

TOP INCOMES IN THE UNITED STATES AND CANADA OVER THE TWENTIETH CENTURY

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Abstract

This paper presents top income shares series for the United States and Canada over the 20th century. In both countries, top income shares display a U-shaped pattern over the century, with a precipitous drop during World War II, with no recovery in the following decades. Since the late 1970s, however, top income shares have been increasing dramatically and the very top shares are now almost as high as in the prewar era. The drop in top income shares in the first part of the century is mainly a capital income phenomenon but the recent increase in top income shares is the consequence of a surge in top wages and salaries. The United States reduced significantly marginal tax rates for high incomes over the last 40 years but Canada did not. Therefore, the almost identical upward pattern of top income shares in both countries cannot be solely explained by changes in tax avoidance behavior. Mobility at the top of the income distribution has been very stable in Canada in spite of the surge in annual income concentration. Thus the increase in annual top income shares in Northern America will likely translate into an increase in permanent income concentration of similar magnitude. (JEL: H24, H31, N32)

1. Introduction

The evolution of income inequality during the process of economic development has attracted enormous attention in the economics literature as well as in the political sphere. Understanding the relative roles of “natural” economic progress such as technological change versus policy interventions such as taxation, redistribution, and regulation in shaping the distribution of income requires analyzing long-term series on inequality. Income tax statistics are the only source of income distribution data available on a regular annual basis for extended periods of time, and are still the best source to study upper income groups. Recent studies have used income tax statistics to construct inequality time series for various countries over the course of the 20th century (see Piketty 2005).

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The present paper summarizes the main findings on the evolution of high incomes in the United States and Canada that have been presented in the recent studies of Piketty and Saez (2003) and Saez and Veall (2004). Those two papers use income tax return data to construct homogeneous series on top shares of pre tax income and wage income in the United States and Canada respectively and covering most of the 20th century. The estimated series show that the “technical change” view of inequality dynamics cannot fully account for the facts. Top income shares, and especially shares of the very top groups, fell dramatically in the first part of the century. As top incomes were composed mostly of capital income, and especially dividend income, this phenomenon is primarily a capital income phenomenon. Top capital incomes were severely hit by major shocks during the 1914–1945 period. The large depressions in the first part of the century destroyed many businesses and thus reduced significantly top capital incomes. The wars generated large fiscal shocks, especially in the corporate sector, which mechanically reduced distributions to stockholders. Top capital incomes were never able to fully recover from these shocks, probably because of the dynamic effects of progressive taxation on capital accumulation and wealth inequality. Over the last 25 years, top income shares in the United States and Canada have increased dramatically, and have reached levels almost as high as in the beginning of the century. This increase is largely due to a surge in top wages and salaries, and is closely related to the explosion of executive compensation. As a result, the composition of income in the top income groups has also shifted in dramatically in the United States and Canada over the century: the rentiers of the Gilded age have been replaced by the working rich at the top of the income distribution.

Our simultaneous analysis of the U.S. and Canadian experiences casts light on two important additional questions. First and most important, do income tax statistics reveal real changes in income concentration rather than changes in tax reporting behavior following tax changes? The reduction in marginal tax rates for high incomes over the last 40 years was much more modest in Canada than in the United States but the surge in top shares is very similar in Canada and the United States showing that the pattern of top income shares cannot be fully explained by tax changes, and is certainly not the consequence of changes in tax avoidance behavior.

Second, an increase in cross-sectional income concentration over time, as in the United States and Canada in recent decades, has very different welfare consequences depending on whether or not it is associated with increases in income mobility. Extensive longitudinal microdata for Canada available since 1982 show that income mobility for high income earners in Canada has been stable or has even decreased slightly since 1982. Similarly, top income shares based on three or five year averages display the same surge as those based on single-year income. This suggests that the recent increase in cross-sectional income

concentration that we observe in the United States and Canada is associated with a large increase in the concentration of lifetime resources and welfare.

The paper is organized as follows. Section 2 describes very briefly data sources and outlines our estimation methods. In Section 3, we present and analyze the trends in top income shares, with particular attention to the issue of top capital incomes. Section 4 focuses on trends in top wages shares. Section 5 discusses the issues of tax avoidance and income mobility and offers of brief conclusion.

2. Data and Methodology

In this section, we describe briefly the data used and the broad steps of our estimation methodology. Readers interested in the complete details of our estimations are referred to the long versions of Piketty and Saez (2003) and Saez and Veall (2004). The estimations rely on tax returns statistics compiled annually by the fiscal administrations in the United States since 1913 and in Canada since 1920. Before World War II, because of large exemptions levels, only a small fraction of households had to file tax returns and therefore, by necessity, the analysis is limited to the top decile of the income distribution. Because of the vast heterogeneity within the top decile, it is critical to analyze smaller groups within the top decile, such as the top percentile, the top 0.1%, etc. Our top groups are always defined relative to the full population (which includes both filers and nonfilers). The income tax in the United States is family based while it is individually based in Canada. Thus our top shares series are estimated at the family level in the United States (top groups are then defined relative to the total number of nuclear families) but at the individual level in Canada (top groups are then defined relative to the total number of adults aged 20 and above). We come back to this important difference later on.

We define income as gross market income before all deductions and including all income items reported on personal tax returns: salaries and wages (including bonuses and profits from exercised stock options), business income (self-employment income, partnership income, and small business net income), and capital income (dividends, interest, rental income, and other investment income). Because capital gains are realized infrequently in a lumpy way and are very volatile, we focus mainly on series excluding capital gains.¹ Our income definition is before personal income taxes and personal payroll taxes but after employers' payroll taxes and corporate income taxes. Government transfers such as welfare payments, public retirement benefits, unemployment, and disability insurance are excluded from our income definition.

1. Piketty and Saez (2003) and Saez and Veall (2004) also construct series including capital gains. They show that series with and without capital gains are very similar over the long-run.

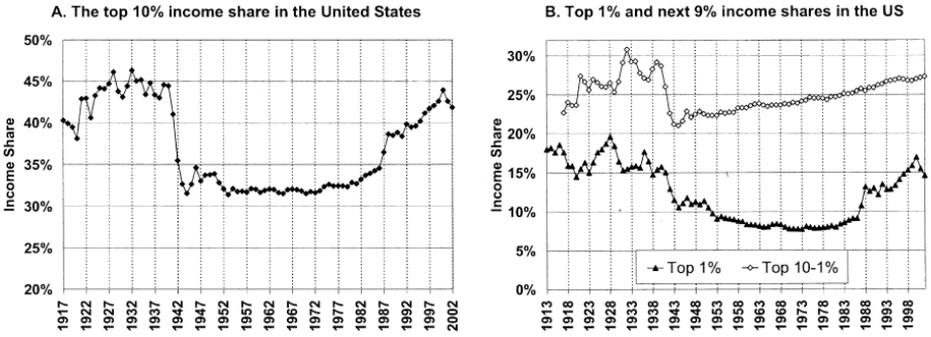


FIGURE 1. Top income shares in the United States, 1913–2002. Source: Piketty and Saez (2003), series updated to 2002. Income is defined as market income, excludes government transfers and realized capital gains.

Our principal data consist of tables of the number of tax returns, the amounts reported, and the income composition for a large number of income brackets. As the top tail of the income distribution is very well approximated by Pareto distributions, we can use simple parametric interpolation methods to estimate the thresholds and average income levels for each group. For the years when micro data are available, we check that the errors introduced by the interpolation method are negligible. Top income shares are estimated by dividing the income amounts accruing to each upper income group by 80% of Personal Income not including transfers from the National Accounts.²

3. Top Income Shares Over the Century

3.1. Trends

Figure 1, panel A, presents the income share of the top decile from 1917 to 2002 in the United States. The overall pattern of the top decile share over the century is U-shaped. The share of the top decile fluctuates around 40–45% during the inter-war period. It declines substantially to just above 30% in four years during World War II and stays flat at 31–32% until the 1970s. Such an abrupt decline cannot easily be reconciled with a Kuznets-type process. The top decile share has increased dramatically over the last 25 years is now at a level close to the pre war level.

Figure 1, panel B decomposes the top decile into the top percentile and the next 9% (the top decile excluding the top percentile). Interestingly, most of the

2. Personal Income is higher than total income from tax returns because it includes non-taxable items such as imputed rent, imputed interest, etc. In recent years in which virtually all adults with income file tax returns in Canada and the United States, total income from tax returns has always been close to 80% of personal income net of transfers.

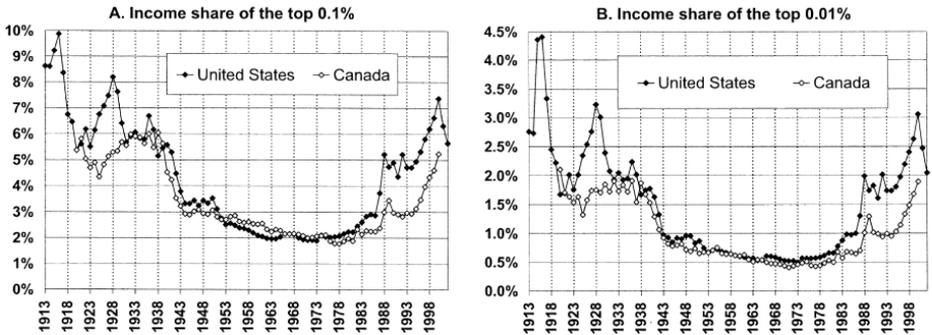


FIGURE 2. The very top income shares in the United States and Canada, 1913–2002. Source: Canada, Table B1, columns P99.9–100, and P99.99–100 in Saez and Veall (2005). United States, Table II, columns P99.9–100 and P99.99–100 in Piketty and Saez (2003), series updated to 2002.

fluctuations of the top decile are due to fluctuations within the top percentile. The drop in the next 9% income share during World War II is far less dramatic than for the top decile as a whole and this group recovers from the WWII shock relatively quickly. Finally, the share of the next 9% does not increase much during in the recent decade. In contrast, the top percentile has gone through enormous fluctuations along the course of the 20th century, with a drop by more than 50% from 1913 to the 1950s: the share of total income received by the top 1% was about 18% before WWI, and it was only about 8% during the 1960s–1970s. The top percentile share declined during WWI, recovered during the 1920s boom, and declined again during the great depression and WWII. This very specific timing, together with the fact that very high incomes account for a disproportionate share of the total decline in inequality, strongly suggests that the shocks incurred by capital owners during 1914 to 1945 (depression and wars) have played a key role. The negative effect of the wars on top incomes can be explained in part by the large tax increases enacted to finance the wars. During both wars, the corporate income tax (as well as the individual income tax) was drastically increased and this reduced mechanically the distributions to stockholders (see our discussion later).

Figure 2 shows that the fluctuations are even more dramatic for the very top groups (top 0.1% in panel A and top 0.01% in panel B) and are remarkably parallel for the United States and Canada. The top 0.01% share in the United States was 8 times higher in 1915 than in 1973. From 1973 to 2000, the top 0.01% share was multiplied by 6.

3.2. Composition

Figure 3 displays the share and composition of income from 1916 to 2000 for the top 0.01% group in the United States. Up to the 1970s, very top incomes were

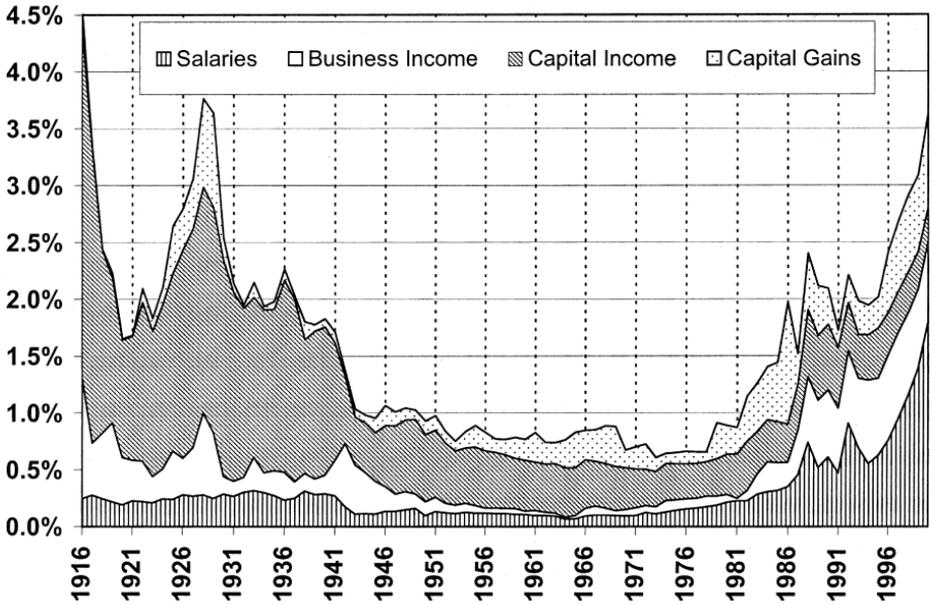


FIGURE 3. The top 0.01% income share and composition, 1916–2000. Source Note: The figure displays the top 0.01% income share (top curve). Estimates are based on families and not individuals. Taxpayers are ranked by income excluding capital gains but capital gains included in the share. (interest, rents, trusts, etc.). The figure displays the composition of those top incomes into capital income (dividends, realized capital gains, business income (sole proprietorships, partnerships, s-corporations), and salaries (wages and salaries, pensions). Source: Piketty and Saez (2003), series updated to year 2000.

mostly composed of capital income (mostly dividend income) and to a smaller extent of business income, the wage income share being very modest. The figure also displays the amount of realized capital gains that those top 0.01% income earners (ranked as in Figure 2 by income excluding capital gains). This shows that realized capital gains tend to be very pro-cyclical and follow closely the stock market index but they do not change the overall pattern. Figure 3 confirms that the large decline of top incomes observed during the 1914–1960 period is predominantly a capital income phenomenon.

One might also be tempted to interpret the large upturn in top income shares observed since the 1970s, as a revival of very high capital incomes. The interesting point, however, is that it is not so. Figure 3, the income composition pattern at the very top has changed considerably between 1960 and 2000. In 2000, salary income has become the main source of income at the very top. Figure 4 displays the composition of income in all groups within the top decile in 1929 (panel A) and 1999 (panel B). It also shows that the composition has shifted dramatically: in 1929, the share of capital income was sharply increasing with income and predominant at the top while wage income was minor at the top. In 2000, capital

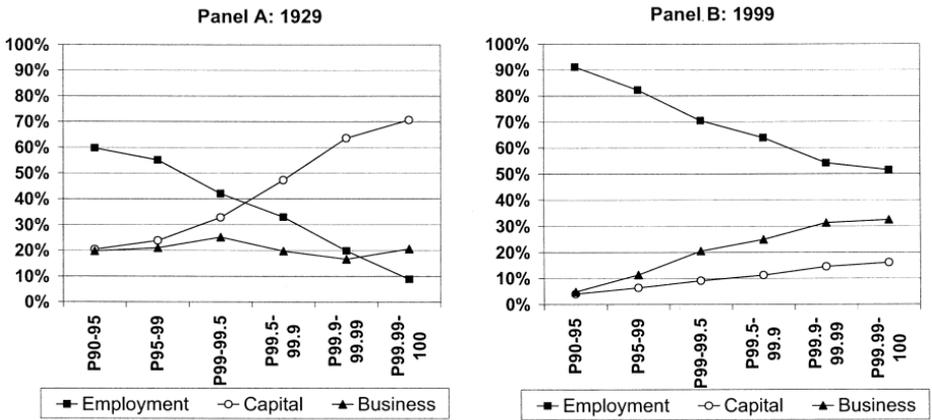


FIGURE 4. Income composition of top groups within the top decile in 1929 and 1999 in the United States. Source Note: Capital income does not include capital gains. Source: Piketty and Saez (2003), Table A4, rows 1929 and 1999.

income is small even at the top while wage income is represents always from than half of income. In contrast, the incomes below the top 1% have always been composed of wage income and have not experienced such a dramatic shift in composition. Therefore, the highest incomes at the end of the 20th century are very different from the highest incomes in the early part of the century. Today, the highly compensated CEOs and executives celebrated by Forbes magazine seem to have overtaken the rentiers from the early part of the century.

The dramatic evolution of the composition of top incomes seems robust. First, it is totally independent from the erratic evolution of capital gains. Second, and most importantly, the secular decline of top capital incomes is the consequence of a decreased concentration of capital income and not of a decline in the share of capital income in the economy as a whole. The national accounts series show that the share of capital income and dividend income in aggregate personal income has been stable in the long-run: it is about 20% both in the 1920s and in the 1990s. Third, estimates of wealth concentration constructed by Kopczuk and Saez (2004) from estate tax returns for the 1916–2000 period in the United States using the estate multiplier method display a pattern fully consistent with the top income share series. The top 0.01% wealth income share from Kopczuk and Saez (2004) also falls precipitously from around 10% in 1916 to less than 3% in the late 1970s and only increases modestly to around 4% by 2000. This evidence is consistent with the income share series, and shows that the dramatic recent increase in income concentration is a labor income phenomenon and this has not yet translated into a dramatic increase in wealth concentration.

The decline in the importance of capital income at high incomes suggests that the top capital income earners were never able to constitute fortunes as large

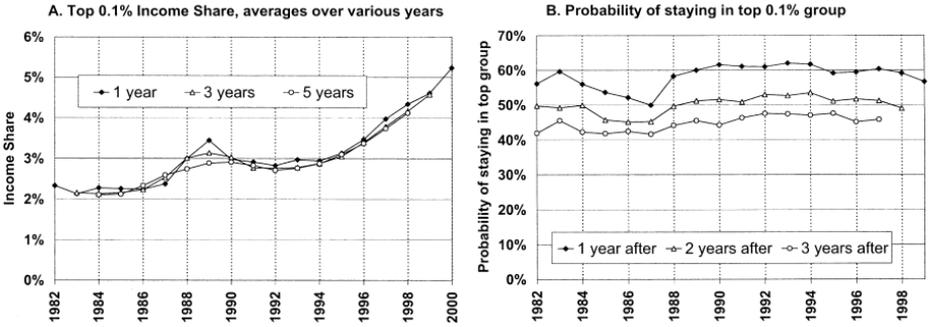


FIGURE 5. Mobility of high incomes in Canada, 1982–2000. Source: Saez and Veall (2004). Computations based on the Longitudinal Administrative Database.

(relative to the average income) as those of the prewar period. The most natural explanation might be the development of a progressive income and estate tax system, which since the beginning of World War II has reduced substantially the after-tax returns earned by wealthy individuals. The recent surge in top incomes in both countries and the reduction of top marginal individual tax rates and the scheduled repeal of the estate tax might restore the importance of capital income in the coming years.

4. Further Evidence and Implications

4.1. Mobility

Has the surge in top incomes been accompanied by an increase in mobility for the high income groups? This question has been explored in Saez and Veall (2004) in the case of Canada using longitudinal tax return data available for the 1982–2000 period. First, they recompute top income shares based on average income over three or five years instead of a single year. If high incomes were relatively transitory, we would expect to see less concentration when incomes are measured over a longer time period. Figure 5, panel A plots the top 0.1% income share using one-year, three-year, and five-year centered averages. The three curves match almost perfectly suggesting that income mobility has not increased significantly in recent years.

Second and more directly, panel B reports the probability of remaining in the top 0.1% group is about 60% one year later, about 50% two years later and between 40% and 50% three years later. This suggests that mobility at the top is quite modest. Consistent with our panel A results, there is no increase in mobility since 1982, perhaps even a slight decrease. Similar result apply to all top groups and strongly suggest that the surge in annual income concentration that has been documented in Canada is associated with a similar increase in longer term income

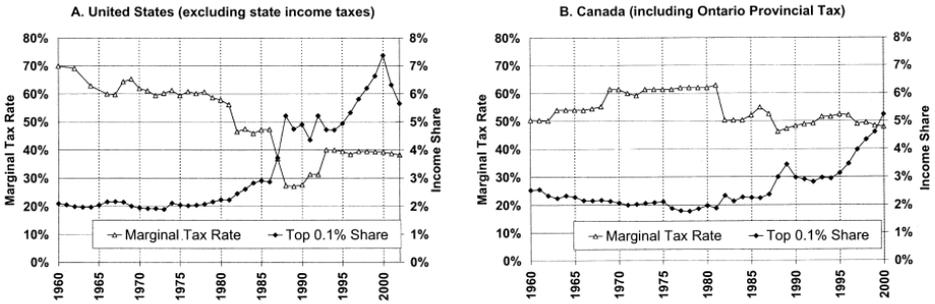


FIGURE 6. Marginal tax rates and income share for the top 0.1% in Canada and the United States. Source: Canada, from Saez and Veall (2003), marginal tax rates include federal and Ontario provincial income taxes (including credits and surtaxes) United States, Saez (2004) computations using micro tax return data and TAXSIM calculator (does not include state income taxes).

concentration and welfare. From the Canadian findings, it seems plausible that the surge in top U.S. incomes is also not primarily due to increased mobility.³

4.2. Real Changes versus Tax Avoidance

A central question is whether the changes in income concentration obtained from income tax statistics reflect real changes in inequality or simply changes in tax avoidance or evasion following tax changes. For example, for the United States, a number of studies have argued that the surge in top U.S. incomes in the 1980s might not reflect actual income changes but rather changes in the way incomes are reported (see Saez 2004 for a recent survey). Figure 6 casts light on this issue and displays the top 0.1% income share and the average (income weighted) marginal tax rate that those high incomes faced from 1960 to 2002 in the United States (panel A) and Canada (panel B). The evidence for the United States shows indeed that the surge in top incomes has been accompanied by a sharp reduction in marginal tax rates. The most striking feature is the 1986–1988 experience, first documented by Feenberg and Poterba (1993), showing a sharp rise in top incomes exactly at the time top marginal tax rates were cut from 50% to 28%. Slemrod (1996) showed that most of this sudden jump in top shares reflected indeed a one-time shift of income from the corporate sector toward the individual sector. Note however that the increase in top rates in 1993 did not prevent top income shares from surging in the second half in the 1990s. Similarly, top shares drop from 2000 to 2002 without any significant changes in tax rates taking place. This later phenomenon is likely due to the stock-market crash which reduced dramatically

3. Because of lack of adequate data, top income mobility in the United States has not been examined in published work.

the value of stock-options and hence depressed top reported wages and salaries.⁴ Therefore, it is impossible to conclude from the sole U.S. experience to what extent the drop in marginal tax rates drove the top income shares.

The Canadian evidence displayed on panel B shows interesting additional evidence. Canadian changes in marginal tax rates have been different in both timing and degree. While U.S. marginal tax rates dropped dramatically from about 70% in the early 1960s to less than 30% in the mid-1980s, marginal tax rates for the top 0.1% are about the same (around 50%) in the 1960s and the 1990s in Canada. However, the surge in the top 0.1% income share is comparable across the two countries. Therefore, the dramatic climb in Canadian top reported incomes is unlikely to have been induced by changes in Canadian tax rates, showing that the changes in top income shares cannot be the sole consequence of changes in tax avoidance.

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4. Because stock-options are reported as wage income only when exercised, our income measure (even excluding capital gains) is contaminated by stock-market fluctuations in the recent decades. Ideally, one would want to include in wage income only the Black-Scholes value of stock-options at the moment they are granted. The difference between the exercise profit and the Black-Scholes value (which is zero in expectation) should be conceptually considered as a capital gain.