INCOME INEQUALITY IN CANADA AT THE NATIONAL AND SUBNATIONAL LEVELS

1982-2021

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INCOME INEQUALITY IN CANADA AT THE NATIONAL AND SUBNATIONAL LEVELS FOR THE 1982-2021 PERIOD: EVIDENCE FROM DISTRIBUTIONAL NATIONAL ACCOUNTS

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Executive Summary

In this paper we estimate the distribution of all national income in Canada, and five sub-regions, from 1982 to 2021. We apply distributional national accounts (DINA) methodology to tax tabulations, combined with national accounts data and survey data. Pre-tax and post-tax income data are analysed.

We find that top income shares published by Statistics Canada tend to underestimate income inequality relative to top income shares calculated using DINA, as DINA account for people who do not file taxes and for undistributed capital income that is retained in corporations.

In line with previous research, income inequality in Canada increased significantly from 1982 until the mid-2000s. From 1982 until 2000, the real income of the bottom 50% of Canadians stagnated while that of the top 0.01% quadrupled. Since the mid-2000s, income inequality has decreased slightly although it remains far above the levels observed in the early 1980s.

Across Canadian provinces, Ontario has consistently had higher inequality than Quebec although the gap has closed in recent years. Quebec has the most progressive tax and transfer system of the six sub-regions. In Alberta, record levels of inequality were reached in the mid-2000s and these appear to have been a significant driver of the national peak in inequality during this period.

Post-tax income inequality initially fell during the pandemic because large temporary transfer programs were introduced. However, pre-tax income inequality increased, especially in 2021 when record levels of corporate profits were reached.

Introduction

Over the past decade, especially since Piketty's *Capital in the Twenty-First Century* (2014), there has been an explosion of research on income inequality. A topic previously left to the wayside by academic economists and policymakers in North America, has returned to the forefront of public attention. In order to have an informed public debate on this topic, one of the first prerequisites is to have reliable data to understand the extent of inequality. This need led researchers at the World Inequality Lab (WIL) to develop Distributional National Accounts (DINA; Blanchet et al., 2021), a framework for producing reliable internationally comparable statistics about income distribution.

Conventional measures of income inequality, such as those publicly produced by Statistics Canada, rely on income concepts available in tax data. These have two major pitfalls that DINA addresses (e.g., Garbinti et al., 2018; Piketty et al., 2018). First, because the types of income reported in tax data are not aligned across countries, these statistics are difficult to compare internationally. Second, not all of national income is reported in tax data. Most significantly, profits retained in corporations are not observed in personal income tax data, although they are included in national income. This income accrues disproportionately to high income earners, meaning traditional estimates of income inequality underestimate incomes at the top of the distribution. Furthermore, 10-12% of adults do not file tax returns at all in Canada (Robson & Schwartz, 2020) and so their income is missing from traditional estimates. [1]

DINA rectify these problems by distributing all of net national income to individuals. This method requires making certain assumptions about unobserved income but ensures that the definition of income is comparable across countries and that untaxed forms of income and in-kind benefits are accounted for.

In this paper, we develop DINA estimates for Canada, each of the four largest provinces (Alberta, British Columbia, Ontario, and Quebec), the Prairies (Manitoba, Saskatchewan, and the Territories), and the Maritimes (New Brunswick, Newfoundland, Nova Scotia, and Prince Edward Island) from 1982 to 2021. The smaller provinces are grouped together because of the difficulty of applying national accounts methodology to small economies.

Producing subnational DINA estimates is a novel contribution to the literature as there has been little application of DINA below the national level. After providing an overview of previous research on income inequality in Canada, we describe the methods used to develop DINA in Canada. Then, we present our results, and describe the insights DINA can provide to help us understand observed trends in inequality in Canada from 1982 to 2021.

Similar to the trends observed in the United States, a significant body of evidence shows that Canada's income inequality, whether measured by top income shares or the Gini coefficient, increased greatly during the 1980s and 1990s (Fortin et al., 2012; Lajoie & Delorme, 2023; Lemieux & Riddell, 2015; Saez & Veall, 2005). However, although inequality continued increasing during the mid-2000s and fell during the financial crisis in both countries, traditional estimates show that inequality has remained relatively stable, or even decreased slightly, in

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[1] Relative to other countries, Canada has high rates of tax filing and a high proportion of net national income observable in tax returns. Nonetheless, we show that one third of net national income is not observed in traditional inequality statistics.

Canada since 2009 (Lajoie & Delorme, 2023) while it has continued increasing in the United States.

There are many competing explanations for the rise inequality observed in the 1980s and 1990s although less attention has been paid to the more recent observed decline in inequality since the financial crisis. Explanations for the increase in inequality in Canada have largely fallen into three groups: 1) educational and technological change, 2) policies and institutions, and 3) competition with the US.

Skill-biased technological change was a popular explanation for rising inequality in Global North countries during the 1990s (e.g., Berman et al., 1998) but has since fallen out of favour because of its inability to explain differences in inequality trends across Global North countries and the extreme concentration of wage increases within the top 1%. Recent research suggests that while technological change has contributed to increasing the earnings of those with advanced degrees relative to those without a degree in Canada, this explains only a small proportion of the rise in inequality (Lemieux & Riddell, 2015).

Instead, Fortin et al. (2012) emphasized the role of changes in institutions such as declining real minimum wages and unionization rates in contributing to rising inequality. Real minimum wages increased in most provinces during the 1980s and early 1990s but stagnated or declined between the mid-1990s and mid-2000s, when peak levels of inequality were reached. Real minimum wages have since increased again as inequality has declined (Galarneau & Fecteau, 2014). Card et al. (2004) found that declining unionization was correlated with increasing wage inequality in Canada, the US, and the UK during the 1980s and 1990s.

Saez and Veall (2005) attributed a significant portion of the rise in inequality to the effects of the American labour market on the Canadian labour market. They showed that the rise in top incomes in Canada mirrored the rise in top incomes in the United States and that top earners were largely those with high labour incomes rather than those with high capital incomes.

While a complete assessment of the forces contributing to changes in inequality is beyond the scope of this paper, our updated results shed new light on the contributions of labour and capital incomes to the growth in income inequality in Canada, and its subsequent fall since the mid-2000s.

At the provincial level, traditional estimates of inequality have shown that pre-tax and post-tax income inequality is higher in the rest of Canada than in Quebec. While differences in post-tax income inequality can be attributed to a larger social safety net in Quebec, differences in pre-tax inequality must stem from other factors.

Saez and Veall (2005) attribute this phenomenon to increased competition for high earning English speaking Canadians from the US labour market. They found that income inequality began at a higher level in 1982 and accelerated faster for the rest of Canada than for Quebec francophones during the 1990s. Importantly, Quebec anglophones experienced a similar acceleration in income inequality during this period.

We explore whether the lower and slower growing levels of income inequality in traditional estimates of inequality in Quebec hold true when incorporating the full distribution of national income.

As expected, estimates of top income shares are slightly higher using DINA than using traditional measures of income. Both pre-tax and post-tax income inequality increased significantly in Canada from 1982 through the mid-2000s. Since 2006, pre-tax top income shares have fallen and post-tax top income shares have fallen even further, reflecting increasing government redistribution.

Despite this slight reversal, income inequality remains significantly higher than it was in the early 80s. Average pre-tax income has increased by 20% for the bottom 50% since 1982 while it has more than doubled for the top 1% and quadrupled for the top 0.01%.

At the provincial level, we find that pre-tax inequality was lowest in Quebec and the rest of Canada throughout most of the past four decades although, since the mid-2000s, pre-tax inequality has fallen more in all other regions than in Quebec. Alberta's pre-tax income inequality contributed significantly to the peak in national inequality in the mid-2000s but has since declined more than any other province.

Methodology

In this section, we describe the methods used to estimate distributional national accounts (DINA) for Canada. We develop estimates of the distribution of three different income concepts: pre-tax national income, post-tax national income, and post-tax disposable income. All incomes are in real 2022 dollars.

The main data source for all our estimates is the Longitudinal Administrative Databank (LAD), which contains a 20% sample of tax microdata for every year from 1982 to 2021. We obtained custom tabulations of the LAD from Statistics Canada which provide average incomes for several types of income for each percentile (plus the top 0.1% and top 0.01%) of the national equal-split[2] income distribution. The sorting variable is the LAD-defined market income plus employment insurance (EI) and Quebec/Canada Pension Plan (Q/CPP) income minus EI and Q/CPP contributions, designed to closely align with the DINA concept of pre-tax post-replacement fiscal income. Within each percentile, we observe several types of income, including employment income, several government transfers, capital gains, dividends, and self-employment income, as well as payroll and income taxes paid.

Summary statistics of income inequality based on the LAD (using individuals as the unit instead of equal-split adults) are directly available from Statistics Canada.[3] The first step in converting this data into DINA is to convert the population included in the data to the population of all Canadian residents 20 years of age and older.[4] The LAD includes people of all ages who filed their taxes plus a small number of nonfilers who have a social insurance number and some link to the tax system. Thus, we first remove taxfilers under the age of 20 from the database. We observe the location in the income distribution of taxfilers under the age of 25. Since 33.1% of

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[2] Equal-split means that incomes of spouses are summed and then divided equally between the two spouses. This is the benchmark population unit used for DINA based on tax microdata which accounts for the fact that low-earning individuals with high-earning spouses have greater access to resources than unmarried low-earners. However, this may be an overly optimistic view of income sharing within couples.
[3] See https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1110005501
[4] DINA is primarily concerned with the distribution of earnings, not the distribution of consumption. Since adults are the primary earners of income, DINA distributes all of national income to adults rather than to the full population, including children.

taxfilers under the age of 25 are under the age of 20 (Robson & Schwartz, 2020), we remove 33.1% of the taxfilers under the age of 25 from the database.

Next, we need to add all nonfilers above the age of 20 so that all residents above the age of 20 are represented in the data. We compare the number of taxfilers in the data to population estimates in the World Inequality Database. The proportion of people aged 20 and over observed in the LAD rose during the 1980s and early 1990s as tax credits based on taxfiling were introduced. In 1982, 87.5% of the 20 plus population are observed, increasing to 96.1% in 1994. This proportion has remained relatively stable ever since, ranging from 95-97.3% each year, until a small dip during the COVID-19 pandemic. In 2021, 94.8% of residents 20 plus are observed.

We impute nonfilers to the distribution based on the income distribution of nonfilers obtained by Robson & Schwartz (2020) through comparing 2015 tax and survey data. This distribution implies that about 13.5% of nonfilers are in the bottom decile of the distribution, with a relatively uniform distribution throughout the middle deciles, and only about 5% in the top decile. We assume that there are no nonfilers in the top centile of the distribution. Before 1994, when the proportion of unobserved adults is higher, we increase the share imputed at the bottom of the distribution, assuming that low-income individuals were less likely to file taxes when they had less of an incentive to do so.[5]

PRE-TAX NATIONAL INCOME

Next, we distribute all the national income not observed in the tax data among all 20 plus adults. The income concepts of the LAD correspond closely to the concept of fiscal income in DINA (which is roughly income that is observable in tax data; Blanchet et al., 2021). We calculate measures of fiscal labour and capital income. Following convention, we treat self-employment income as 70% labour income and 30% capital income. To move from the fiscal income distribution to the pre-tax national income distribution, we adjust total labour and capital income to match total labour and capital income from national accounts. For labour income, there is very little adjustment because almost all labour income is observable in tax data. On the other hand, on average only 29% of capital income is observed annually. Most remaining capital income is distributed according to the distribution of fiscal capital income. Pension accrual is the exception, which is distributed according to the fiscal labour income distribution. This creates the distribution of pre-tax national income, the benchmark DINA concept for earned income, that is, income before the operation of the tax and transfer system.

POST-TAX DISPOSABLE INCOME

Starting from our estimates of the pre-tax national income distribution, we distribute all taxes and government transfers to individuals to obtain the post-tax disposable income distribution. Taxes fall into four main categories: personal income taxes, corporate income taxes, sales and other direct taxes, and property taxes. Personal income taxes are observed in the LAD and thus we deduct observed personal income taxes paid from pre-tax national

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[5] The introduction of several refundable tax credits, which require a tax return to be filed before those eligible for them can receive them, has increased the total number of tax filers over time, essentially adding taxpayers with low, non-taxable incomes. By way of illustration, the percentage of the Quebec population aged sixteen and over who file a tax return has risen from 75% in the mid-1980s to over 95% today.

income, scaling total PIT to match total PIT collected according to national accounts (about 95% of PIT is observed). Corporate income taxes are distributed according to the distribution of corporate operating surplus (dividends plus undistributed corporate profits).

Property taxes should be distributed according to the distribution of real estate wealth. The 2019 Survey of Financial Security (SFS) public use microdata file (PUMF) was used to obtain the distribution of real estate wealth along the pre-tax income distribution. Since survey data often underestimates income and wealth at the top of the distribution, and the SFS PUMF is only available for 2019, we distribute 65% of property taxes according to the distribution of real estate wealth in 2019 and 35% according to the observed distribution of rental income. Sales and other direct taxes are distributed according to the distribution of disposable income (pre-tax income plus transfers less taxes and saving).[6]

Government transfers to individuals are observed in the LAD. Specifically, we add the following observed transfers to pre-tax national income less taxes paid to obtain the post-tax disposable income distribution: old age security, guaranteed income supplement, family benefits, GST/HST credit, child tax benefits, working income tax benefit, social assistance, workers' compensation, other federal tax credits, and provincial transfers. The addition of these transfers and the subtraction of the four types of taxes listed above provides the post-tax disposable income distribution.

POST-TAX NATIONAL INCOME

Since taxes raised are larger than spending on transfers to individuals, total post-tax disposable income is less than national income. To obtain the post-tax national income distribution, which allows income levels to be compared across countries, we distribute the rest of government spending to individuals as "in-kind" transfers. It is very difficult to know who benefits from government consumption expenditure and so this distribution requires making significant assumptions. We follow the DINA Guidelines (Blanchet et al., 2021) and Piketty et al. (2018) in making these assumptions.

Government consumption expenditure can be broken down into collective and individual government consumption expenditure. Individual government consumption expenditure includes health and education spending while collective consumption expenditure includes all other government spending, including spending on administration and defense. Given that Canada has relatively equal access to public healthcare services and primary and secondary education, we allocate government spending on these categories equally to all individuals. Since access to tertiary education in Canada is related to family income levels, an equal lump sum allocation does not make sense for this form of individual consumption expenditure. We allocate spending on tertiary education and collective consumption expenditure according to the post-tax disposable income distribution, following Piketty et al. (2018) so that including these expenditures is neutral to the income distribution.

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[6] Saving rates by income quintile are obtained from Statistics Canada Table 3610058701. Savings rates for the top g-percentiles are adjusted based on savings rates reported in the US in Saez and Zucman (2016).

RE-RANKING

Because we are working from tabulated data rather than raw microdata files, there is the possibility for re-ranking to occur as we move from the pre-tax national income distribution to the post-tax income distributions. Specifically, an individual who is in the top 0.01% of the pre-tax national income distribution who has a particularly high tax bill in a certain year may not be in the top 0.01% of the post-tax national income distribution. To estimate whether this re-ranking is a problem, we compute the ratio of the average after-tax income to the average market income for each income group in Table 11-10-0055-01, where the after-tax income distribution is sorted by after-tax income and compare that to the ratio we observe in our tabulations where after-tax incomes are sorted by pre-tax fiscal income. We found that there was a small but consistent underestimation of average after-tax incomes in the top decile and so applied an adjustment to the post-tax income distribution proportionate to this observed underestimation.

DISTRIBUTIONAL PROVINCIAL ACCOUNTS

One novel contribution of this work is that we present estimates of distributional national accounts at a subnational level. In particular, we estimate distributional national accounts at the provincial level for Ontario, Quebec, Alberta, and British Columbia, as well as at the regional level for the Prairies and Maritimes. These regions are combined to ensure a sufficient population size for distributional national accounts to be meaningful. We follow a very similar procedure as at the national level to construct distributional provincial accounts. This section describes the procedures and data sources used to construct the distributional provincial accounts where they differ from those used to construct the national estimates.

The custom tabulations from the LAD are also broken down by province so we begin our provincial estimates from this same tax data. We obtain estimates of all provincial aggregates from 2007 onwards, and most provincial aggregates prior to 2007, from Canada's provincial and territorial economic accounts. We scale all provincial totals to the national aggregate so that the sum of the 11 provincial and territorial aggregates always sum to the national aggregate. For provincial aggregates not available in provincial and territorial economic accounts before 2007 (including property taxes and government saving), we use fiscal data from the Department of Finance to estimate trends in these aggregates in each province. Before creating the provincial pre-tax income distribution, the Prairie provinces and territories are aggregated, and the Maritime provinces are aggregated.

Results

EMPIRICAL RESULTS AT THE NATIONAL LEVEL

First, we present our estimates of income inequality in Canada using DINA. Figure 1 displays the long-term evolution of the top 10% pre-tax national income share in Canada from 1920-2021. Our updated estimates from 1982-2021 have been connected to the previous estimates by Saez and Veall (2005) from 1920-1982. Income inequality in Canada during this period peaked in the early 1920s and again in the late 1930s. The top 10% share fell greatly after WW2 and remained low until the 1980s when it began rising again.
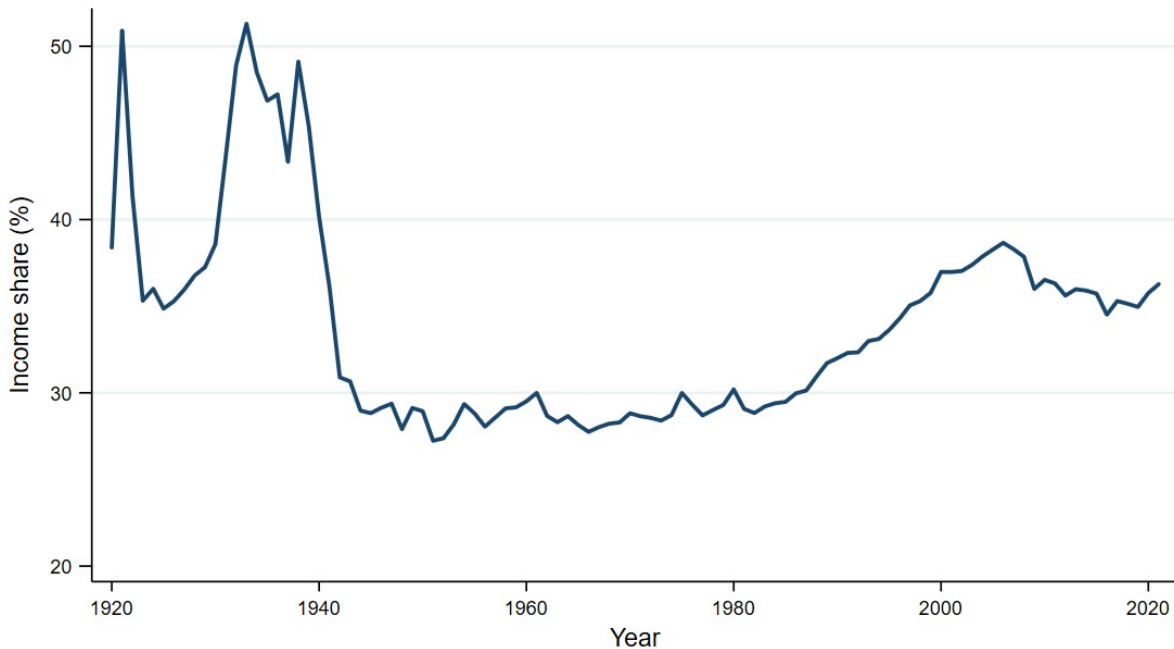
Figure 1. Top 10% pre-tax national income share in Canada, 1920-2021.

In Figure 2, we present more detailed results for the 1982-2020 period. We divide pre-tax national income and post-tax disposable income divided into three broad groups: the top 10% of income earners, the middle 40% of income earners, and the bottom 50% of income earners. Consistent with previous research, we observe an increase in inequality from the early 1980s until the mid 2000s followed by a slight decline in inequality. The top 10% share of pre-tax national income increased from 28.8% in 1982 to 38.7% in 2006 and fell to 35.0% in 2019 before rebounding to 36.3% in 2021. From 1982 to 1995, most of this increase stemmed from a decline in the bottom 50% share, from 21.9% to 17.0%. After 1995, the increase in pre-tax top 10% share mostly stemmed from a decline in the middle 40% share, from 49.4% in 1995 to 44.8% in 2006. Since 1995, the bottom 50% pre-tax income share has remained relatively stable, sitting at 17.3% in 2021. The middle 40% pre-tax income share has rebounded slightly from a low of 44.8% in 2006 to 46.4% in 2021.
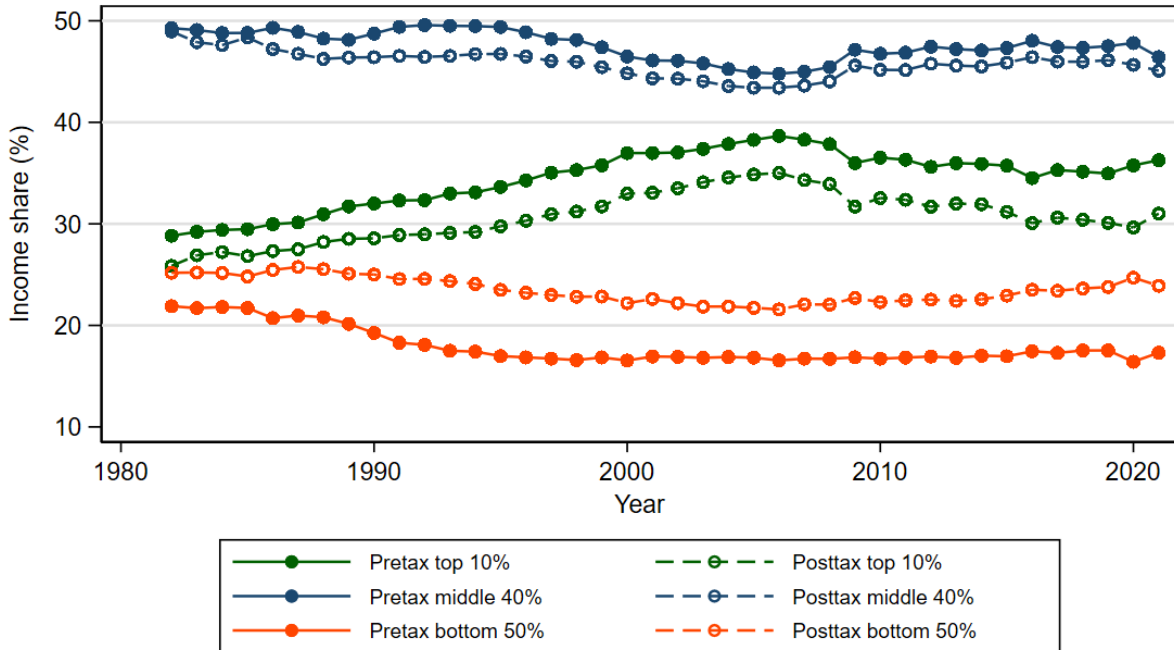
Figure 2. Top 10%, middle 40%, and bottom 50% pre-tax national income and post-tax disposable income shares, 1982-2021.

Trends in post-tax disposable income shares are similar to those in pre-tax national income except in 2020. In 2020, while the pre-tax income share of the bottom 50% fell, the post-tax disposable income share increased due to the unprecedented federal pandemic transfers. Typically, the top 10% and middle 40% pre-tax income shares are about 3-5, and 1-2 percentage points higher, respectively, than the top 10% and middle 40% post-tax disposable income shares. The bottom 50% income share is increased by 3-6 percentage points due to the operation of the tax and transfer system. Since reaching a low of 21.6% in 2006, the bottom 50% post-tax disposable income share increased by 2.3 percentage points by 2021, while the bottom 50% pre-tax national income share has only increased by 0.7 percentage points, suggesting that the tax and transfer system has become increasingly progressive.

Over the whole period, then, the pre-tax income share of the top 10% has increased significantly, largely at the expense of the bottom 50% of income earners. Increasing progressivity of the tax and transfer system has partially, but not entirely, offset this effect on the post-tax distribution.

Next, we focus on estimates of the income share of the top 1%. Figure 3 displays the income share for three groups within the top 1%: the top 0.01%, the next 0.09% (the 99.9th percentile to the 99.99th percentile), and the next 0.9% (the 99th to 99.9th percentile). The income shares of all three groups increased from 1982 to 2006. The pre-tax national income share of the top 0.01% increased from 0.4% in 1982 to 1.5% in 2006 before falling to 1.1% in 2020. Over the same period, the post-tax disposable income share increased from 0.2% to 1.3% and then fell to 0.7%. In 2021, the pre-tax share rebounded to 1.3% and the post-tax share increased to 1.0%. All three income groups within the top 1% experienced increases in their pre-tax and post-tax income shares in 2021, a topic we will revisit in the section on COVID-19.

The significant fall in income shares of each group of the top 1% in 2016 has been attributed to high income Canadians bringing forward income to 2015 in order to avoid anticipated tax increases by the new Liberal government (Osberg, 2020).
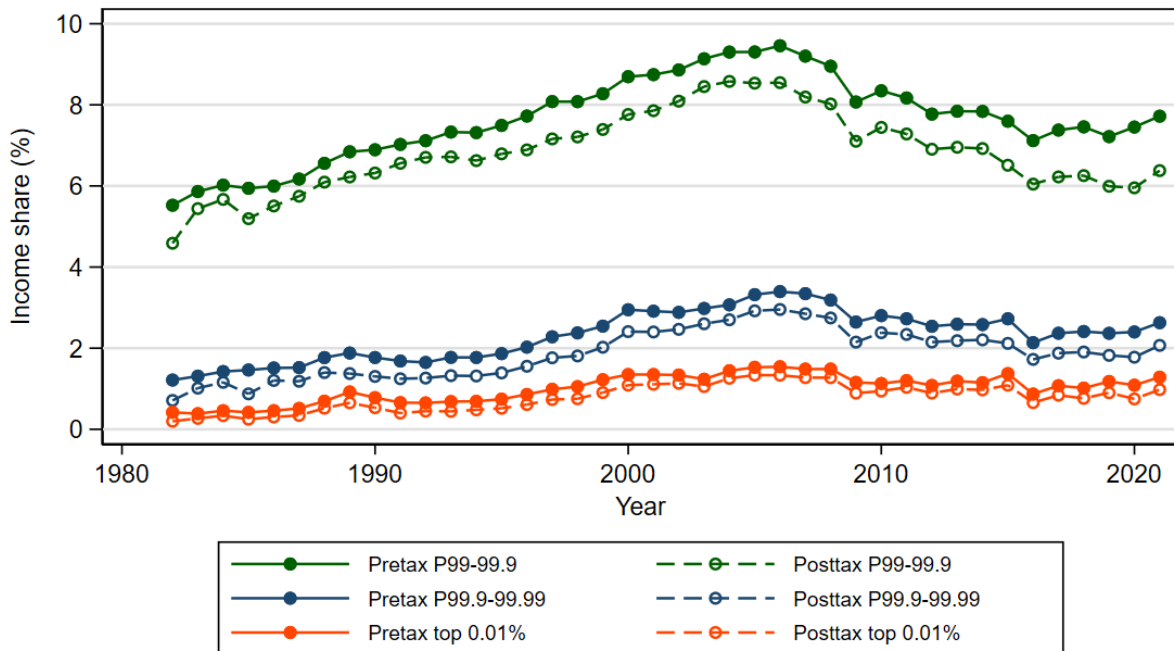

Figure 3. Pre-tax and post-tax income shares for groups within the top 1% of income earners, 1982-2021.

Increasing inequality in Canada has stemmed from vastly unequal growth – in other words, as Canada's economy grew during the 1980s and 1990s, this new wealth did not trickle down. Instead, this new income was entirely captured by the top half of the income distribution.

Figure 4 shows growth incidence curves for five income groups. From 1982 to 2000, the incomes of those in the bottom half of the income distribution were stagnant, growing by less than 2% over the whole period. On the other hand, the incomes of the top 1% grew by 144.5% and the incomes of the top 0.01% grew by 334.9%. The higher one's income, the more it grew during this period.

Since 2000, this trend has reversed with the incomes of the bottom 50% growing more than any other group through 2021 (12.3%). However, the bottom 50% and middle 40%'s gains have been seriously eroded since 2019. From 2019 to 2021, average pre-tax incomes of the bottom 50% fell by 4.8% and those of the middle 40% fell by 5.7%. At the same time, incomes of the top 1% have increased by 4.3% and incomes of the top 1% have increased 5.0. Furthermore, the gains of the bottom earners since 2000 have been incredibly small compared to the immense gains made by top earners in the preceding decades.

As a result, from 1982 to 2021, the average income of the bottom 50% has increased by 14.3%, compared to 36.2% for the middle 40%, 64.4% for the next 9%, 135.0% for the top 1% and 344.2% for the top 0.01%.
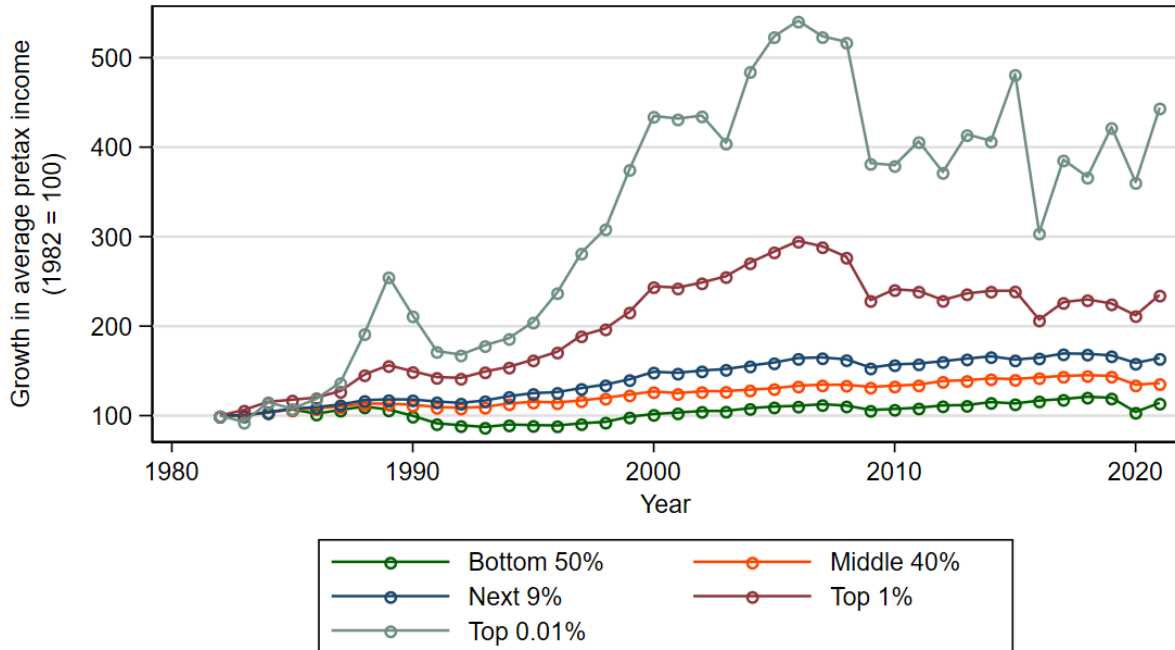
Figure 4. Growth incidence curve by income group, 1982-2021.

Comparison with traditional estimates of inequality

What do these distributional national accounts results add to the previous literature and statistics on income inequality in Canada? To illustrate the contribution of DINA, the black line in Figure 5 presents the proportion of net national income which is observed in the LAD each year. On average, only 66.6% of net national income is observed in tax data each year – in other words, one third of national income is not allocated to anyone in traditional inequality statistics.
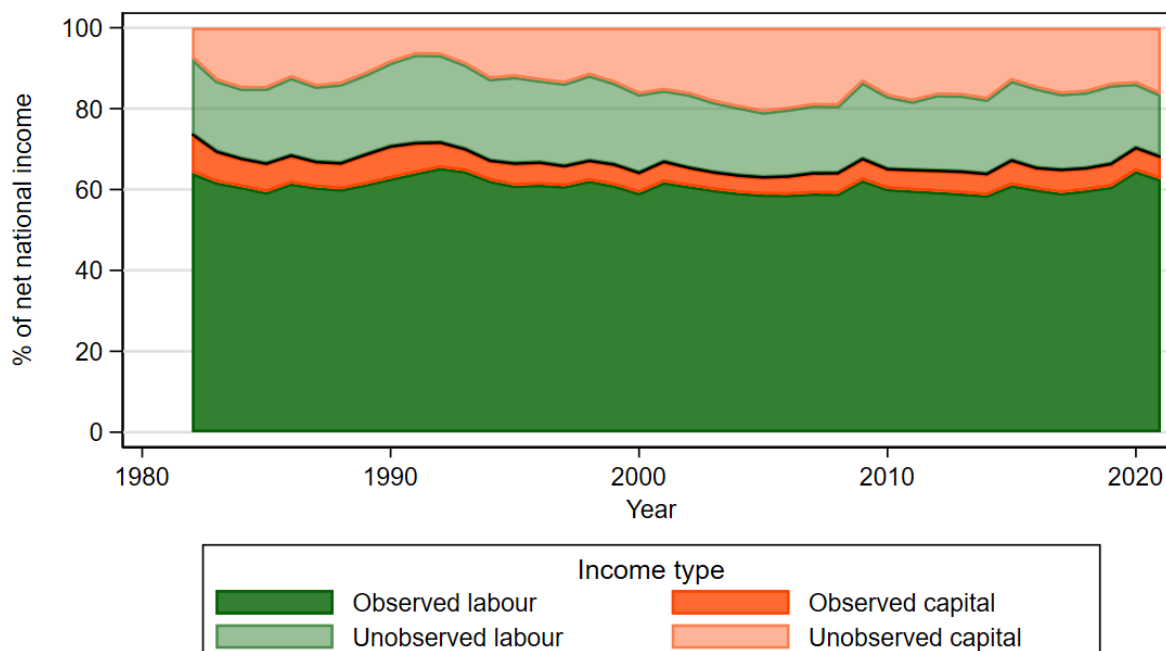
Figure 5. Proportion of net national income observed in LAD by factor, 1982-2021.

The distribution of this one third of national income can have a significant effect on inequality statistics, as shown below in Figure 6. Including this missing income in inequality statistics tends to increase estimates of inequality because while most of labour income is observed in the LAD (76% on average), only 29% of capital income is observed annually in the LAD, and capital income is more unequally distributed than labour income.

Figure 5 presents the top 1% pre-tax national income share compared to market income shares, using both equal-split (ES) and individuals (IND) as units. Individual market income shares are drawn directly from public Statistics Canada data while the equal-split market income series is calculated from the custom tabulation provided by Statistics Canada.[7]

This comparison allows us to estimate the effect of shifting from the traditional concept of inequality in market income to inequality in pre-tax national income, which distributes all of national income to individuals, as well as the effect of shifting from the individual unit of analysis to the equal-split unit of analysis, which is the typical unit used in DINA estimates.

First, we note that all four measures largely follow the same trends. The top 1% income share increased significantly from the early 1980s until the mid 2000s before falling steeply after the financial crisis using all four measures.

Second, pre-tax national income top 1% shares are consistently 1-3 percentage points higher than market income shares, regardless of the unit. The top 1% market income share for individuals has ranged from 7.6% in 1982 to 13.6% in 2006. Using pre-tax national income with individuals as the unit results in a higher top 1% income share (from 8.7% in 1982 to 16.3% in

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[7] Statistics Canada. (2022). Table 11-10-0055-01, High-income tax filers in Canada. https://doi.org/10.25318/1110005501-eng

2006) because much of the income not accounted for in tax data is undistributed corporate profits, which is mostly owned by high income Canadians.
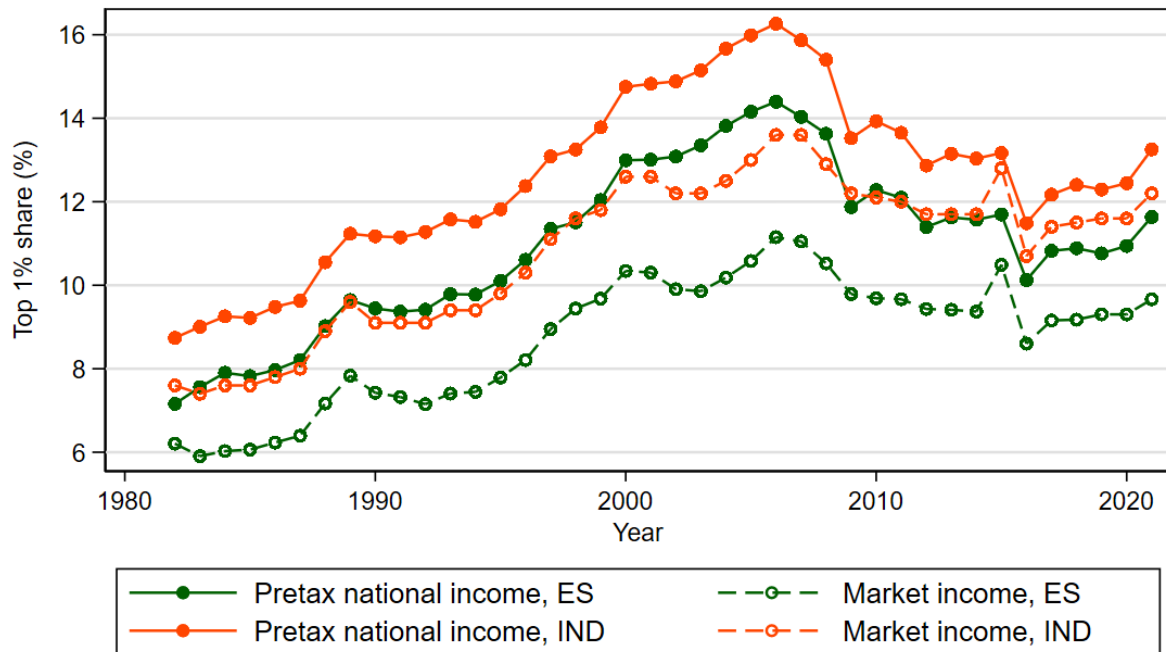

Figure 6. Top 1% income shares using four different income definitions, 1982-2021.

Note. IND – individuals. ES – equal-split. Market income individuals series from Statistics Canada Table 11-10-0055-01, market income, equal-split series from Statistics Canada custom tabulation.

Shifting the unit of analysis from the individual to equal-split adults, however, reduces top income shares by 1-2 percentage points. Top 1% pre-tax national income shares using equal-split adults range from 7.2% in 1982 to 14.4% in 2006. The drop in inequality due to shifting from individuals to equal-split adults is reflective of gender inequality – most people in the top 1% of individual earners are men (in 2020, 74.4% were men), and so when their income is split equally with their spouse, their incomes are greatly reduced.

Overall, it is clear that throughout the 1982-2021 period, top income shares published by Statistics Canada underestimate income inequality relative to top income shares calculated using DINA. This is because DINA account for people who do not file taxes and for undistributed capital income that is retained in corporations. It should be kept in mind that estimates of inequality presented in this paper using equal-split adults would be higher were they based on individuals as the unit of analysis.

EMPIRICAL RESULTS AT THE PROVINCIAL LEVEL

Now we examine how the income distribution differs across Canada. Figure 7 presents top 1% pre-tax national income shares in five regions and Canada as a whole. First, we note that trends in inequality have been similar across Canada. This suggests that, although provincial factors and policies have some effect on levels of inequality, factors and policies that

affect all of Canada have played a greater role in the evolution of inequality over the past 40 years.

Throughout the period, the Prairies have consistently had one of the lowest top 1% pre-tax income shares of any region. Until the early 2010s, Quebec typically had the lowest top 1% pre-tax income share of the four major provinces. Since the early 2010s, however, the top 1% share has remained stable in Quebec while declining in BC and Alberta, leading Quebec to overtake them.

Ontario or Alberta has always had the highest top 1% share, with Alberta's reaching record highs during the early and mid-2000s. Alberta's top 1% shares have been more volatile than any other region, likely reflecting the reliance of the top 1% in Alberta on the oil and gas industry. Pre-tax profits in the oil and gas industry, which also peaked in the mid-2000s and plummeted in 2015 and 2016, show a strong correlation to top 1% shares in Alberta.[8] Overall, workers in finance and insurance and mining, oil, and gas, were overrepresented among the top 1% in the mid-2000s and experienced significant increases in their incomes during these years (Lemieux & Riddell, 2015; Xuereb, 2022). The extremely profitable conditions in these industries likely contributed significantly to the peak in the top 1% share in Alberta, and nationally, in the mid-2000s.
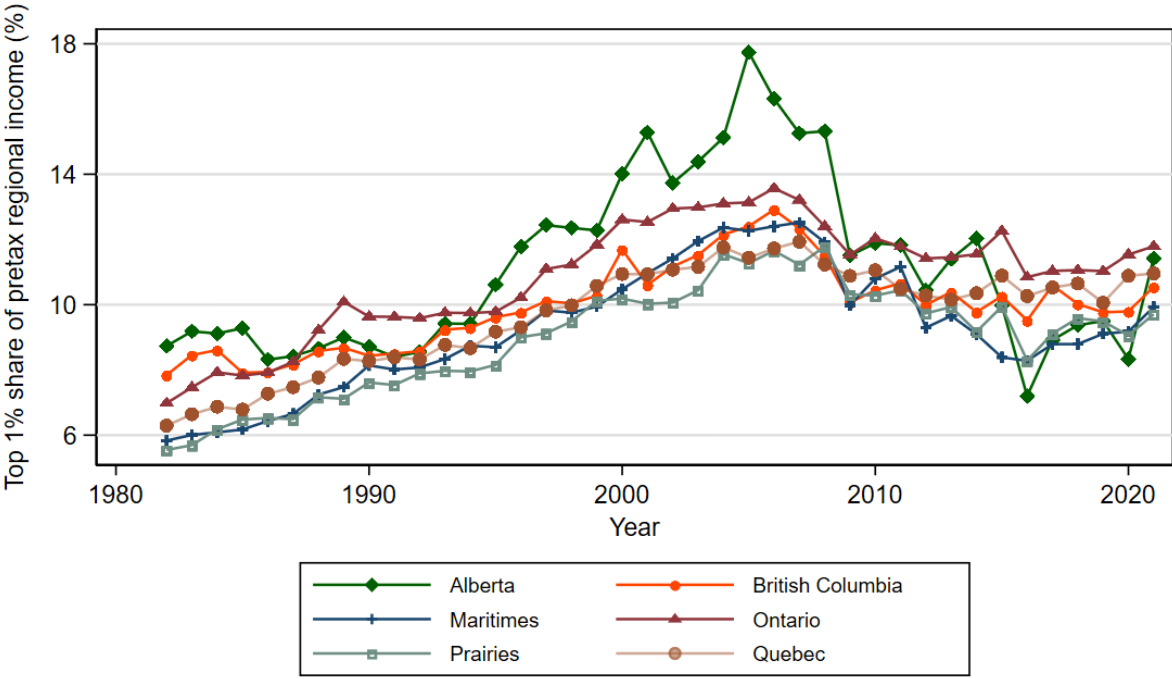

Figure 7. Top 1% pre-tax regional income shares in five regions of Canada, 1982-2021.

To better understand the differences in income distribution and the effects of the tax and transfer system in Canada's two largest provinces, Ontario and Quebec, Figure 8 presents pre-tax and post-tax income shares for the top 10%, middle 40%, and bottom 50% from 1982-2021.

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[8] From 1988-2019, the correlation is 0.68. For oil and gas industry profits, see
https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=3310000701.

As with top 1% pre-tax income shares, trends in income shares are very similar in both jurisdictions. However, Ontario has consistently had a higher top 10% pre-tax income share and a lower bottom 50% pre-tax income share. The gap between the two provinces is even larger for post-tax income shares, especially for the bottom 50%. In 2021, the bottom 50% post-tax income share was 22.6% in Ontario and 26.5% in Quebec.
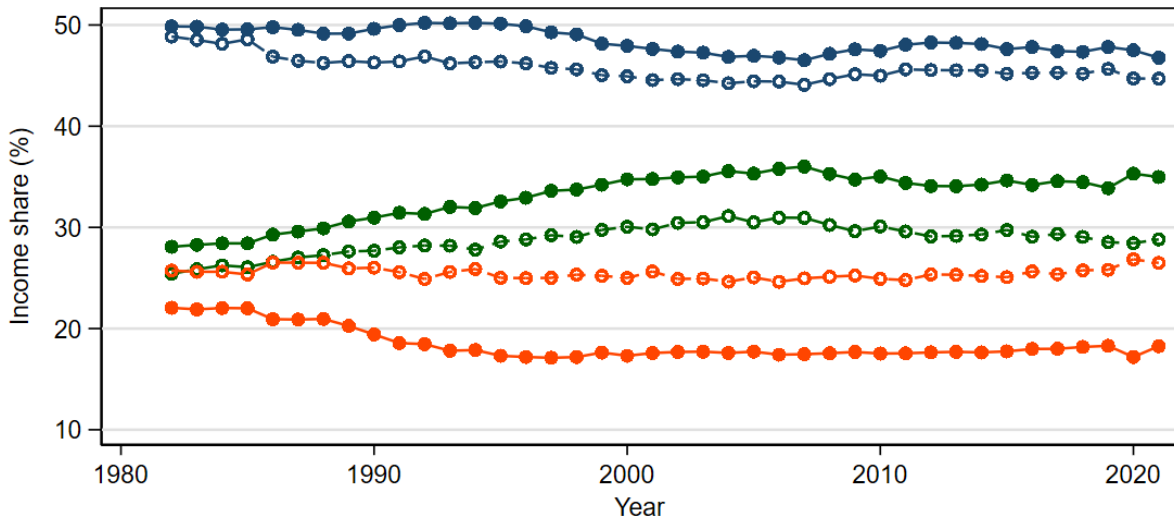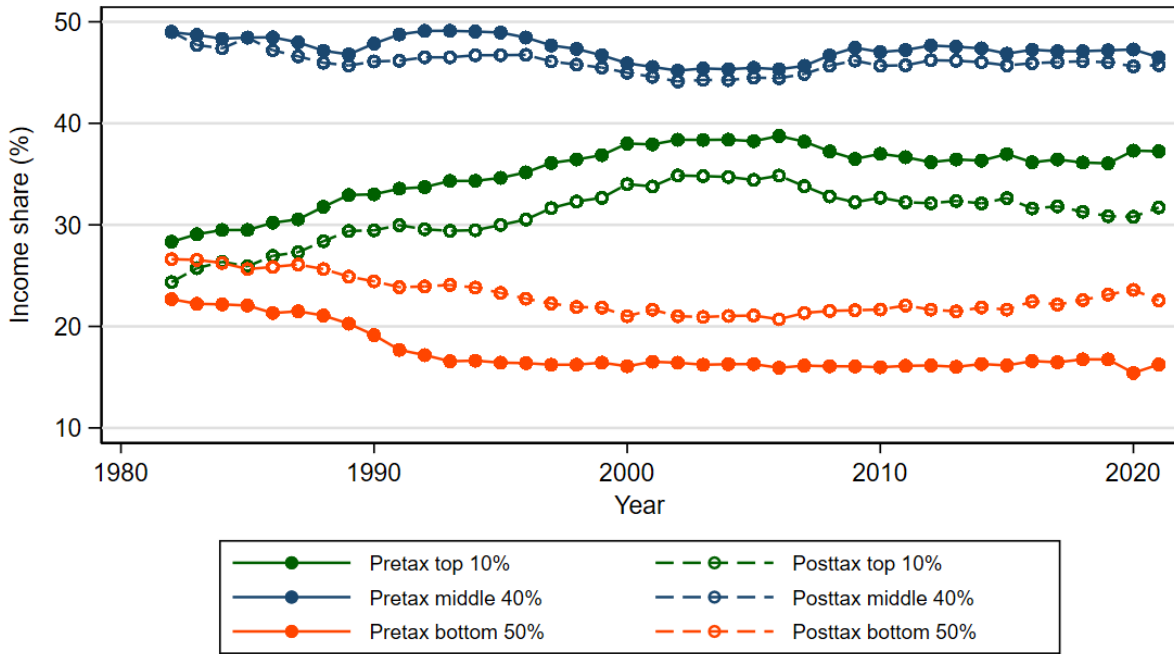

Figure 8. Top 10%, middle 40%, and bottom 50% pre-tax national income and post-tax disposable income shares in Ontario (top) and Quebec (bottom), 1982-2021.

To assess the impacts of the tax and transfer system on income inequality in each region, Figure 9 displays the difference between the top 10% pre-tax and post-tax income shares in each jurisdiction. Overall, Canada's tax and transfer system has become slightly more

progressive over time, reducing the top 10% share by about 3% in 1982 and about 5% in 2021 (2020, at over 6%, is an outlier caused by pandemic-related government transfers). Quebec's tax and transfer system has been more progressive than other regions since the late 1990s although the gap narrowed in 2019. Since the late 1990s, Alberta, the Prairies, and the Maritimes have had the lowest levels of redistribution.
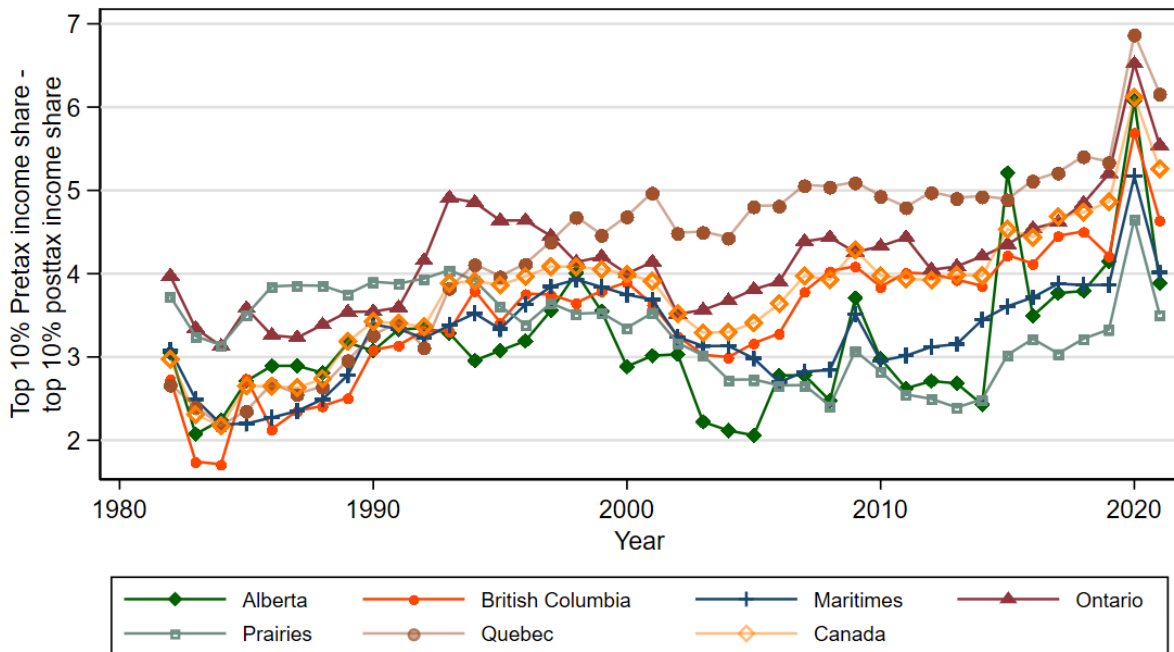

Figure 9. Difference between top 10% pre-tax national income shares and top 10% post-tax disposable income shares by region, 1982-2021.

We can examine why Quebec's tax and transfer system is more progressive than Ontario's and the rest of Canada's empirically by examining taxes paid and transfers received across the income distribution in 2021. Effective tax rates, calculated as the sum of personal and corporate income taxes, taxes on wealth and property, and payroll taxes, divided by pre-tax national income are displayed in Figure 10.

Quebec has the highest effective tax rates across most of the distribution, with especially higher rates in the upper deciles. This contributes to Quebec's lower levels of post-tax inequality. Across Canada, the effective tax rate is 42% in the second decile, higher than the middle deciles due to the regressivity of sales taxes. From the third decile onwards, the tax system is slightly progressive, with average effective tax rates increasing from 33% in the third decile to 39% for the highest decile excluding the top 1%, and 45% for the top 0.1%.
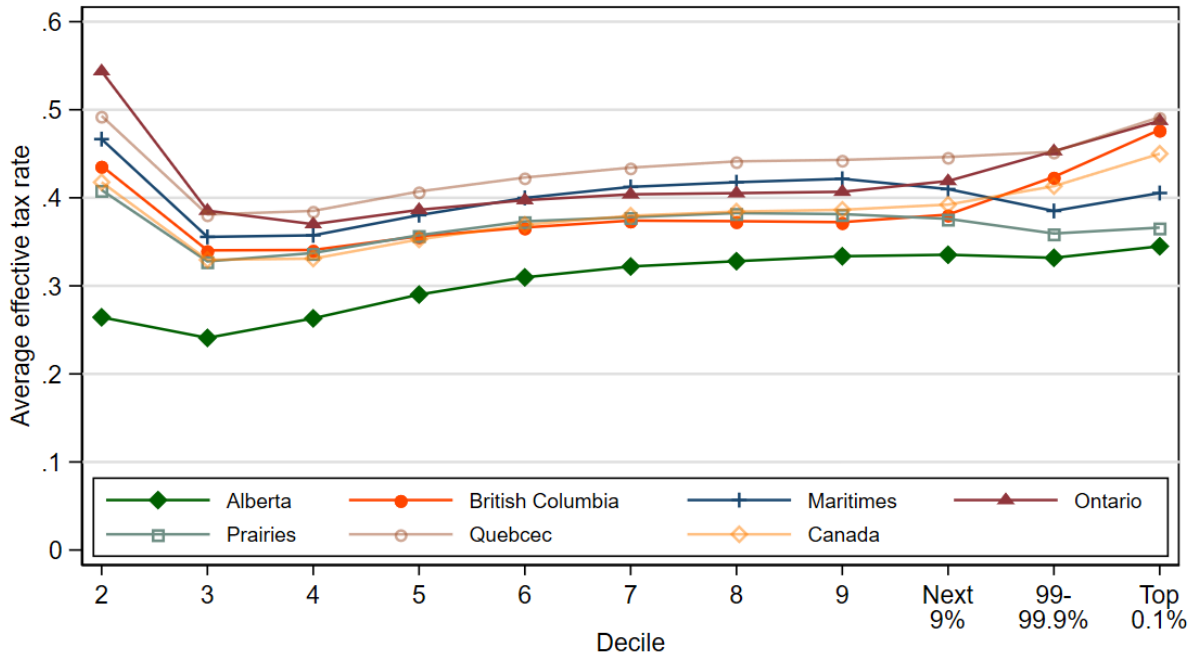
Figure 10. Average effective tax rate by decile and region, 2021.

Note. The effective tax rate is the sum of all taxes paid, including personal and corporate income, property, sales, and payroll divided by total pre-tax income. The first decile is excluded because of the significant number of people with negative pre-tax incomes in this group.

Another measure of the progressivity of the tax and transfer system in each region is the average effective transfer rates for deciles in the bottom half of the income distribution, displayed in Figure 10. Quebec has the highest rates in each decile, with over 90% of pre-tax disposable income coming from government transfers in the second income decile. Higher government transfers to the bottom 50% and higher taxes in the top 50% both contribute to the greater progressivity of the tax and transfer system in Quebec. British Columbia and Alberta have the lowest effective transfer rates.
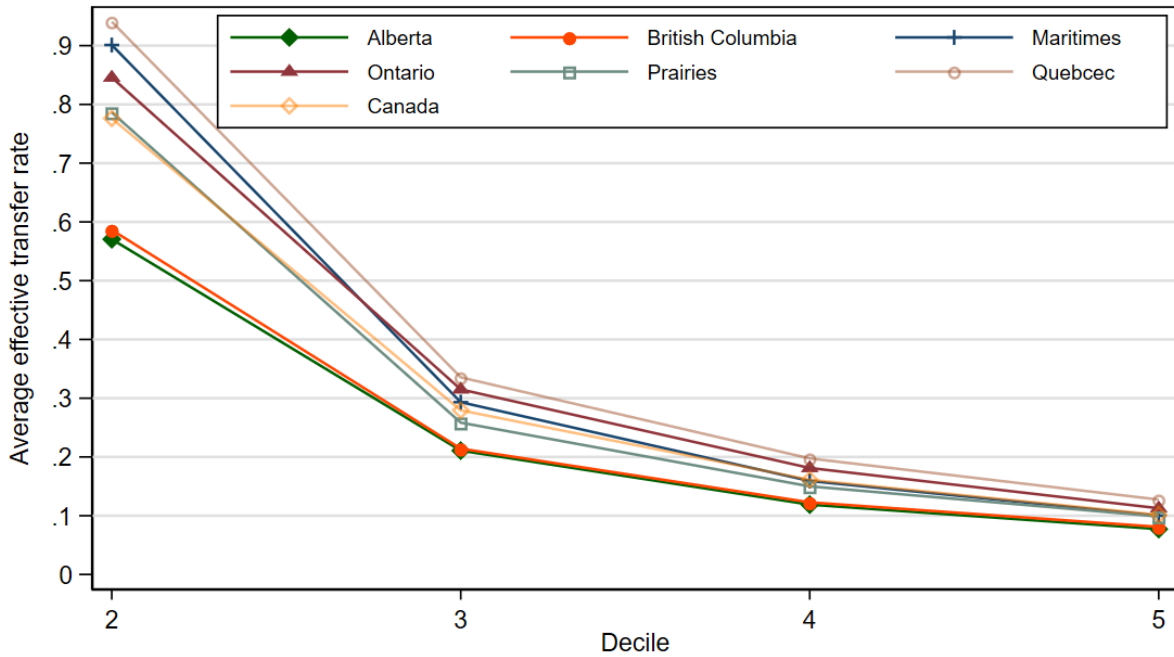
Figure 11. Average effective transfer rate in bottom deciles by region, 2021.

Note. The effective transfer rate is the sum of government transfers received, including OAS, GIS, social assistance, Canada Child Benefit, GST/HST credit, Working Income Tax Benefit, family benefits, and other federal and provincial refundable tax credits divided by total pre-tax income. The first decile is excluded because of the significant number of people with negative pre-tax incomes in this group.

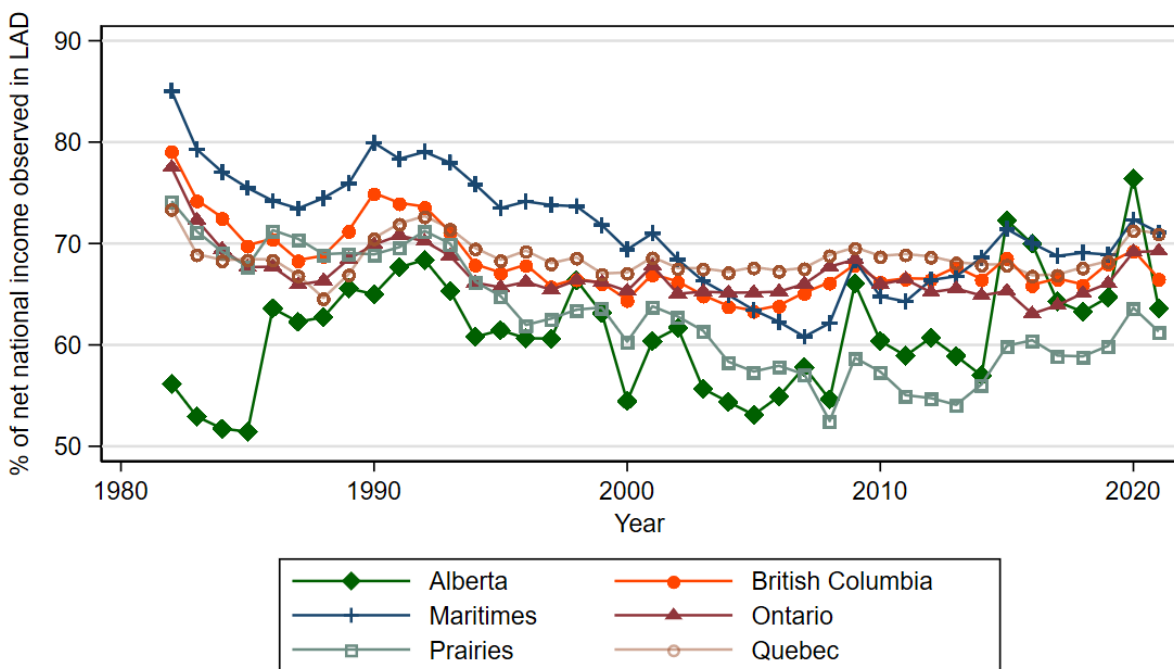Comparison with traditional estimates of inequality

Figure 12. Proportion of net national income observed in the LAD by region, 1982-2021.

At the provincial level, the use of DINA also affects estimated levels of income inequality. Reflecting the national statistics, typically only 60-70% of regional income is observed at the regional level each year (see Figure 12). The proportion of regional income observed in the LAD is relatively similar across regions.

Alberta was a slight outlier, with the lowest proportion of observed income until the mid-2010s because of its higher capital share. The Prairies' proportion of observed income fell from the 1980s through 2010, at the same as its' capital share increased from about 17% to over 30%. The share of observed income in the LAD often mirrors the capital income share – the higher the capital income share, the lower the share of observed income and the greater effect DINA can have on inequality statistics.

Figure 13 compares estimates of the top 1% share by region using pretax national income and using market income from LAD tabulations. In almost every year and region, estimates using pretax national income exceed those using market income. The difference was largest in all regions in the early to mid-2000s when capital shares peaked.
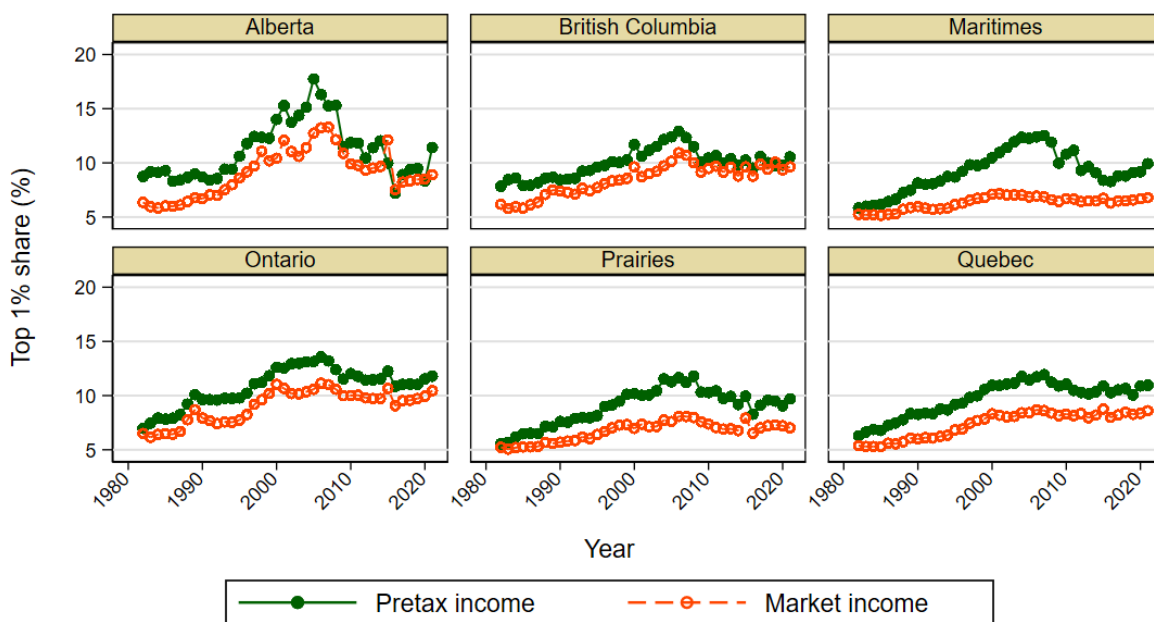

Figure 13. Top 1% shares using pretax versus market income by region, 1982 to 2021.

LABOUR AND CAPITAL INCOME

Next, we explore trends in labour and capital incomes for different income groups. These can help shed light on why pre-tax income inequality increased so significantly from the 1980s through the mid-2000s and since declined.

Figure 14 displays the composition of the top 1% and top 0.01% pre-tax income shares from 1982 to 2021. During the 1980s and early 1990s, it was increases in labour income that drove growth in top incomes. From 1982 to 1998, the top 1% share of pre-tax income that was

labour income increased from under 5% to 8.4%. This only increased to 8.7% in 2006, while the top 1% share of pre-tax income that was capital income increased from 3.1% to 5.7% from 1998 to 2006, driving the peak in the top 1% share.

This is in line with the Saez and Veall (2005) argument regarding labour market competition for top executives driving increases in top income shares through 1998. However, this explanation can say little about the increasing top shares from 1998 to 2006. Instead, the explanation for rising inequality during this period is related to changes in the distribution of income between labour and capital, and increasing capital income concentration. The capital share of income increased from a low of 16.6% in 1998 to 24.7% in 2006 (the second highest capital share throughout the whole period, behind 25.1% in 2005).
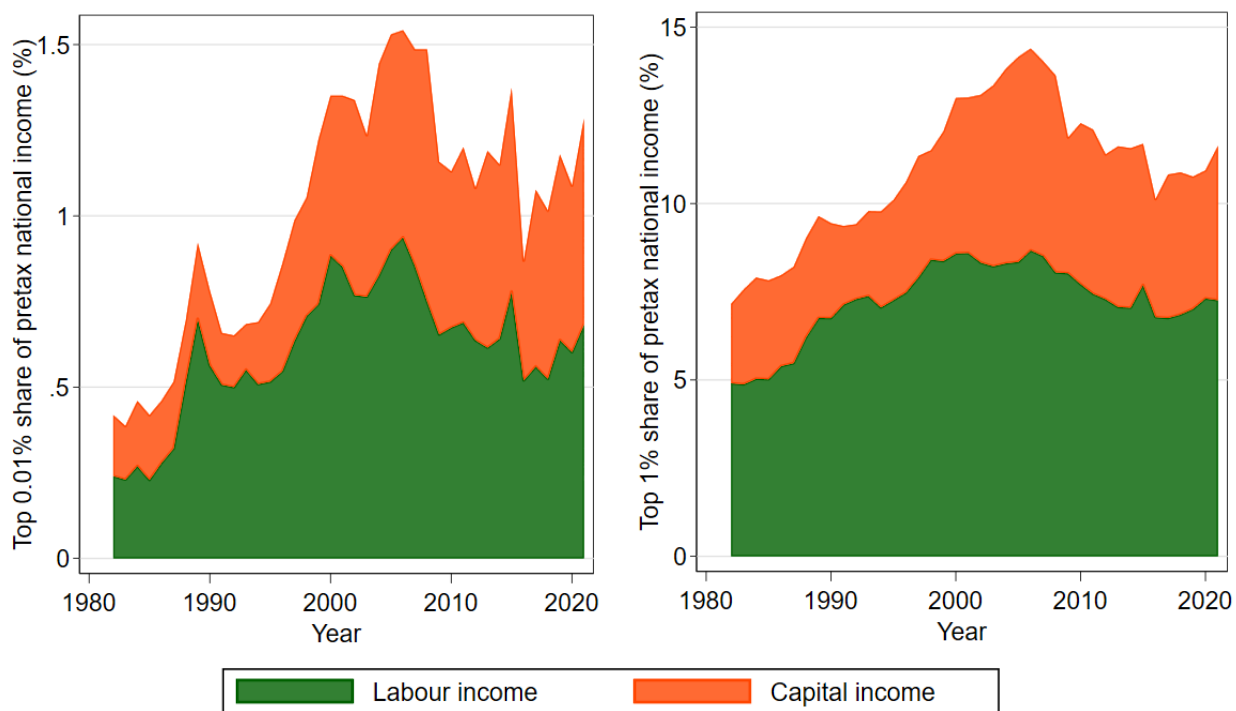

Figure 14. Labour and capital income composition of the top 1% and top 0.01% pre-tax income share, 1982-2021.

During the period of increasing inequality, and especially 1998-2006, capital income became increasingly concentrated. The top 1% earned only 12-13% of capital income during the early 1980s. By 1998, this had increased to 18.6%, and this increased further to 23.3% by 2006. This increase in concentration of capital income has come almost entirely at the expense of the bottom 50% of earners – their capital income share has declined from 21-23% during the 1980s to only 16.5% by 2006. These trends are relatively consistent across provinces, indicating that they've been driven by federal policies and factors.

These changes in capital income were likely driven by a combination of changing bargaining power between workers and owners, as well as the unique global market forces that led to large profits in finance and insurance, and the oil and gas industries during the early to

mid-2000s. In particular, the increasing capital income share in the early 2000s was driven by Alberta, where the capital share reached 36% in 2006.

Since 2006, declines in both capital and labour incomes have contributed to falling top income shares. The top 1% share of pre-tax income that was labour income has declined by 1.4 percentage points and the share that was capital income declined by 1.4 percentage points between 2006 and 2021. This has coincided with the capital income share falling back to 19-22%, in line with levels observed in the 1980s.

In the bottom half of the distribution, where capital income is much less important, the decline in pre-tax income shares through the mid-2000s was driven by stagnant, or, during the early 1990s declining (in real terms), labour incomes (see Figure 15). Average capital income increased for the bottom 50% from 1982 to 2006 while average labour income was unchanged. From 2006 until the pandemic, labour incomes grew for the bottom 50%, resulting in a slight increase in the pre-tax income share.
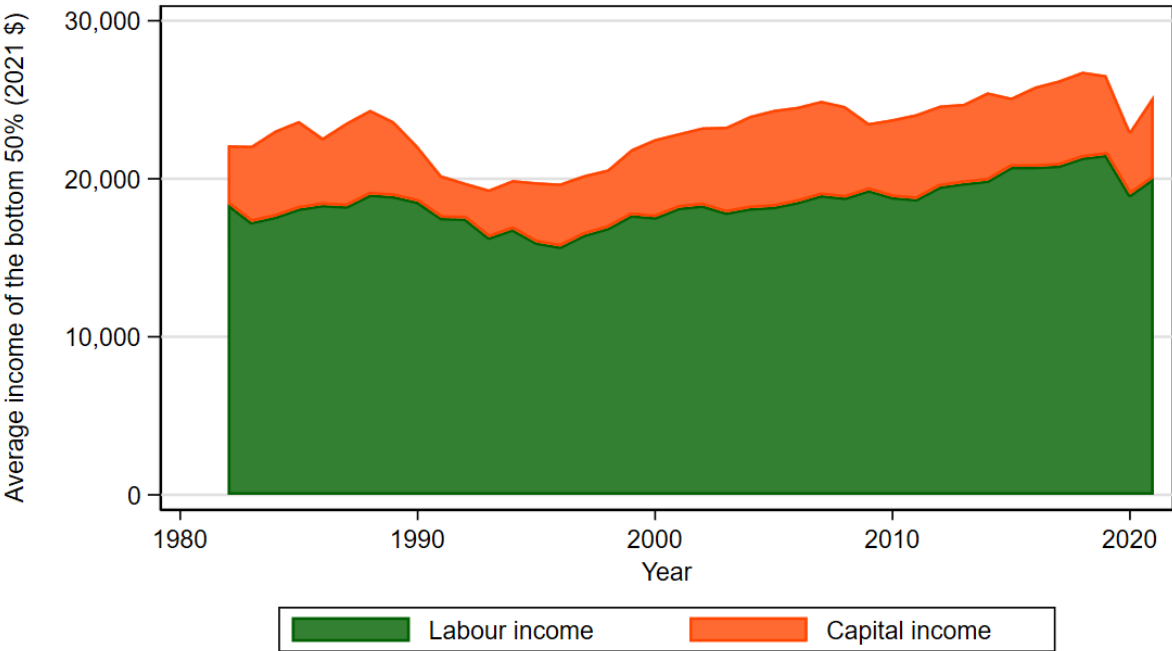

Figure 15. Average labour and capital income of the bottom 50%, 1982-2021.

COVID-19 AND CANADA'S RESPONSE

To this point, we have mainly examined trends in inequality throughout the past 40 years, distinguishing between the increase up until the mid-2000s and the subsequent smaller decline. In this section, we focus on 2020 and 2021 in particular to assess the impact of the COVID-19 pandemic and the government programs implemented in response, on income inequality in Canada.

2020 was a particularly unique year in that it is the only year on record with a significant divergence in trends in pre-tax and post-tax inequality. Average pre-tax incomes declined across the income distribution in 2020 as workers were laid off or had reduced hours in response to the COVID-19 pandemic. Low-income workers were most strongly affected: the average pre-tax

income of the bottom 50% fell by 13% in 2020. This contributed to an increase in pre-tax inequality in 2020, with a decline in the bottom 50% share and an increase in the top 1% share.

In response to the pandemic and associated lockdowns, the federal government implemented large temporary social programs, including the Canada Emergency Response Benefit (CERB), to support workers (and businesses) who were impacted by the pandemic. These programs provided up to $2,000 per month to workers whose employment was impacted by the pandemic, which was in some cases more than workers were earning prior to the pandemic. As a result, post-tax disposable incomes increased for all income groups in 2020, with the largest increase accruing to the bottom 50%. Thus, although pre-tax inequality increased in 2020, post-tax inequality decreased because of the significant increase in government transfers.

Both of these trends were reversed in 2021. During 2021, many government support programs were rolled back, contributing to a decline in the bottom 50% post-tax income share of 0.8 percentage points even though the pre-tax share rebounded as employment recovered. Canada's Official Poverty Rate, which fell from 10.3% to 6.4% in 2020, rebounded to 7.4% in 2021,[9] and will likely rebound further in 2022 as some pandemic supports were still available in 2021.

At the other end of the income distribution, pre-tax and post-tax incomes of the top 1% recovered entirely in 2021. The overall pre-tax income share of the top 1% increased from 10.8% in 2019 to 11.6% in 2021, and the post-tax income share increased from 7.0% to 7.3%. The increasing top 1% share was largely due to increases in capital income for the top 1% in 2021, which increased by 13% relative to 2019, reaching its highest level since 2014. This is directly related to record levels of corporate profits in 2021 (which have since been surpassed by 2022).[10] Research has also demonstrated that these record profits contributed to the high level of inflation in 2021, which disproportionately impacted low-income Canadians.[11,12]

The experience of the COVID-19 pandemic demonstrates the power that federal policy has to affect the income distribution – post-tax income inequality fell in 2020 because of transfer programs implemented by the federal government. However, because these measures were temporary, the drop in inequality Canada experienced in 2020 was also temporary.

CANADIAN INEQUALITY IN INTERNATIONAL CONTEXT

One significant benefit of the DINA approach to estimating income inequality is that, by using a common definition of income, it produces statistics that are more comparable across countries than those based on fiscal income. In Figures 16 and 17, we display the top 1% and top 10% shares, respectively, of Canada, the United States, France, Great Britain and Australia.

These are all countries for which the WID contains relatively high-quality estimates based on tax data and national accounts. Our updated estimates of inequality place Canada in the middle of these comparable countries. The United States has much higher top shares than

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[9] https://www.statcan.gc.ca/en/topics-start/poverty

[10] https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=3610011701

[11] https://centreforfuturework.ca/wp-content/uploads/2022/10/CLC_Inflation_Report_EN.pdf

[12] https://scholarworks.umass.edu/econ_workingpaper/343/

Canada, which has similar top shares as Great Britain. France and Australia both have lower levels of inequality than Canada.
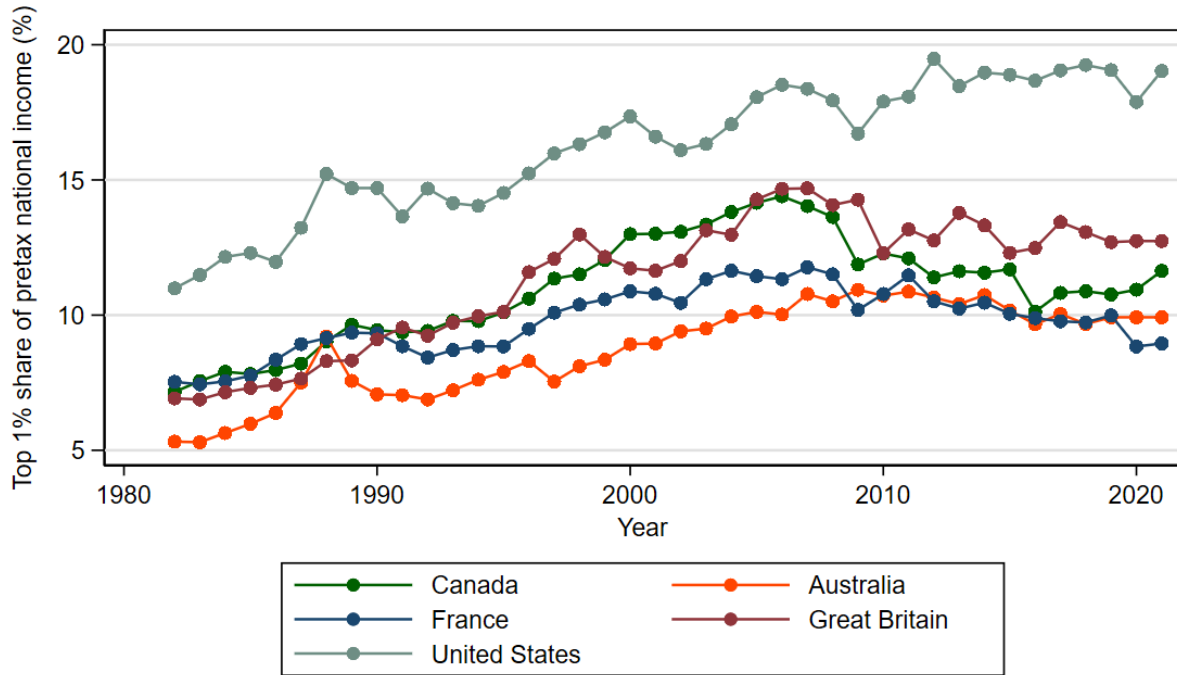

Figure 16. Top 1% national pre-tax income shares in Canada and comparable countries.
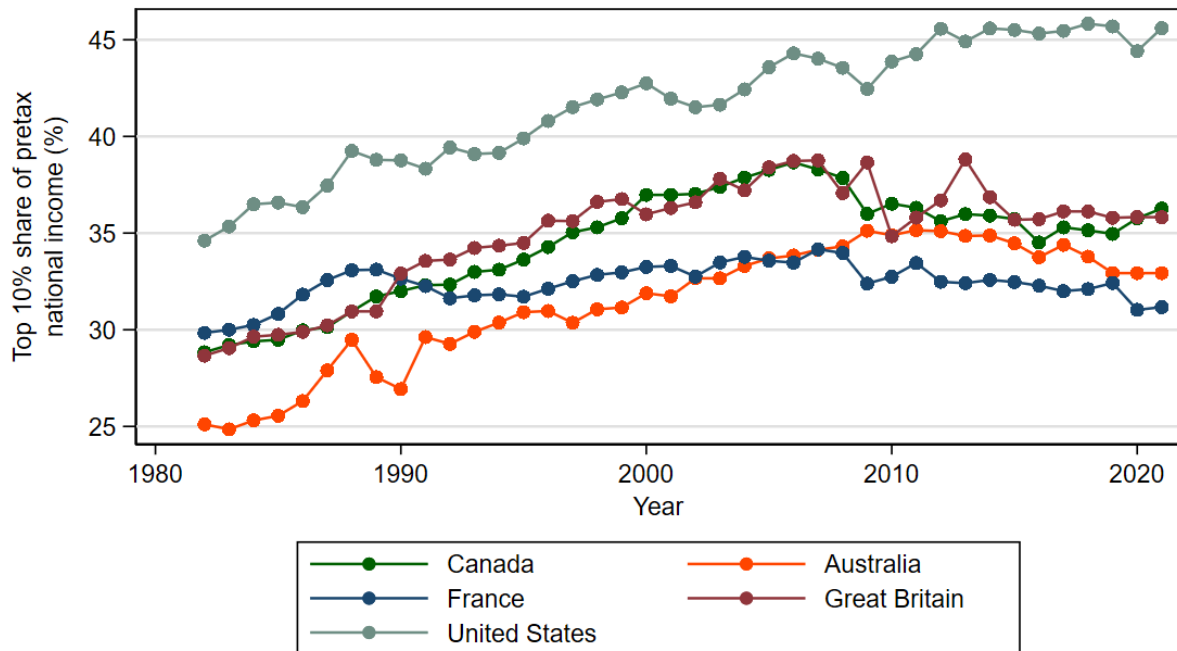

Figure 17. Top 10% national pre-tax income shares in Canada and comparable countries.

Conclusion

DINA methodology provides new insights into the evolution of income inequality in Canada, and its provinces, since 1982. In particular, top income shares are higher than those calculated based on tax data because tax data exclude non-filers and do not account for undistributed corporate profits. Traditional inequality estimates especially underestimated inequality during the mid-2000s when the capital income share peaked, meaning less of net national income was observable in tax data.

Overall, results confirm previous research showing that income inequality increased drastically from 1982 until the mid-2000s and has fallen since the financial crisis. The increase in the pre-tax income share of the top 10% since 1982 has largely come at the expense of the bottom 50%, although this effect is smaller for the post-tax distribution because the tax and transfer system has become more progressive. We showed that these effects have been strongest in Alberta, where inequality has been the most volatile and appears to be related to profits in the oil and gas industry.

Inequality in Canada has followed similar trends across regions, suggesting a common driving force. During the 1980s and 1990s, increasing inequality was driven by increasing inequality in labour incomes, which could be explained by increased labour market competition for top executives from the US, outsourcing of middle-class jobs, and falling unionization rates. However, the increase in national top shares between 1998 and 2006 was driven by an increasing capital income share and increasing concentration of capital income. This was led by residents of Alberta as oil and gas profits soared. This period of increasing inequality cannot be explained by the same reasons as the 1980s and early 1990s.

Quebec is no longer one of the regions with the lowest pre-tax income inequality because inequality has declined further in other regions since the 2008 financial crisis. However, Quebec continues to have the most progressive tax and transfer system among the five regions.

2020 was an outlier year for income inequality in Canada with increased pre-tax income inequality coinciding with decreased post-tax income inequality. In 2021, these trends were reversed as record corporate profits increased top incomes. The experience of 2020 demonstrates the power of fiscal policy to reduce post-tax income inequality. However, achieving a just distribution of income will require measures to that are permanent and address pre-tax inequality as well.

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