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Consumption, income, and wealth inequality in Canada ☆

Matthew Brzozowski [a], Martin Gervais [b,*], Paul Klein [c], Michio Suzuki [d]

[a] York University, Canada
[b] University of Southampton and IFS, United Kingdom
[c] University of Western Ontario, Canada
[d] Bank of Japan, Japan

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ABSTRACT

In this paper, we document some features of the distribution of income, consumption and wealth in Canada using survey data from many different sources. We find that wage and income inequality have increased substantially over the last 30 years, but that much of this rise was offset by the tax and transfer system. As a result, the rise in consumption inequality has been relatively mild. We also document that wealth inequality has remained fairly stable since 1999. Using both confidential data and publicly available data, we are able to gauge the extent to which the publicly available data conceals aspects of inequality that confidential data reveals.

1. Introduction

In this paper we use a variety of data sources to document some salient facts concerning the distribution of wages, hours worked, income, consumption and wealth in Canada. In general, our datasets have two access levels, one publicly available (Public-Use Files, or PUF) and one only available through Research Data Centres (RDC) administered by Statistics Canada. While our main conclusions are drawn from RDC data, we also discuss the extent to which noise introduced by Statistics Canada to protect individuals' identity distorts various measures of inequality.

Income inequality over the last 30 years or so has risen quite substantially in Canada. Wage inequality, as measured by the variance of log wages, doubled from 1977 to 2005. Indeed, the level and trend of wage inequality, however measured, are remarkably similar to the U.S. over the same period of time (see Heathcote et al., 2010, in this issue). In Canada, most of this rise occurred within skill groups, as the skill premium remained fairly stable until the mid-1990's, in contrast to the U.S. where the skill premium has been rising consistently since 1980.[1] As we move towards more inclusive measures of income, such as family earnings or total income before taxes and transfers, U.S. and Canadian inequality remain noticeably similar.

Perhaps the most striking finding of this study is the remarkable role played by the tax and transfer system both to compress inequality and to absorb changes in before-tax income inequality. Disposable income inequality, as measured by

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* Corresponding author.
E-mail addresses: brzozows@yorku.ca (M. Brzozowski), gervais@soton.ac.uk (M. Gervais), pklein2@uwo.ca (P. Klein), michio.suzuki@boj.or.jp (M. Suzuki).

[1] Boudarbat et al. (2006) point out, however, that the rise in the education premium in Canada starts much earlier once experience is controlled for.

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the variance of the log, was essentially flat from 1977 until 1990, a period over which the variance of log pre-government income increased by more than 10 points. Although disposable income inequality has increased since 1990, its rise pales in comparison to that of pre-tax income inequality.[2] While transfer payments—the main ones being, in order of importance in mitigating income inequality: social assistance, unemployment benefits, and various child benefit programs—are mainly responsible for absorbing changes in pre-government income inequality, both taxes and transfers play a significant role in compressing income inequality. Given the evolution of disposable income inequality, it should come as no surprise that consumption inequality also rose only moderately over our sample period.

An interesting feature of income inequality in Canada is that its evolution revolves around recessions. From 1976 to 2005, the Canadian economy experienced two recessions: one at the beginning of the 1980's and one at the beginning of the 1990's. Unlike the U.S., Canada did not experience a recession at the turn of the century. During each recession, wage and income inequality rose substantially, and the declines that followed were not sufficient to offset the rise, resulting in more inequality over time.[3] While a similar pattern can be detected for disposable income inequality, the movements are much milder and, at least in the 1980's, the rise during the recession was fully offset thereafter.

The previous findings also bear on patterns of inequality over the life-cycle, in the sense that the age-profile of inequality is much flatter for disposable income (and consumption) than for pre-government measures of income. Interestingly, wage inequality increases almost linearly over the life-cycle, suggesting the presence of highly persistent wage shocks (see Storesletten et al., 2004). However, the rise for earnings inequality tends to start later in life, and fails to show a clear monotonic (let alone linear) pattern. This lack of linearity leads us to question the validity of a unit root process as the main driving force for earnings, although this specification seems reasonable for wages.

Notwithstanding the caveats stated in the previous paragraph, we estimated wage and earnings (permanent–transitory) processes from our Canadian data. Our main finding is that a very high fraction of the overall cross-sectional variance and also a high fraction of the risk faced by households is accounted for by the "permanent" component as opposed to the transitory component of the process. However, this result is sensitive to the specification of the statistical model. Irrespective of the many caveats, it is interesting to note that in line with our main results discussed above, the tax and transfer system substantially reduces both permanent and transitory earnings risk.

A highly desirable property of distributions is log normality. With that property, a distribution can be fully characterized by its first two moments, and two distributions are unambiguously comparable with respect to the degree of inequality. In our data, the cross-sectional distribution of consumption is much closer to log-normal than that of income, much like Battistin et al. (2007) find in U.S. and U.K. data. Interestingly, but perhaps not surprisingly given our discussion above, disposable income is also found to be more log-normal than pre-government income.

The main results of this study are closely related to those found in Frenette et al. (2007). Using income data from the Census, they find that the 1980's were characterized by a strong rise in before-tax income inequality, but that most of that rise was absorbed by the Canadian tax and transfer system, with the result that after-tax (and transfer) income inequality remained constant. They further report that while before-tax income inequality also increased in the 1990's, this time the tax and transfer system failed to fully offset the rise. As a result, after-tax income inequality also rose in that decade, albeit not to the same extent as pre-tax income inequality. While our findings are similar, we choose to stress how small the increase in disposable is relative to the increase in before-tax income inequality, as opposed to their emphasis on the fact that disposable income inequality did rise in the 1990's.

Now the reason why Frenette et al. (2007) use Census data rather than survey data is mainly because they doubt the validity of results obtained though survey data.[4] Indeed, Frenette et al. (2006) show that income inequality trends in survey data are inconsistent with both Census and tax data. However, perhaps because of these inconsistencies, Statistics Canada implemented a revision to the weights in survey data, mainly in order for the surveys to be consistent with information (from the Canadian Revenue Agency) on wages and salaries.[5] Although such a revision almost necessarily entails distorting other aspects of the data (such as employment to population ratios) and brings about a break in the series because the revision was only applied retroactively to 1990, it seems to have brought income inequality results closer to those that emerge from Census data. Indeed, a look at income inequality from Public-Use Files, which for the most part still feature the pre-revision weights, confirms that the choice of Frenette et al. (2007) to use Census data was warranted. Our results from Public-Use Files look much like theirs from survey data, and when we compare those results to the results emerging from the revised weights, we are inclined to support their view that the old survey weights led to a distorted depiction of the evolution of income inequality in Canada.[6]

The rest of the paper is organized as follows. The next section describes our various sources of data and our sample selection. Section 3 compares measures of average income, consumption, and employment that emerge from survey data to their respective aggregate counterpart. Our main findings appear in Section 4, where we discuss the evolution of cross-

[2] It should be noted that the tax and transfer system appears to compress inequality especially at the bottom of the distribution, as evidenced by much smaller movements in the variance of log disposable income than in the Gini coefficient.

[3] Heathcote et al. (2010) document that this phenomenon, whereby recessions have a long-term effect on inequality, is also observed in U.S. data.

[4] While using Census data may have advantages over survey data, it also presents at least two serious drawbacks: (i) the lack of information on taxes paid, which need to be estimated, and (ii) the frequency of data collection (5-year intervals), which can mask changes that occur at higher frequencies.

[5] The details of this revision and its impact on survey income data can be found in Lathe (2005).

[6] Our results are not directly comparable, however, as they use a very different sample and a different way to equivalize earnings.