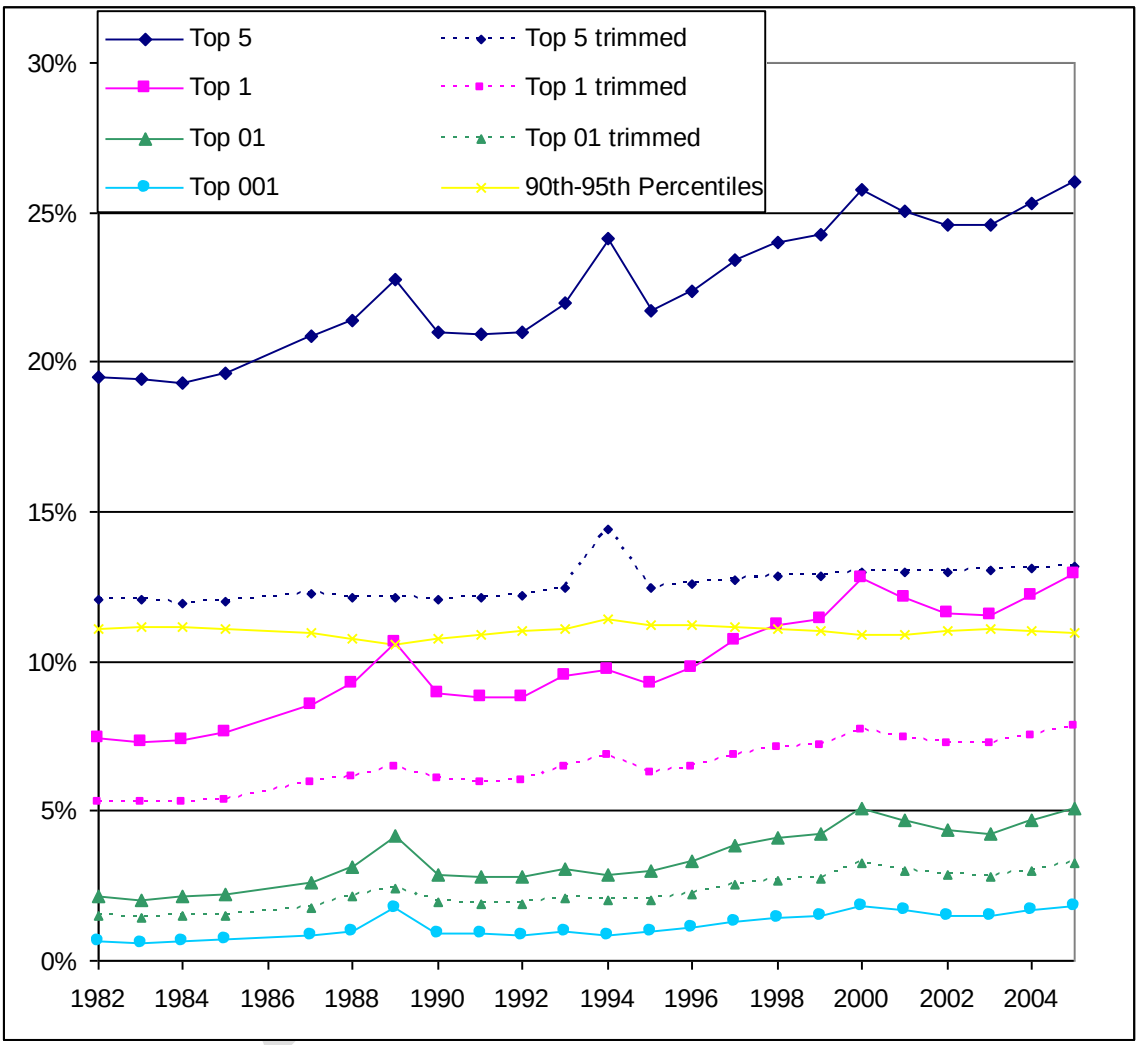
Source: Statistics Canada, Special Tabulations from the LAD.

Similarly the top 1 group excluding the top 01 group increased by 2.5% whereas with the top 01 included the top 1 grew by 5.5%. The trimmed top 0.1% of filers accounted for 1.8% of the overall increase while the top .01group as a whole accounted for 2.9%. In other words almost half of the entire increase in the top 5 was due to the top 0.1% of filers.

The 1982 and 2005 reference points reflect a trend that is fairly continuous (with a slightly steeper increase of the shares in the 1990's than in the 1980's), as can be seen from figure 4. Figure 4 is similar to Figure 1 but the top of the distribution has been

decomposed to show the shares for the highest quantiles and trimmed groups. The top 5% line is the same as in Figure 1. The growth in the trimmed top 5 is much smaller. The pulling away at the high end, in terms of income shares, is primarily being driven by increases to the top 1% of the population.

Figure 4: Total Income Shares by Quantile Group and Year



Source: Statistics Canada, Special Tabulations from the LAD.

Also apparent in the chart are three separate growth periods from 1984-1989, 1992-2000 and 2004-2005. The first two of these are followed by a sharp drop due to the 1991 recession and the 2000 slowdown. The growth period from 1992-2000 did have the capital gains blip in 1994. The importance of economic cycles must be kept in mind when examining our later results for various panels of various lengths.

Annual Transitions to and from high income

The income shares presented so far were cross-sectional estimates but the study of income mobility needs to use the longitudinal nature of the LAD. To begin our exploration of income mobility we examined the year-over-year, (referred to earlier as 2 year panels) mobility of filers into and out of the high income state. If income shares are rising and there is indeed a higher risk associated with higher incomes then we may expect to see an increase in the proportion of high income filers who experience a sharp drop in their incomes (or a sharp rise).

Saez and Veall calculated the probability of remaining in the top 0.01 from one year to the next and found that since 1990 roughly 60% of filers remained in the top 0.1. Further they found that this rate was declining slightly and dropped to below 60% in 1999 and 2000. The requirement for staying in the top 0.1% of filers is fairly stringent. It required an income of over $650,000 to be in that group in 2004. Because many high income filers face significant variation in their incomes, we have used instead the cut-off for the top 5% of Canadians. Thus rather than asking what proportion of the highest income group remained in that same group we have asked "of all filers who made it to the top 5% in any given year, what part of the income distribution did they come from the year before"[5].

As can be seen from figure 5 between 75% and 80% of the top vingtile in a given year were in that same vingtile in the previous year. Ignoring the spike in 1994, between 11 and 19% of the filers in the top vingtile in one year came from the 19th vingtile the year before. In total about 92% of filers in the top vingtile came from within the top decile the year before. The percentage of the top 5 coming from in the top decile is relatively constant over time . However quite recently there are fewer filers in the 19th vingtile rising to the top 5 and a corresponding increase in the proportion of top 5 filers staying put.

Since the mid 1990's there has been a very slight increase in the proportion of people in the top 0.01, the top 0.1% and the the top 1% who stay in the top quintile in the next year.

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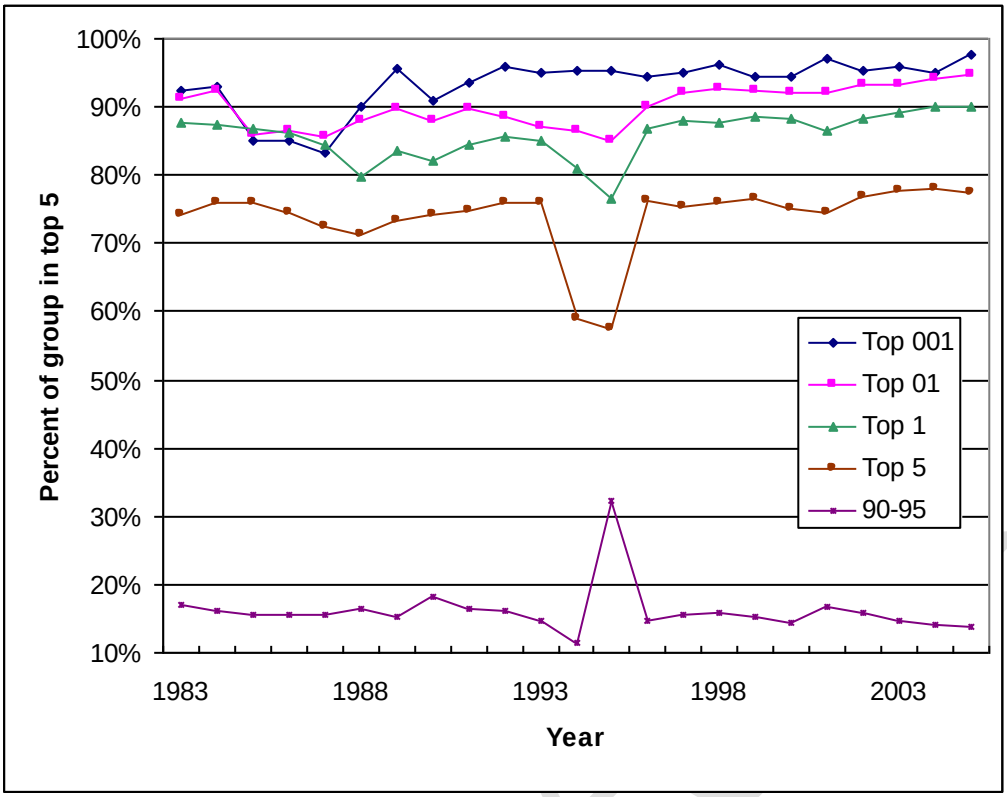
[5] Filers with zero or negative incomes are classified in the bottom percentile.

Figure 5: Distribution of the top vingtile, by income group from the previous year

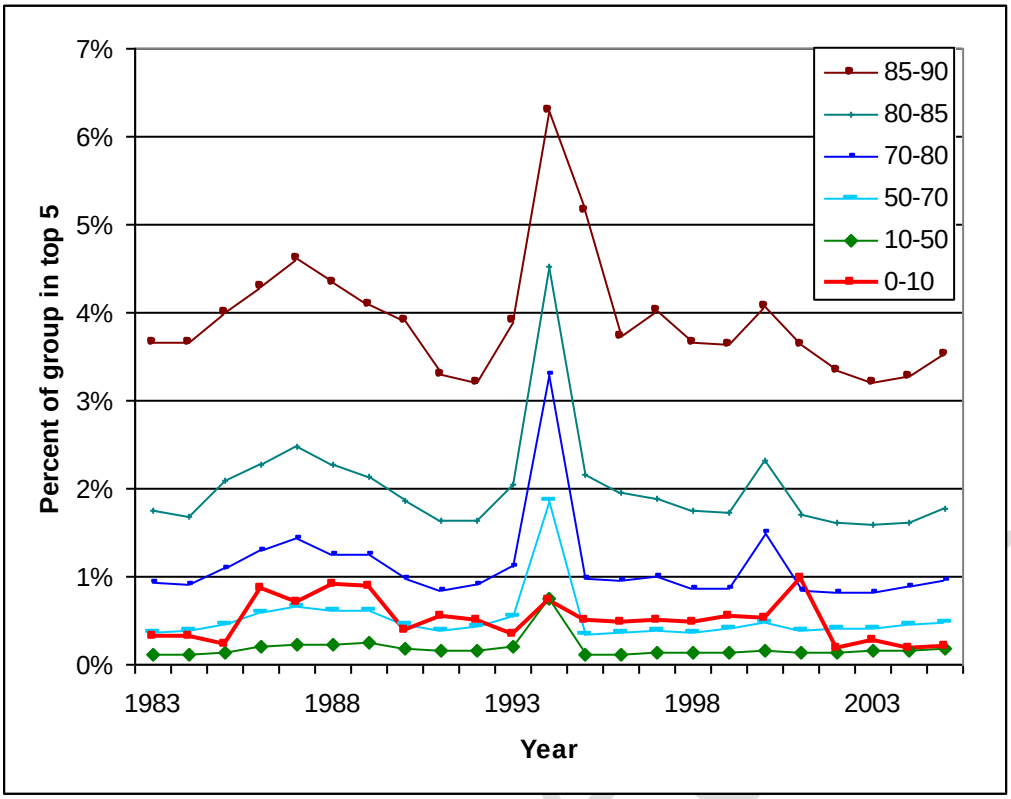


Source: Source: Statistics Canada, Special Tabulations from the LAD.

Figure 5A decomposes the mobility for the people in the bottom deciles in the previous years. Approximately 4% of filers in the 85th-90th percentiles moved into the top vingtile in the subsequent year. This drops to about 1% of filers who move from the third highest decile (70th-80th percentiles) to the top 5%. Despite fluctuations caused by economic cycles these levels seem roughly stable over time though there is a slight downward trend after the early 90s. The trough/spike in 1994 is again caused by capital gains.

The next two lines by level of income show results for percentiles 50-70 and 10-50 respectively. Both lines show less than 0.5% of the filers in these groups made it to the top 5% the following year. However the poorest filers (those in the first decile 0-10 group) had a higher percentage of filers moving up to the top 5 than deciles 2-7. Thus a small number of filers are consistently moving from the bottom decile to the Top 5% each year. It is interesting that this proportion dropped in 2001 and has remained at the same lower level through 2005. It is also worth noting that close to 1% of filers in the 0-10 percentiles moved up to the top 5% during high points in the economic cycle in the late 1980s and 2000.

Figure 5A: Percentage of tax filers in the nine lowest deciles who moved in the highest vingtile the next year



Source: Source: Statistics Canada, Special Tabulations from the LAD.

Five Year Panels

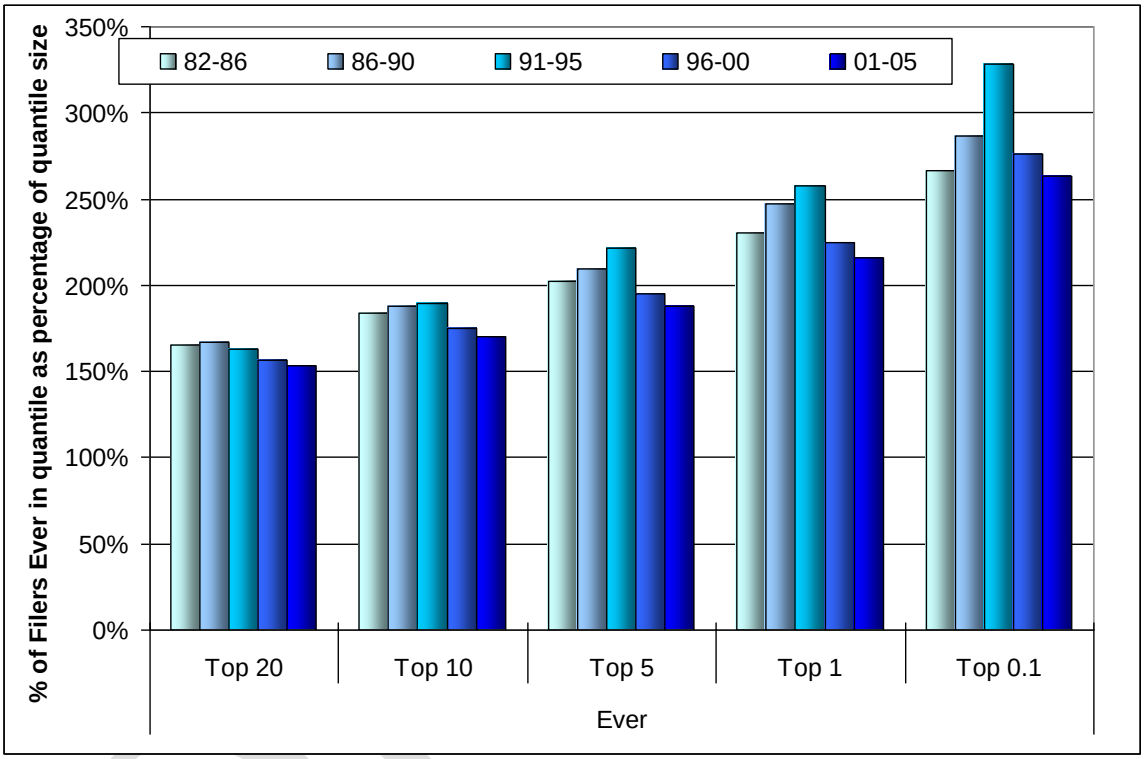
Year over year transitions fail to capture the longer term trajectories of individual filers. For example some filers may experience only one year's interruption in an otherwise smooth trend. As a way of examining any changes to the ease of penetrating and remaining above the high income threshold we have asked what is the proportion of filers who were ever in the top 5% for a fixed time span as well as what percentage stayed in the top 5% for all years in a five year period.

We first selected all filers who had filed a tax return in at least one year in a five year period and who had reported non-zero income for at least one year. From this population we identified those filers who had been in the top 20%, 10%, 5%, 1% and 0.1% of filers in at least one year. These are labelled "Ever". We also identified those filers who remained in the top group(s) for the entire five year period and labelled them "always". Figure 6 and 6A presents the results for "Ever" and "Always" respectively.

The five sets of bars correspond to various quantile groups. Each bar within these sets represents the results for a single five-year panel and the bars are arranged chronologically. The height of each bar represents the proportion of filers within their

quantile group that experienced either one year (Figure 6) or all years (Figure 6A) in that group. However, in order to display the wide range of values on the same chart we have normalized this percentage according to the quantile size. Thus if the exact same filers were in the top quintile for all five years (no-mobility) then the percentage who "ever" reached the top 20 would be 20% -- and that expressed as a percentage of the size of the top 20 would be 100%. The actual percentage of filers who were ever in the top 20 was somewhat over 30% -- or as seen in Figure 6, 150% of the "no-mobility" value of 20%.

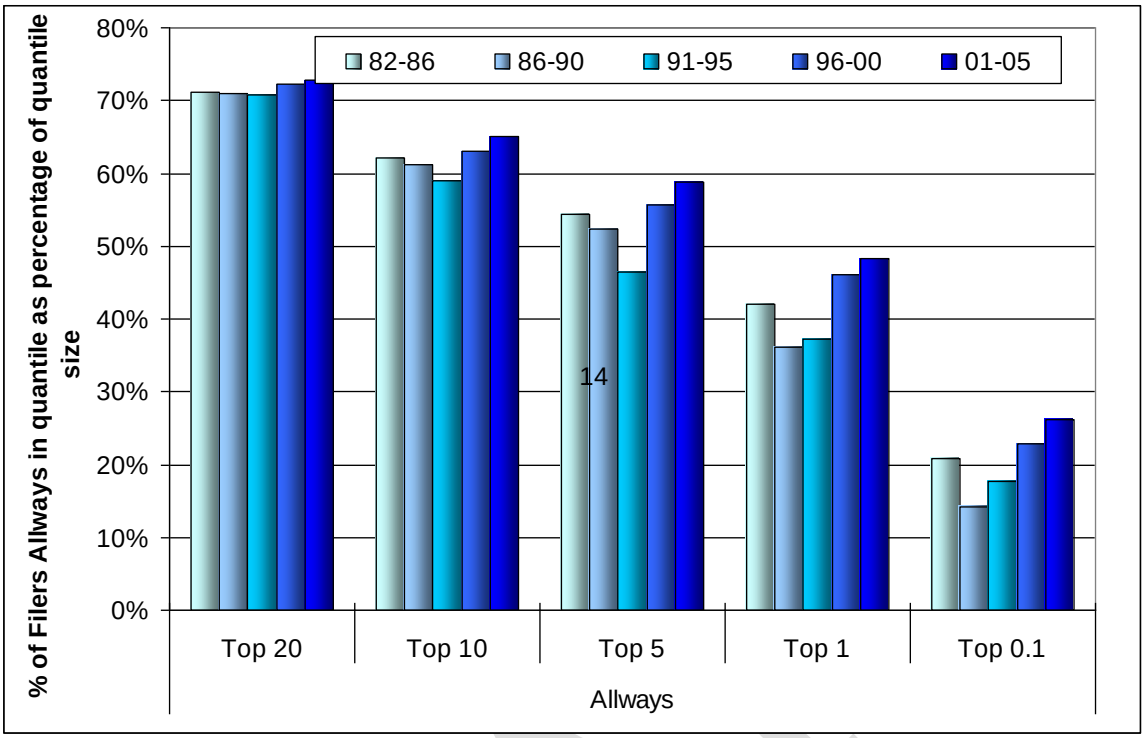
Figure 6: Experience of High Income Over 5 Year Periods – Present in at Least One Year



Source: Source: Statistics Canada, Special Tabulations from the LAD.

As Figure 6 illustrates, the higher up the income distribution the greater is the variability in the membership of the quantile group. Thus while an additional 50% of filers made it to the top 20 than if the top 20 had remained static, there are up to 3 times the number of filers making it to the top 0.1%. This indicates mobility between the highest quantile groups and is consistent with the findings from the two year panels. Since 1986-1990 the proportion of filers ever making it to the top 20 has steadily declined, albeit to a limited degree. For higher income quantiles this shift towards a more stable group of filers starts five years later and is somewhat more pronounced.

Figure 6A: Experience of High Income Over 5 Year Periods – Present in All Years



Source: Source: Statistics Canada, Special Tabulations from the LAD.

Figure 6A presents the always group and as expected the vertical axis percentages are now below 100%. Somewhat less than 15% of all filers spent the entire 5 year period in the top 20 group – or about 70% of the 20% we would expect if there were no mobility at all. The percentage of filers who spent the entire 5 year period in the top 1% or top 0.1% increased steadily from the mid 80s while the percentage that were ever in the top 1 rose from 82-95 then fell off in the last decade. These figures make the point that somewhat fewer Canadians are making it to the same relative heights of income since the early 90's as they had in the preceding decade while at the same time slightly more filers who made it to the top end had a higher chance of staying there, which seems to suggest somewhat more stability in the high end of the income distribution since the mid 1990's.

Income Trajectories

Five year panels have been used to extend the methodology of Saez and Veall who used one, two and three year periods. We now turn to characterize the individual trajectories of high income filers. We have chosen 8 year periods for this analysis and the choice is somewhat arbitrary. The maximum panel length for discrete panels covering the entire 24 years is 12. However with twelve year panels most would be subject top the capital gains surge in 1994. Eight year panels have sufficient data points for the selected techniques yet provide starting and ending panels without the 1994 surge.

Two methodologies were used to characterize the growth and variability of individual income trajectories. They are both based on a linear trend analysis of incomes over time and since they are conceptually similar and will serve as a consistency check. Both methods involve characterizing the level, trend and variability of individual income growth in the 8 years of a given panel. In order to view the effects of economic cycles on the estimates, five overlapping 8 year panels were created and estimates were produced for each panel. The panels are as follows:

1984-1991
1988-1995
1990-1997
1994-2001
1998-2005

Many filers do not file an income tax return for all years. In addition, a number of filers report negative or zero incomes. As these represent actual filing patterns we have included all records. However, and unlike the earlier panels, where income is negative or zero it has been set to $1. To reduce the impact of filers just entering or exiting the tax system (youth and retirement) we have removed all filers with either the first six years or last six years missing.

To calculate the permanent income level that will be used for both methods we classify filers according to their quantile of aggregate constant dollar income over the 8 year period. The calculation method then differs for the trend and variability measures according to the method.

The first method used looks at the trends using two median incomes; the median income in the first four years of a given panel and the median for the last four years of the panel. An average annual growth rate is calculated for each individual as follows:

$$Trend = EXP\left[\frac{Log\ MedL - Log\ MedF}{4}\right] - 1$$

Where: MedF=Median of first four years of panel
MedL=Median in last four years of panel

The variability of an individual's trajectory is calculated by first centering the Trend on the 8 year median income and calculating predicted values. We then sum the absolute differences between the actual and predicted values and express this quantity as a ratio of the individual's median income over the 8 year period. This method will be labeled Method A. The trend results for Method A are presented in Figure 7 while the variability results are in Figure 8.

The horizontal axis in Figure 7 divides the population by percentile groups while the vertical axis gives an estimate of the average annual growth rate. Each quantile group has five bars, one for each panel displayed chronologically.

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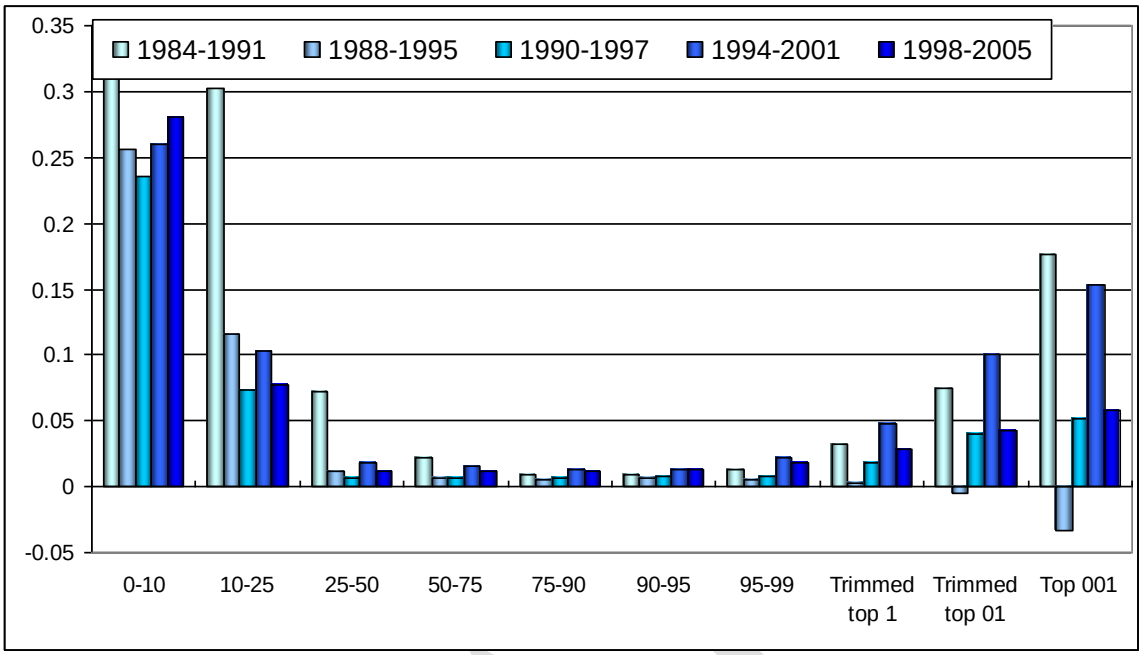
Figure 7: Method A Trend Indicator by Permanent Income Quantile and 8-year Panel



Source: Source: Statistics Canada, Special Tabulations from the LAD.

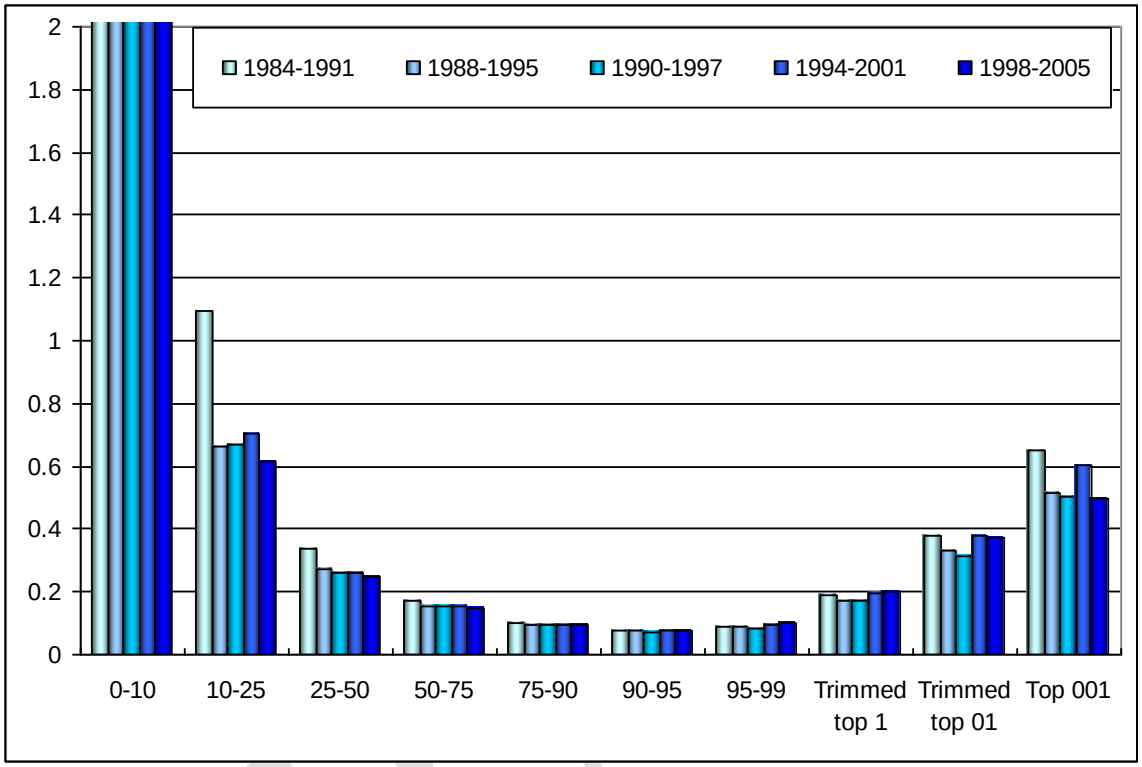
As found by Mirer 30 years ago in the US, there is a general U shaped curve to income trajectories with the strongest growth occurring for the two tails of the distribution. Consistent with the finding that the growth in top shares was driven by the top 1% it can also be seen that the growth rates are similar from the 25th through 99th percentiles, except for the middle two cohorts. Above the 99th percentile the growth rates increase with each subsequent quantile group.

Another striking feature of Figure 7 is the high growth in two of the panels, 1984-1991 and 1994-2001. These panels had the greatest number of years of annual economic growth than do any of the other panels. The relation of these rates is most clear at the high end where the two periods of highest growth are associated with the steepest trajectories -- that is, from 1984-1991 and from 1994 to 2001. These growth rates are thus heavily influenced by economic cycles and quite variable. It is possible, for example, that the high-tech boom of the late 90's drove the growth rate for the top 001 group. Slightly lower down the income distribution the growth rates for the last two panels are slightly higher than the earlier three panels indicating a somewhat higher growth rate. The gap between the first three and last two panels is greatest in the trimmed top 5 group.

The variability of the Method A trends is shown in Figure 8. We observe the same U shaped curve over income as we saw with the trends, though the variability is always highest for the Top 001. For all but the highest three quantile groups the levels of variability are more consistent across panels than are the growth rates. Both the trimmed top 1 and the trimmed top 0.1 have slightly higher variability in the most recent two

panels while the variability of the top 0.01 fell despite a similar decline in growth for all three panels.

Figure 8: Method A Variability Indicator by Permanent Income Quantile and 8-year Panel



Source: Source: Statistics Canada, Special Tabulations from the LAD.

While there is slightly higher variability in the 95-top 0.1 groups the variability is more consistent over time and across panels than is the growth rate.

The second linear methodology is drawn from Thad Mirer's early work with the Panel Survey of Income Dynamics. This is a log linear regression of individual incomes over time to a measure of permanent income.

$$\log y_i = \log x_i + t \times \log(1 + g_i) + u_i$$

or $\log y_i = \alpha_i + \beta_i \times t + u_i$

Fitting this trend line to the data separately for each individual filer provides estimates of the three dimensions of income:

$\hat{\alpha}_i$ is permanent income level (when t = 0),

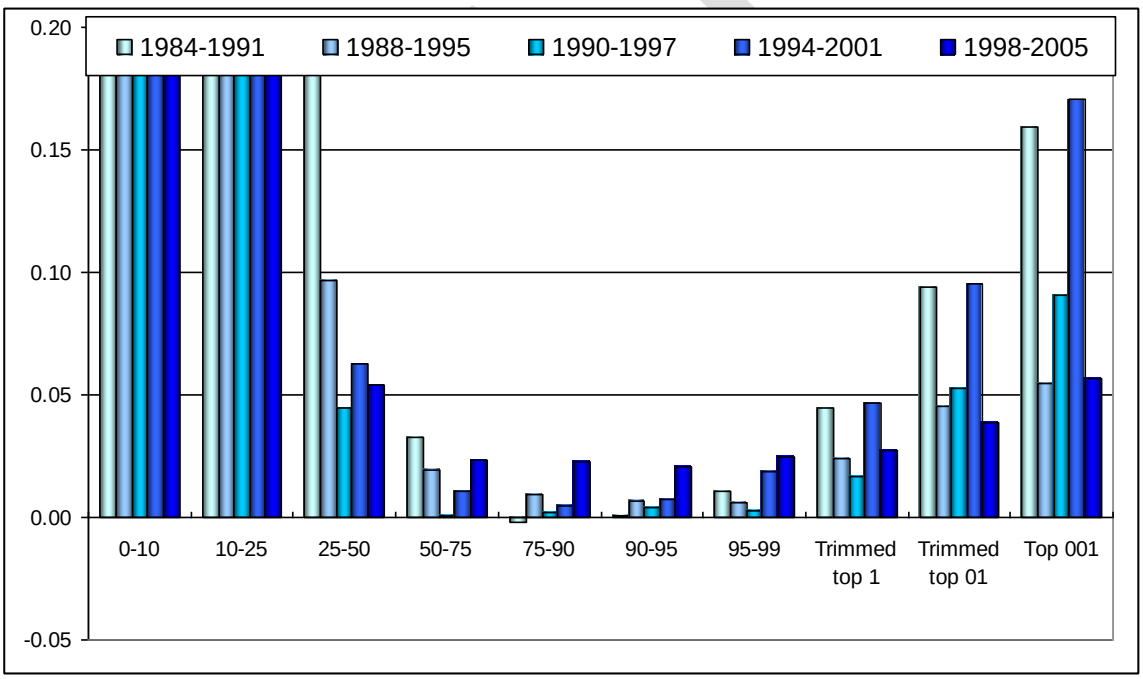
$\hat{\beta}_i$

$\hat{\beta}_i$ is a measure of the income trend, ($\beta_i \cong g_i$ for small g_i), and

σ_{u_i} is the measure of income variability.

Figure 9 presents the trend results for the over 20 million regressions (five panels times 4 million filers) using the same structure as the charts for Figure 7. The panel to panel trends are very similar to Method A. For example, following declines over two previous panels, the trimmed top 1 experienced the lowest growth in 1990-1997 under both Methods. This was followed by a rise in growth and a subsequent drop for the last panel. The top two quantile groups have a different panel to panel trend with growth being the lowest in the 1988-1995 period, one period earlier than for than the trimmed top 1 group. However, the pattern is the same under Method A and B. Both show the highest groups experiencing rising growth one panel prior to the rest of the top 5. The difference between growth rates within panels shows more amplitude under Method A than under Method B despite similar trends.

Figure 9: Method B Trend Indicator by Permanent Income Quantile and 8-year Panel

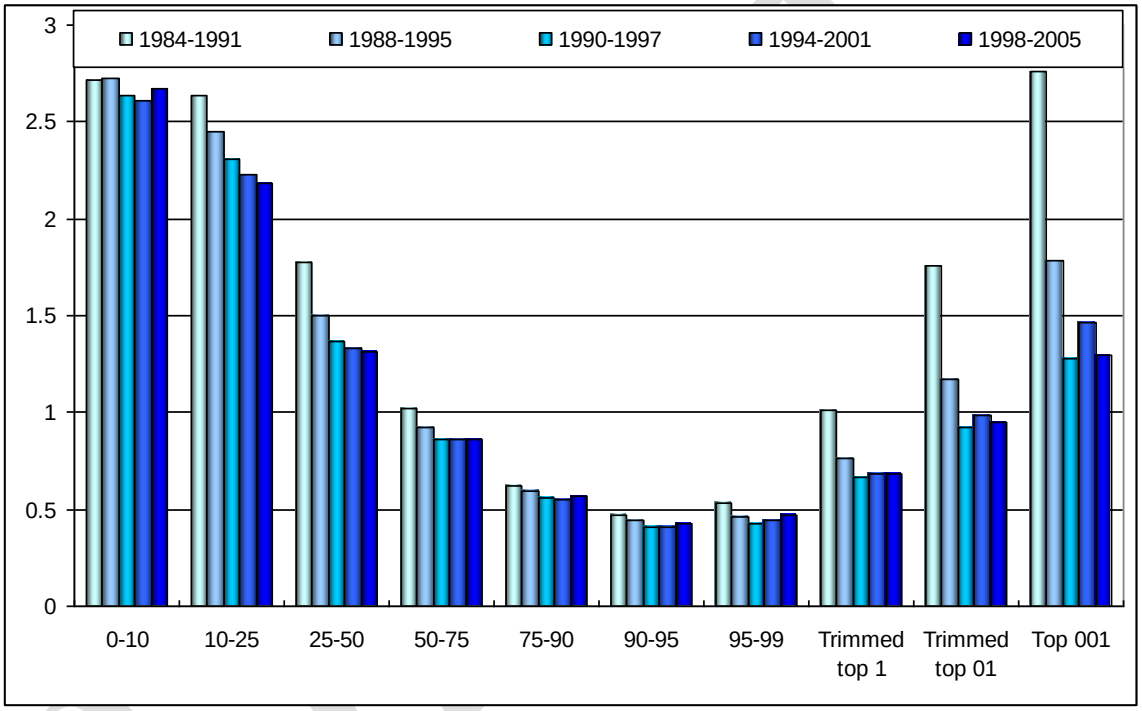


Source: Source: Statistics Canada, Special Tabulations from the LAD.
The highest growth rates for the 50th-99th percentiles occurred in 1998-2005 during a period of constant year of year gains in the labour force participation rate while the lowest growth rate occurred in 1990-1997 with a steadily declining participation rate. The higher income quantiles do not reflect this trend under either method and in fact the final panel had one of the lowest if not lowest rates of growth. There are however small discrepancies between the two methods. For example Method B tends to have a jump between 1994-2001 and 1998-2005 while Method A shows both panels at the roughly the

same level. It is possible that Method B is more sensitive to the existence of zero incomes and that there are relatively more zero incomes in the earlier panel.

The variability trends under Method B are shown in Figure 10. As with Method A the trend in variability tends to mach the trend in growth. However for the top 0.01 group the variability decreases between 1988-1995 and 1990-1997 while the growth increases. Between 1994-2001 and 1998-2005 the growth indicator drops by 50% where the variability drops only slightly.

Figure 10: Method B Variability Indicator by Permanent Income Quantile and 8-year Panel



Source: Source: Statistics Canada, Special Tabulations from the LAD.

The results of these two linear methods indicate that there is not a simple direct relationship between the growth and variability though they do tend to follow each other. The addition of further explanatory variables such as age, geography and occupation could help resolve some of the anomalous results.

Summary

This paper has used 24 years of longitudinal tax data to examine changes in the income mobility of high income Canadians.

We first examined the growth in income shares and, consistent with earlier research, find that growth is largely limited to the top 5% which in turn has been driven largely by increases to the incomes of the top 1% of income earners in Canada. The 0.1% of filers with the highest incomes accounted for close to half of the growth in incomes of the top

5% of filers. Further we note that this trend has been occurring relatively smoothly since the early 1980s despite economic cycle fluctuations.

An examination of transition probabilities into high income showed that there is a marginal increase in the stability of the high income population on a year-over-year basis but that this stability is only slightly higher than the early 1980s. There is also a small proportion of the poorest decile of filers who move to the top 5% of filers in any given year and proportionally the bottom decile provides more of these than the 3rd through 7th deciles. It is not clear whether this can be attributed to the "superstar" phenomenon or if some of this is linked to tax behaviours. However, far fewer filers are experiencing this jump since 2000.

The slight increase in stability was also found over longer periods of time. We examined the proportion of filers who remained in the high income group over a five year period and found a slight increase in the proportion of high income filers who remained at the top of the distribution. There was also a drop in the proportion of filers who were ever in the top of the income distribution in the last ten years. Thus fewer filers moved into the highest income ranges and those who did tended to stay there slightly longer in the last ten years than in the past. This suggests less income mobility at the very top of the income distribution in recent years.

Lastly we examined the actual income trajectories of filers over a chronological series of overlapping 8 year panels. We fit a linear trend to the actual trajectories using two alternate methods and examined the changes in growth rates and variability across time and permanent income. The regressions show steepest growth in the top percentile. But it also shows a lot more variability in the lower part of the distribution than in the 95%-99% of the distribution. There seems to be a general decrease in the variability of the trajectories compared to earlier panels. More work is needed to understand income mobility and link it to occupation and geography.

It has been shown that Ontario, Quebec and Alberta have the highest concentrations of high income Canadians (Murphy, Roberts, and Wolfson, 2007). The timing of the economic growth for specific regions is known and could be compared to growth rates calculated for various panels in various regions. With most of the high-tech boom of the late 90’s centered in Ontario and the growth in more recent years centering in Alberta one could investigate whether the growth rates by province or city reflect this.

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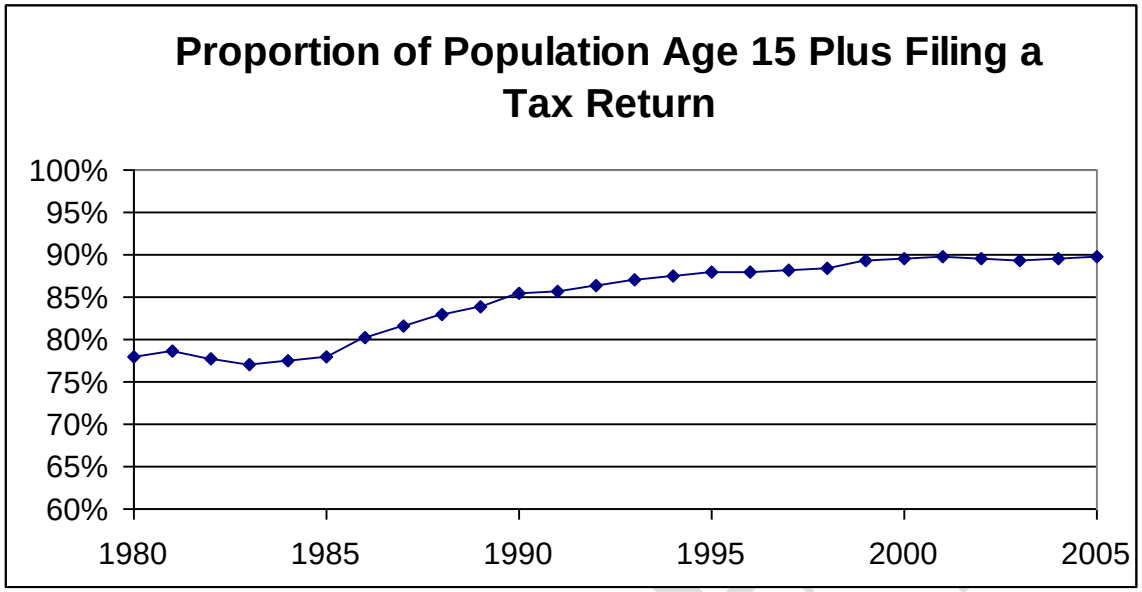
Appendix A



Source: Author's calculations based on Statistics Canada's CANSIM Table 051-0001 and Canada Revenue Agency's Taxation Statistics.

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Appendix B: Income Definitions

Total Income Defiition

	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04
WAGES																							
Total earnings from T4 slips	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Other employment income	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
SELF-EMPLOYMENT																							
Net self-employment income	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
INVESTMENT																							
Dividends - Actual	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Interest and Other investment income	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Limited partnership income	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Rental income, Net	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
RRSP income of individuals	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Capital gains/losses - Actual	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PENSIONS																							
Pension and superannuation income	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
OTHER INCOME																							
Other income	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Alimony or separation allowances	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
TRANSFERS																							
Old Age Security Pension	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Canada/Quebec Pension Plan	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Employment insurance	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Goods and services tax credit[1]					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Provincial refundable tax credits	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Family Benefits[2]	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x
Non-taxable Income[1]					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Child tax Credit[3]	x	x	x	x	x	x	x	x	x	x	x												
Child tax Benefits[3]												x	x	x	x	x	x	x	x	x	x	x	x

[1]Variable did not exist until 1986

[2]No information was provided from Québec in 1993

[3]The Child tax Benefits replaced the Child tax Credit

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Appendix C: Sample sizes, exclusions and variable treatment for various panels

'000s of filers

	Cross Sectional Results			Two Year	Five Year Panels					Eight Year Panels				
Year	LAD	Imputed/ Deceased	Filers	Usable	1	2	3	4	5	1	2	3	4	5
1982	3,227	201	3,026		2,500									
1983	3,237	206	3,030	2,866										
1984	3,272	210	3,062	2,877						4,321				
1985	3,309	219	3,090	2,894										
1986	3,510	225	3,286	2,970		2,735				Less				
1987	3,566	232	3,334	3,105						5 yr miss				
1988	3,663	231	3,432	3,167						start or	4,656			
1989	3,797	230	3,568	3,293						end				
1990	3,918	238	3,680	3,409							Less	4,823		
1991	3,973	227	3,746	3,522			3,274			3,711	5 yr miss			
1992	4,051	213	3,838	3,615							start or	Less		
1993	4,167	208	3,960	3,734							end	5 yr miss		
1994	4,230	210	4,019	3,839								start or	5,190	
1995	4,291	202	4,088	3,901							4,080	end		
1996	4,338	202	4,136	3,955				3,578					Less	
1997	4,397	194	4,203	4,005								4,237	5 yr miss	
1998	4,450	184	4,266	4,063									start or	5,474
1999	4,534	178	4,356	4,138									end	
2000	4,611	183	4,428	4,211										Less
2001	4,695	159	4,536	4,307					3,942				4,535	5 yr miss
2002	4,731	161	4,570	4,386										start or
2003	4,778	148	4,630	4,426										end
2004	4,843	141	4,702	4,491										
2005	4,894	126	4,768	4,560										4,838
Drop non-filers missing in all years of panel			Yes	Yes			Yes					No		
Drop first and last 5 years of income in panel		No	No	No			No					Yes		
Convert income missing or <=0 to $1		No	No	No			No					Yes		
Drop imputed persons and deceased filers		No	Yes	Yes			Yes					Yes		

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