Where is Poverty Greatest in Canada? Comparing Regional Poverty Profile without Poverty Lines A Stochastic Dominance Approach

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Abstract

Comparisons of poverty between regions have impacts on policy choices. However, it is often argued that rankings of distributions are not robust and they are also quite sensitive to methods of defining poverty. This paper avoids these problems by using a stochastic dominance approach to compare regional poverty profile in Canada without arbitrarily specifying a poverty line. This analysis is carried out for the 10 provinces using the Survey of Labour and Income Dynamics for 2000. Robustness of the results is also verified with respect to different choices of spatial price deflators and equivalence scales. The extent to which the findings are sensitive to the choice of an absolute or a relative concept of poverty is also examined. I show that, in most cases, dominance relations can be determined and regional poverty can be ordered for a wide range of poverty lines. I also show that dominance results are robust to the choice of equivalence scales, while rank reversal occurs when alternative cost-of-living deflators are used. Switching from an absolute to a relative poverty concept only affects poverty rankings for Ontario, Quebec and the Prairie provinces but not in the case of other provinces. Nevertheless, for all scales, I find that poverty is greatest in British Columbia.

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1. Introduction

Regional income disparities have long been a phenomenon in Canada. These disparities may be in due not only to cost-of-living differences across characterized regions within the country, but also to differences in human-capital-related demographic characteristics. Examining the extent in magnitude of differences among regional income distributions, particularly poverty outcomes, often has important policy implications, as it is the basis for evaluating existing provincial welfare policies and for developing redistributive policies of the Federal Government of Canada, such as the fiscal equalization grants. As a result, how to obtain a reliable and robust regional profile is a key aspect of policy formulation, and therefore deserves close scrutiny.

In Canada, a regional poverty profile is not officially conducted but it can often be obtained by constructing poverty measures—such as the headcount ratio or poverty gap—based on Statistics Canada's Low-Income Cutoffs (LICOs), as in Figure 1.[1] However, questions have always been raised concerning the robustness of the results, particularly when measurements of the welfare function and poverty itself are controversial. The use of such cutoffs is subject to arbitrary choices, with respect to the proportion of spending on necessities and what constitutes necessities. It can be argued that any revision of these standards would lead to completely different geographic distribution of poverty (see, for example, Ravallion and Bidani 1994).

This paper provides a robust way to compare regional poverty profiles in Canada without arbitrarily specifying a poverty line. The empirical analysis is motivated by the theory of stochastic dominance, which can be used in examining the rankings of income distributions with

[1] See also, for example, Lee (2000) and National Council of Welfare (2004).

multiple poverty criteria for a wide range of poverty lines.[2] That is, by comparing the cumulative distribution functions of income between two regions, one may judge whether the choice of poverty line affects the conclusion about ranking. This avoids using one single poverty line to make a comparison.

The paper is also motivated by the long-standing debate in Canada over the meaning of the term "poverty." This is due, in part, because there is no consensus on the choice of scaling factors to make the income distributions comparable for poverty analysis. Such scaling factors include a price index that accounts for inflation, a spatial price index for cost-of-living differences and an equivalence scale that accounts for household composition. There is often criticism that Statistics Canada's LICOs provide no satisfactory index for cost-of-living across regions. Policy makers and researchers have suggested using other measures to supplement the LICOs, including the low income measures (LIM)—which places emphasis on a relative concept—and the market basket measure (MBM)—which tackles cost/price-differences in necessities for a total of 48 urban centres and community sizes in the 10 provinces.[3] Poverty statistics (e.g., headcounts or poverty gaps) are bound to differ among the underlying scaling factors chosen. The important question, however, is to know by how much they differ. To answer this question, tests of stochastic dominance are also performed, based on different choices of assumptions made to defining income or poverty. These include choice of spatial

[2] See, for example, Atkinson (1987), Foster and Shorrocks (1988), Jenkins and Lambert (1997) and Zheng (2000). Statistical issues on stochastic dominance can be found, for example, in Bishop *et al*. (1991, 1992) and Kaur *et al*. (1994), for discussing test of the ordinates of the curves, and in Davidson and Duclos (2000) for deriving the limiting distribution of estimated ordinates. Empirical studies using the technique of stochastic dominance can be seen, for example, in Madden (2000) and Sahn (2001).

[3] That is, the LIM is a fixed percentage (50%) of median needs-adjusted income. The MBMs, on the other hand, are estimated costs of a specific basket of goods and services related to food, clothing and footwear, shelter and transportation; and the costs are calculated for 29 community sizes in the 10 provinces and another 19 specific urban centres. See Human Resources Development Canada (2003) for details.

price deflators, equivalence scales and an absolute or a relative concept. Statistical inferences for stochastic dominance are used to account for sampling variations.

In Section 2, I briefly summarize the poverty measures used and explain the stochastic dominance approach. In Section 3, I go on to describe the data and the definition of income. Section 4 provides an empirical illustration on how tests of stochastic dominance are implemented, using real data from two provinces—Newfoundland[4] and Ontario. The results for all provinces are presented and discussed in Section 5 and the conclusions are then summarized in Section 6.

2. Poverty measures and stochastic dominance

By far the most widely-used poverty measure is the headcount index, which simply measures the proportion of the population that is counted as poor. In this paper, I also include two other measures—poverty gap and squared poverty gap—in the analysis. These three measures belong to the Foster-Greer-Thorbecke class of poverty indices (see Foster, Greer and Thorbecke 1984). These measures may be written generally as

$$P_a = \frac{1}{N}\sum_{i=1}^{N}(\frac{g_i}{z})^a \ , (a \geq 0)$$

$$g_i = \max(z - y_i, 0)$$

where y_i is the value of per-adult equivalent income for the *i*-th person, and *N* represents the total population. Then g_i is the income short-fall—the gap between individual income and the poverty threshold—for individual *i* for a given poverty line *z*, and a is a measure of the sensitivity of the index to the income short-falls themselves. Foster, Greer and Thorbecke

[4] Newfoundland includes Newfoundland and Labrador. Only the former is mentioned throughout the text for the sake of brevity.

interpret this parameter as an indicator of "aversion to poverty" because it gives greater emphasis to the poorest poor as a becomes larger. When a =0, P_0 is simply the headcount ratio; when a =1, P_1 is the poverty gap index, defined by the mean distance below the poverty line, where mean is formed over the entire population, with the non-poor counted as having a zero poverty gap; and when a =2, P_2 (the squared poverty gap) is called the poverty severity index because it is sensitive to inequality among the poor. Although, in general, P can be derived for any desired order, it becomes more difficult to interpret for larger a. Therefore, I restrict my discussion to the first three measures in this paper.

Note that it is useful to consider the poverty gap (P_1) and squared poverty gap (P_2) measures in addition to commonly used headcount index (P_0), since the latter is neither monotonic nor distribution-sensitive. For example, a small transfer of income from a rich person to a very poor person may not change the headcount ratios, while this welfare improvement is reflected in a reduction of both the P_1 and P_2 measures. Also, a transfer of income from a poor person to a poorer person may not alter the P_0 and P_1, but it lessens inequality among the poor and it is reflected in a reduction of the P_2 measure.[5] Policies on poverty reduction may be more appropriately targetted—whether reducing headcount or reducing severity of the poor—when outcomes of all three measures are understood.

Stochastic dominance and statistical inference

To make a robust poverty comparison for two income distributions, it is important to check whether poverty in one distribution always dominates the other, no matter what poverty line is used. This requirement can be addressed by drawing on the technique of stochastic

[5] That is, the FGT measures satisfy Sen's (1976) Monotonicity Axiom for a >0, and the Transfer Axiom for a >1.

dominance, which is based on the comparisons of cumulative distribution functions (CDF). Consider two distributions of incomes with CDF, F_A and F_B respectively. Let

$$D^1(x) = F(x), \text{ and}$$

$$D^s(x) = \int_0^x D^{(s-1)}(y)dy \text{ for any integer } s \geq 2.$$

Distribution B is said to dominate distribution A stochastically at order s if $D_A^s(x) \geq D_B^s(x)$ for all poverty lines over the domain of interest. The graph of $D^1(x)$ is often referred to as the *poverty incidence curve* because it is traced out as one plots the headcount index on the vertical axis and the poverty line on the horizontal axis, allowing the poverty line to vary from zero to an arbitrarily selected maximum poverty line z_{max}. The graph of $D^2(x)$ is usually regarded as the *poverty deficit curve*, and $D^3(x)$ as the *poverty severity curve.*

Since two density curves may be very close to each other, there is a need to assess whether the difference between them is statistically significant. Studies have suggested various hypotheses that could be used in a testing procedure for stochastic dominance.[6] In this paper, I employ a null hypothesis of nondominance of B over A, $H_0 : D_B^s(x) - D_A^s(x) \geq 0$ for all x over a domain of interest. If the null is rejected, then it legitimately infers the dominance of B over A. It can be shown that such hypothesis is asymptotically bounded by the nominal level of a test based on the standard normal distribution. The test is based on the minimum t-statistic approach proposed by Kaur, Prakasa Rao and Singh (1994) for the null against the alternative of dominance. Similar to Kaur, Prakasa Rao and Singh, I calculate the t statistic for each value of x that is observed in the sample. I reject the null of nondominance and accept the alternative of dominance if the minimum t statistic is significant at 5% level. This procedure is often

[6] See Davidson and Duclos (2000, 2006) for a more in depth discussion about different hypothesis testing.

interpreted as an intersection-union test because dominance of *B* over *A* can only occur if the *t*-statistic for the difference in any ordinate pair is significant.[7]

In reality, it is often possible that the two distributions of incomes may cross within the range of interest (as in Figure 2).[8] In this case, there are two closed intervals observed and two minimum *t*-statistics are obtained with the opposite sign. If both minimum *t*-statistics are significant at a certain level, we can conclude dominance of *B* over *A* between $[z^B_{min}, z^B_{max}]$ and also dominance of *A* over *B* between $[z^A_{min}, z^A_{max}]$. As a result, dominance relation over the entire domain is uncertain or undetermined. If it occurs, one may resolve the problem by looking for higher order stochastic dominance, which focusses on a measure that places more weights on the poorer persons, to help reach a clear conclusion. In the case of second-order dominance, it is to compare the poverty deficit curve, which can be traced out by calculating the areas under the CDF (poverty incidence curve), and plot its value against the poverty line. Similarly, third-order dominance can be employed by comparing the poverty severity curve (the areas under the poverty deficit curve). If this fails to reject the null of nondominance up to third-order condition, I declare that the two distributions of income are not comparable.

In many circumstances, especially in the discussion of welfare economics, interests of poverty dominance are often restricted to over an arbitrarily defined interval $[z_{min}, z_{max}]$, as suggested in Atkinson (1987). In Figure 2, for example, first-order stochastic dominance of *A* by *B* is not found over the whole range of the income distribution, while dominance may be obtained over the restricted domain $[z^B_{min}, z^B_{max}]$. The comparisons therefore refer only to a "partial" rather than a complete ordering of the distributions. Davidson and Duclos (2006) also

[7] This is opposed to a union-intersection test (Bishop, Formby and Smith 1991, for example), where dominance of *B* over *A* can be declared if there exists at least one x where $D_A(x)$-$D_B(x)$ is rejected.
[8] That is, we have both positive and negative *t* statistics at significance level.

point out some rationales for focusing on testing of restricted dominance, and they emphasize that such focus would avoid comparisons over areas where there is too little information.

In fact, it may be more informative to estimate the thresholds for dominance (or restricted dominance) relations between regions. Since in this paper test statistics are calculated at each value of x over the domain of interest, it is possible to find the estimates of lower/upper thresholds in which interval one distribution stochastically dominates the other. To do this, I must first choose a range of poverty lines where test statistics are calculated. Then, the minimum t statistic is used to test the null of nondominance at significance of 5% level. If there does exist only dominance of B over A for the range of interest, I declare dominance and report the estimates of lower/upper thresholds to which range the distribution B ranks over A. However, if there is a failure to reject the null, either because the minimum t is not significant or because there exist a reverse case (dominance of A over B) at another interval within the range of interest, I declare no dominance and search for higher order tests.

In this paper, test statistics are calculated mainly for two different ranges of interest over the lower part of the income distribution: (1) full domain [$0+, $20,000], and (2) restricted domain [$5,000, $20,000]. In either case, I make an arbitrary choice of maximum possible poverty line z_{max} = $20,000 of equivalent income (see definition below), while the lower limit is set to $5,000 of equivalent income for restricted model.

3. Data and definitions of income and poverty lines

The data are from the Survey of Labour and Income Dynamics (SLID 2000). The sample includes everybody in the survey, and the family is defined as economic family. In 2000, a total of 76,846 individuals are included, with Ontario constituting the largest sample (n=23,130) and

Prince Edward Island (P.E.I.) the smallest (n=2,225). Income refers to total economic family income after government transfers and after taxes. In order to make the income distributions among regions comparable in real terms, income is family needs-adjusted (by an equivalence scale) and also spatial price-adjusted (by a set of cost-of-living deflators). Income after adjustments refers to equivalent income. For the base-case model, adjustments are made through scaling factors used for the calculation of the LICOs.[9] By using equivalent income, it is similar to saying that the 35 LICO cutoffs are standardized into one single cutoff, with the baseline case set to one person living in a metropolitan area in population size 500,000 or above.

While poverty comparisons are made conditional on prior choice of scaling factors used to compute equivalent income, there is, however, no consensus on the choices of such factors. It is often argued that the cost-of-living index used for the LICOs is not satisfactory because it only differentiates prices between five community sizes, without taking into account inter-provincial and city-specific differences in prices. Also, the LICOs apply a unique equivalence scale to adjust for family composition that is not commonly used in the literature. It is highly possible that change in such underlying factors may modify the shape of income distributions and therefore alter dominance results.

To examine whether dominance relations are robust to different scaling factors chosen, tests of dominance are also evaluated separately for equivalent income based on two other equivalence scales—square root of family size and modified OECD scales—that are widely used in the literature, and also based on an alternative cost-of-living index that was recently developed

[9] That is, the equivalence scale for the calculation of the LICO is 1 for people living alone; 1.217 for families of 2; 1.516 for 3; 1.891 for 4; 2.153 for 5; 2.388 for 6; and 2.623 for >=7. The scaling factor used in the LICO to adjust prices to its large city equivalent (population 500,000 and above) is 1.529 for those in rural area; 1.336 in urban areas of population<30000; 1.197 in urban areas of 30,000-99,999; and 1.182 in urban areas of 100,000-499,000.

for the calculation of the Market Basket Measure (MBM).[10] It is noteworthy the MBM is a federal–provincial–territorial-funded low-income measure calculating the costs of standard of consumption for a fine detail of 48 regions in Canada, including 29 rural/urban areas across provinces and 19 specific urban centres.[11] Although the MBM is not designed to measure price differences in general, such costs of baskets across finer regions nevertheless provide a good proxy for spatial differences in prices.

Furthermore, particularly in poverty comparisons across time or across countries/regions, it is often more desirable to view poverty in relative terms, as the poverty line is defined as some proportion of median or average income in respective time periods or regions. In other words, it allows for different poverty lines (z_A, z_B) for different income distributions.[12] For example, by setting the poverty line as a proportion of the provincial median income, it assumes that the appropriate community for reference is at the provincial level, not the national level. It should be noted that this is not an issue of appropriate cost-of-living adjustment. Although "standard of living or consumption" may vary across regions, due to differences in relative prices, they may also vary because of differences in tastes and also the availability of particular resources. The choice between relative and absolute lines therefore entails value judgments. In this paper I do not take a stand on the appropriate choice between these, but it is interesting to see whether or not poverty rankings are sensitive to the choice of relative or absolute poverty lines.

[10] The other potential price indices across regions is the consumer price index (CPI), which measures price changes by comparing, through time, the cost of a fixed basket of commodities. The CPI is calculated for the 10 provinces and for an additional 16 urban centres.

[11] See Human Resources Development Canada (2003) for more details.

[12] The use of relative poverty lines may further complicate the testing procedure, as the calculation of sampling variances for estimates of relative poverty measures now includes a stochastic component of poverty line, which needs to be estimated from samples at the same time (see Preston (1995) and Zheng (2001) for detailed discussion about inference for poverty measures with relative poverty line). In this paper, for simplicity, the sampling variations of estimated poverty lines are ignored.

Finally, analyses in the paper are weighted by the SLID cross-sectional weights, which not only compensate for non-response, but also make proper adjustments for complex survey designs to ensure that estimates on relevant population characteristics respect population totals from sources other than the survey.

4. An illustration: Newfoundland and Ontario

Before showing the overall results, this subsection illustrates a comparison of poverty for two provinces—Newfoundland and Ontario—using the technique described above. Comparisons for other pairs of provinces are examined in a similar fashion. In Figure 3, I draw the two CDFs for Newfoundland and Ontario, respectively, where income is needs/region-price adjusted. The LICO headcount rates can be obtained by drawing a standardized LICO line ($15,352) on the *x* axis. The corresponding *y* values confirm the information in Figure 1 that the headcount poverty rate is 13.2% in Newfoundland and 10.8% in Ontario. However, more importantly, Figure 3 immediately reveals the drawback of the LICO because the answer to the question "Where is poverty greater?" crucially depends on where the poverty line is drawn. Indeed, rank-order, in this comparison, may lead to a complete reverse outcome when the poverty line is set to below $10,000 of equivalent income.

Tests of stochastic dominance over the full domain of low-income distribution

The task here is therefore to draw statistical inferences to test whether poverty differs significantly between two regions. Tests of stochastic dominance are first conducted covering the full spectrum of the lower-end income distribution (i.e., for all possible values of poverty lines between 0+ and $20,000). It should be emphasized that test statistics are calculated at each value of *x* observed in the sample. For illustration purpose, I only show a grid of 20 poverty lines, which lie from \$1,000 to \$20,000 at intervals of \$1,000 in Table 1. The estimated headcount ratios—along with their asymptotic standard errors—for both provinces as well as the t-statistics of the difference $\hat{D}_A^s(x) - \hat{D}_B^s$ for each of these 20 points are presented. At 5% significance level, Table 1 shows that Newfoundland has a lower headcount ratio for all x less than \$8,000 (the estimated threshold is \$8,416); while Ontario dominates Newfoundland for poverty lines above \$13,000 (the estimated threshold is \$12,366).[13] Since the two distributions crossed within the range of interest and the minimum t-statistics show that both provinces dominate each other over some areas of x at significance level, first-order stochastic dominance cannot therefore be concluded.

Given that there is no clear conclusion for first-order test, I search for second-order dominance, which focusses on normalized poverty gap index. Poverty deficit curves and test statistics are shown in Figure 4 and Table 2, respectively. Similar to incidence curves, the two deficit curves still intersected at x around \$15,000. Test statistics based on the minimum t ratio at 5% level show that Newfoundland second-order dominates Ontario for x below \$11,424, while Ontario dominates Newfoundland for $x \geq \$18,470$. As a result, second-order dominance is not obtained.

In a search for third-order dominance, I plot poverty severity curves in Figure 5 and report test statistics in Table 3. Now the Newfoundland curve lies below that of Ontario for all $x \leq$ \$14,684 at 5% level, and no reversal is found for all other x values $\leq$ \$20,000. This is not surprising because the "squared poverty gap" measure gives more weight to the poorest of the poor, and Ontario is observed to have a higher proportion of poor people at the bottom of the

[13] Bootstrap estimates of standard errors (not shown) for the lower/upper thresholds are computed based on 50 replications from the original sample with replacement.

distribution. As a result, I conclude that Newfoundland has less poverty than Ontario, as Newfoundland third-order poverty dominates Ontario over domain [$0+, $14,684].

The exercise also reveals the sensitivity of poverty measures used. In fact, it shows that no poverty-measure ordering (see Zheng 1999) can be found when the LICO poverty line is used. That is, under the LICO poverty line, Ontario is considered to have less poverty than Newfoundland in terms of headcount rates at 5% level; the ordering then becomes ambiguous in poverty gap measure and a reverse ordering is obtained in squared poverty gap measure.

Tests of stochastic dominance over restricted domain

Notice that dominance relations from above may not hold if the range of interest is redefined over a restricted domain [z_{min}, z_{max}], rather than over the full range of the lower-end income distribution [0, z_{max}]. Recall that the two distributions crossed at around $10,000. At 5% level, Newfoundland dominates Ontario for x less than $8,416 and Ontario dominates Newfoundland for x greater than $12,366. This implies that one can actually obtain a very different conclusion that Ontario first-order dominates Newfoundland for all $x \geq \$12,366$, if the lower-limit of interest is set to over $8,416.

The challenge, however, is to pick up a reasonable lower-limit where test statistics are to be calculated. In this paper I consider an arbitrary choice of $5,000. Even though this value does not really make sense for a "minimal survival poverty line," I choose it because the value is small enough to make my comparisons more robust, but it is large enough to avoid problems of small observations and measurement errors that usually prevail in the lower tail of the distribution. Given the restricted domain of interest, the testing result (the minimum t statistic at

5% level) still concludes that Newfoundland dominates Ontario stochastically at third order condition over [$5,000, $14,684] with reported lower threshold censored at $5,000.

The simple illustration above demonstrates that poverty rankings based on commonly used LICO indicators are not robust because such comparisons only rank the headcount at one poverty line, and a contradictory result may occur when different poverty lines are chosen. Using the stochastic dominance approach, this example shows that the two distributions of income can be ranked over a wide range of possible poverty lines. I also show that ranking of distributions may alter when different domains of interest are assumed. In fact, since the *t* statistics are calculated at each point in the sample, the lower/upper thresholds for dominance can be obtained at a certain level of significance using the minimum *t* statistic approach. It allows us to check until we reach which minimum/maximum values of poverty line we can go to in order to rank poverty across two provinces.

Does the choice of cost-of-living deflator matter?

In Figures 6 to 8 I repeat the same exercise above but now I use the MBM-based cost-of-living index as scaling factors for equivalent income.[14] The LICO equivalence scale is still used to adjust for family composition. Contrary to previous findings, dominance relation cannot be established between Newfoundland and Ontario when the range of interest covers all possible values between zero and $20,000. It is clear from graphs that the two density curves crossed for all first, second and third-order conditions and both provinces' poverty dominate each other at different intervals of the distribution. Poverty severity curves, for instance, show that Ontario third-order dominates Newfoundland for poverty lines above $14,358 at 5% level, while also

[14] That is, I first arbitrarily select a base region (i.e., Toronto in this example), and then the cost-of-living scaling factors for other regions can be obtained by the ratio of costs of basket for Toronto and costs of basket for region in comparison. As a result, equivalent incomes are adjusted to "Toronto" equivalent basis.

show a complete reverse outcome for poverty lines below \$9,091. This reveals that poverty rankings exhibit sensitivity to the choice of scaling factors relating to cost-of-living. It is, however, noteworthy that the two poverty incidence curves cross at a much lower value of x when the MBM cost-of-living index is used. Indeed, a reverse outcome will not happen at 5% level until $x \leq \$6,000$. Therefore, one may obtain restricted first-order dominance of Ontario over Newfoundland for poverty lines between \$8,430 and \$20,000 if the range of interest is set to above \$6,000.

Does the choice of equivalence scale matter?

A similar robustness argument can be applied to the choice of equivalence scale. To examine, I re-compute equivalent income using two other equivalence scales: "squared root of family size" and "modified OECD scale," respectively.[15] At the significance of 5% level, the results (not shown) greatly resemble those in the base-case. It concludes third-order dominance of Newfoundland over Ontario if test statistics are calculated over the full domain. For restricted dominance, it concludes that Ontario first-order dominates Newfoundland for poverty lines above \$10,471 (compare with \$12,366 in base-case model). This suggests that poverty rankings are generally less sensitive—at least in this illustration—to the choice of equivalence scales.

Relative concept of poverty

How does switching from an absolute to a relative poverty concept affect poverty rankings? To answer this question, I normalize equivalent income for each individual by dividing respective provincial median income. Income is still needs-adjusted and prices-adjusted using the LICO factors. The maximum possible poverty line is set at 70% of the provincial median income. For a restricted case, test statistics are computed for a range of poverty lines between

[15] Income is still spatial price-adjusted using the LICO cost-of-living index.

15% and 70% of estimated median income, on the basis that it is considered the reasonable lower and upper limits to the poverty lines. Figure 9 reveals that the two CDF lines exhibit quite similar patterns except for the lower portion of the distribution. The minimum *t* statistic from Table 4 indicates that Newfoundland first-order dominates Ontario for poverty lines below 34.2% of respective median income. There is no need to look for higher order conditions because no reverse outcome is found in the range of interest at significance level.

Compared with the base-case results, this exercise shows sensitivity to the choice of absolute or relative poverty lines. In the latter case, Ontario never stochastically dominates Newfoundland for any range of poverty lines. It is also worth noting that poverty rankings based on relative concepts are less affected by the choice of cost-of-living deflator (results not shown) because individuals are now compared with the standard (% of median) in the province of residence. Thus, inter-provincial price differences are irrelevant and only differences in intra-provincial prices matter.

5. Comparing regional poverty in Canada

Table 5 reports the estimates of headcount ratios (and asymptotic standard errors) for the 10 provinces and for selected poverty lines, varying between $4,000 and $20,000 of equivalent income. Provinces are ranked from left to right (most poverty to least poverty), according to their headcount rates.[16] It reveals that poverty rankings are sensitive to where the poverty line is drawn. In fact, provinces in Western Canada experience higher headcount rates for poverty lines below $8,000. When the lines are set to $10,000 or above, poverty orderings change

[16] Rankings for the estimates of poverty gap ratio and squared poverty gap ratio are offered in Appendix Tables A1 and A2, respectively.

dramatically: headcount poverty is now significantly higher in Quebec and Newfoundland, while Saskatchewan, Alberta and Ontario all experience a drop in headcount rankings.

The results for dominance relations by the 10 provinces (a total of 45 pairs) are presented in Tables 6 to 11. Test statistics are calculated at each value of x observed in the sample, and the minimum t-ratio approach is used to test for the null of nondominance. A value “1” in the cell indicates that column first-order dominates the row, and the two square brackets below indicate the lower/upper thresholds in which the column province poverty dominates the row province within the boundary at 5% significance level. Similarly, a “2” represents second-order dominance, and a “3” illustrates third-order dominance. When a dominance relation cannot be found up to third-order condition, an “X” is marked to indicate that poverty between the two provinces cannot be ranked.[17] The overall poverty rankings are obtained from the simple method of pair-wise comparisons and the rankings are displayed in ascending order (*1, 2, 3…*) representing highest to lowest level of poverty. That is, for any given two provinces, the one with more total cases of dominance is considered to have lower poverty. If head-to-head comparison between two provinces cannot be determined and both provinces have the same total cases of dominance over other provinces, then both are tied in poverty rankings.

In Table 6, test statistics are calculated over the full spectrum of the lower-part income distribution (i.e., poverty lines between $0+ and $20,000). For reference, the commonly used LICO headcount ratios are also reported in the table. Overall, Table 6 shows that rank-order can be determined and the lower/upper limits for dominance can be obtained in 41 out of 45 comparisons, up to third-order condition. In 2000, British Columbia (B.C.) has the highest level

[17] There are two cases when an “X” is marked. First we fail to reject the null of nondominance everywhere in the domain of interest (i.e., the two distributions coincide together). Second there are at least two closed intervals in the domain of interest and the minimum t-statistic is significant in both intervals but with a different sign (i.e., the two distributions crossed). In theory, dominance results may be obtained at higher orders (>3) condition. For practical reasons, I limit tests up to third order condition.

of poverty, as B.C. was first-order stochastically dominated by all other provinces for a wide range of poverty lines.[18] The ordering is then followed by Manitoba and Quebec, Saskatchewan/Alberta, Ontario and the Atlantic Provinces, with New Brunswick (N.B.) and P.E.I. dominating all other provinces at first-order condition. Interestingly, such rankings are not necessarily in accordance with the LICO headcount rates. For instance, Newfoundland has a significantly higher LICO headcount rate than Ontario, Alberta and Saskatchewan, indeed Newfoundland poverty dominates these provinces at a higher order. It is because Newfoundland has a relatively small proportion of "very poor" people among the poor population, compared with other provinces.

This use of information over the distribution of income helps rank the two provinces that appeared to be statistically indifference in LICO comparison. For instance, one cannot rank poverty between Ontario and Saskatchewan, based on the LICO headcount rates, because the difference at this particular point is statistically insignificant. However, more marked regional differences may be discovered when we look at a wide range of poverty lines. Using the stochastic dominance approach, we can conclude that Ontario first-order dominates Saskatchewan stochastically over a restricted domain [$17,651, $20,000+].

Although first-order dominance is commonly seen in most cells in Table 6, there are six comparisons where dominance relations must be determined at higher order condition, and there are also four cases where no clear conclusion can be obtained up to third-order condition. This may occur because the two curves are not differentiable, or because the two curves come crossed over the range of interest. In the latter case, it is possible that the dominance relation may change if a restricted domain—which now excludes the crossing point—is focussed. Indeed, literature

[18] Note that Quebec only dominates B.C. over a relatively limited range [$0+, $8,641] at first-order. However, the range of dominance extends to [$0+, $17,884] at second-order condition.

has suggested focusing on restricted dominance instead of unrestricted dominance because there may be sampling issue at the tails of the distributions. In addition, from a social welfare perspective, it might be sensible to impose a minimum income that is needed for an individual to perform normally in a given society to meet certain ethical principles (see Davidson and Duclos 2006 for more discussion).

For this reason, I introduce a reasonable lower limit ($5,000) and test statistics are computed over the restricted domain [$5,000, $20,000] in Table 7. I refer this Table to “the base-case” model. Surprisingly, rank-order changed only slightly compared with Table 6. The only exception is Quebec and Manitoba, where rank-order is reversed. Manitoba was third-order dominated by Quebec in Table 6, but now dominates Quebec at first-order over domain [$13,167, $14,629]. The reversal occurred because in Manitoba there are relatively more deprived people living below $5,000 and these people were ignored when focusing on restricted domain. It is reasonable to believe that poverty ranking may be in a complete different order as domain of interest becomes more restricted.

In Table 8, I further limit test statistics to be calculated over an even more restricted range between $10,000 and $20,000. Now Newfoundland shows more poverty, as its poverty rankings moving from seventh place in the base-case model to fourth place. Rank reversals are observed between Newfoundland and three other provinces—Saskatchewan, Alberta and Ontario. It is not surprising because Newfoundland, overall, has relatively more people in the lower part of the income distribution (but very few at the bottom), compared with the three aforementioned provinces. Testing based on a more restricted domain therefore reduces comparative advantage for Newfoundland and results in higher ranking in poverty. Furthermore, two comparisons that failed to reject the null of nondominance in the base-case model—Nova

Scotia (N.S.)/ Newfoundland and Ontario/N.S.—now show dominance relations at first-order condition. The overall poverty rankings, therefore, can be ordered more preciously.

It should be emphasized that the interpretation of poverty rankings needs to be supplemented with the range of dominance that is estimated in the tables. In some cases, such as the comparison with B.C., dominance relation is very robust for a wide range of poverty lines. In other cases, such as the N.B./Ontario comparison, it only concludes that N.B. first-order dominates Ontario for a very restricted domain over [$14,606, $15,904]. The two provinces are virtually indifference when comparing poverty lines outside the limit.

Sensitivity analyses

It is emphasized that the long-standing debate on poverty often involves discussions on choosing different scaling factors to define equivalent income and also on issues about choosing absolute or relative poverty lines. The remaining section, therefore, examines the robustness of poverty rankings to the choice of some underlying assumptions—namely, equivalence scales, cost-of-living factors and relative poverty lines.

Table 9 shows tests of dominance for which equivalent income is calculated using "square root family size" instead of LICO equivalence scale. In order to attribute rank change to the choice of equivalence scale, income is still price-adjusted using the LICO cost-of-living index. In comparing with the base-case results, Table 9 shows that poverty rankings are virtually insensitive to the choice of equivalence scale. Rank-order remained exactly the same for 44 out of 45 comparisons with minor changes over domain of dominance. The only difference is N.S./ Newfoundland where dominance relation cannot be determined in the base-case model but it is clear now that N.S. first-order dominates Newfoundland for poverty lines over [$13,864,

$18,871]. Nevertheless, it is important that no rank reversal occurred to the choice of equivalence scales.[19]

Next, I examine how the choice of spatial price factor affects geographical distribution of poverty. This is relevant, especially when no satisfactory spatial cost-of-living index is available for Canada. It is well documented that using different indices for spatial price differences could reverse rankings for poverty measures (see, for examples, Ravallion and Bidani 1994 and Jolliffe 2004). This is also the case in Canada. Compared with the base-case results, Table 10 reveals that dominance relations change considerably when the MBM-based price index is used.

Except for B.C., where poverty remained the highest among the nation for a wide range of poverty lines, rank-order for other provinces reshuffled. Overall, poverty becomes more serious in the Atlantic provinces and less so in the Prairie provinces and Ontario. It is striking that Quebec, that was ranked second place in poverty from the base-case model, has now become the province with the least poverty. On the other hand, the use of the MBM price index significantly increases poverty for P.E.I—from the least poverty to the third highest among provinces. Indeed, a complete reversal of poverty ranking is observed in 21 out of 45 cells, particularly for relating comparisons to Quebec, P.E.I., and Manitoba. For instance, eight out of nine Quebec-involved comparisons turned to the opposite result.

Despite the reshuffling, the overall poverty rankings become more obvious because now I only reject the null of nondominance for two cells, compared with four in the base-case model. The four comparisons (e.g., N.S./Newfoundland), in which rank-order was unable to determined in Table 7, now show clear dominance relations at first order for some range of poverty lines. Nevertheless, the use of the MBM price index also changed relations for two cells (i.e.,

[19] The results are robust even when the other equivalence scale (i.e., the modified OECD scale) is used (not shown). Tests of poverty dominance based on the OECD scale show great resemblance as those obtained from the "square root family size" equivalence scale.

N.S./P.E.I and Saskatchewan/ Newfoundland) from dominance to noncomparability, up to third-order condition.

Comparing Table 7 with Table 10, dominance relations remained the same for only 18 out of 45 comparisons (with one cell changed order condition). The tests of dominance are robust for B.C., regardless of the choice of cost-of-living index. However, it is striking that as many as 21 cells reached a complete reversal of ranking. It is also interesting that such reversals are not observed equally across provinces. Rather, they mainly concentrate among comparisons relating to Quebec, P.E.I., Manitoba and Alberta, as 19 out of the 21 reversals involve these provinces. The results reflect significant inter-provincial differences in the costs of necessities, information which is masked in the LICO cost-of-living index; and such costs of market basket are considerably lower in certain provinces, such as Quebec and Manitoba. Indeed, some provincial governments could simply reduce poverty statistics by switching to the MBM price factors, without having real poverty alleviation policies. This, of course, raises issues about how the MBM thresholds were calculated and how to keep them updated over time. Is there a need to differentiate a regional basket at such detailed level given that people can freely move? The answer to these questions, however, is beyond the scope of this paper.

Finally, in Table 11, I examine poverty dominance using relative poverty lines. In the cases of cross-country/region comparison, it is often more desirable to view poverty as a relative term. People may feel deprived or excluded simply because they have fewer resources relative to the average standard of the society in which they reside, not necessary because their income/consumption level is below an absolute subsistence of living. When adopting a relative poverty concept, poverty lines are allowed to vary by different income distributions across provinces, with poverty lines set to a proportion of the provincial median income.

In order to compare with the base-case model, tests statistics are calculated at each normalized values of x for a range between 15% and 70% of provincial medina income.[20] Overall, Table 11 shows that B.C. still ranks first in poverty, even with relative lines. The ordering then follows with Ontario, the Prairie provinces, Quebec and the Atlantic Provinces. The overall rankings show some resemblance to the base-case model as the rankings of B.C. and the Atlantic provinces all stay in the same places as in Table 7. In fact, about 33 out of 35 comparisons relating to these provinces keep the same dominance results. Switching from an absolute to a relative poverty concept, however, has greater impact on poverty comparisons between Ontario, Quebec and the Prairie provinces. It is striking that a reverse outcome is observed in 8 out of 10 comparisons among these provinces. Ontario now ranks second highest in poverty—compare with second place in the base-case model—while poverty becomes relatively lower for Quebec and Manitoba ,as their rankings dropped a couple of spots compared with Table 7.

It is reasonable to infer that rank-reversal is more likely to happen when comparing provinces in which median income differs markedly. A typical case is Ontario, where median equivalent income is much higher than that of other provinces. The use of relative poverty lines, therefore, places more people into poverty in Ontario in the sense of relative deprivation. This also propels Ontario's poverty rankings toward the top among all provinces. On the other hand, relative deprivation is of less concern in provinces like Quebec, where median income is considerably lower. Quebec could alleviate its poverty statistics by simply adopting a relative poverty measure. It is also noteworthy that two cells—N.S./Ontario and P.E.I./N.B.—that failed to reject the null of nondominance before, now display first-order dominance over a reasonable

[20] The values of 15% and 70% of the provincial median income are roughly close to the restricted domain [$5,000, $20,000] defined in the base-case model.

range of relative poverty lines. For Saskatchewan/Alberta and N.S./Newfoundland, their poverty rankings are still undetermined up to third-order condition when relative poverty lines are used.

6. Conclusions

It is often argued that poverty rankings are not robust. Using the stochastic dominance approach, this paper provides a robust way to compare regional poverty without arbitrarily selecting a poverty line. I show that, in most cases, dominance relations can be determined and regional poverty can be ordered for a wide range of poverty lines. I also show that dominance results are sensitive to assumptions made to defining equivalent income and poverty concept. Generally, dominance results are robust to the choice of equivalence scales, while rank reversal occurs when alternative cost-of-living deflators are used. Switching from an absolute to a relative poverty concept has virtually no effect on poverty rankings for B.C. and the Atlantic provinces but not in the case for other provinces. The findings urge close scrutiny on underlying assumptions. Finally, the answer to the question "Where is poverty greatest in Canada?" goes to B.C., at least for 2000. The result is robust for all scales regardless of the choices of poverty lines, cost-of-living factors, equivalence scales and an absolute or a relative poverty concept.

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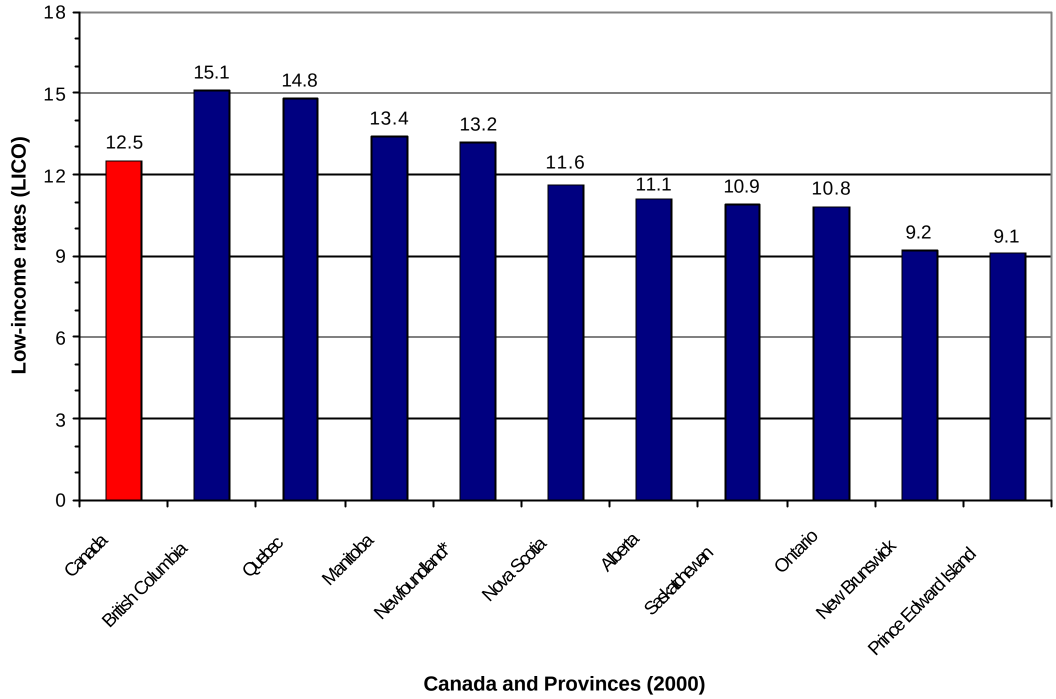
Figure 1:
Regional low-income rates based on LICO (after-tax)



Source: Statistics Canada (2006); * Newfoundland includes Newfoundland and Labrador

Figure 2:
Crossing of poverty incidence curves

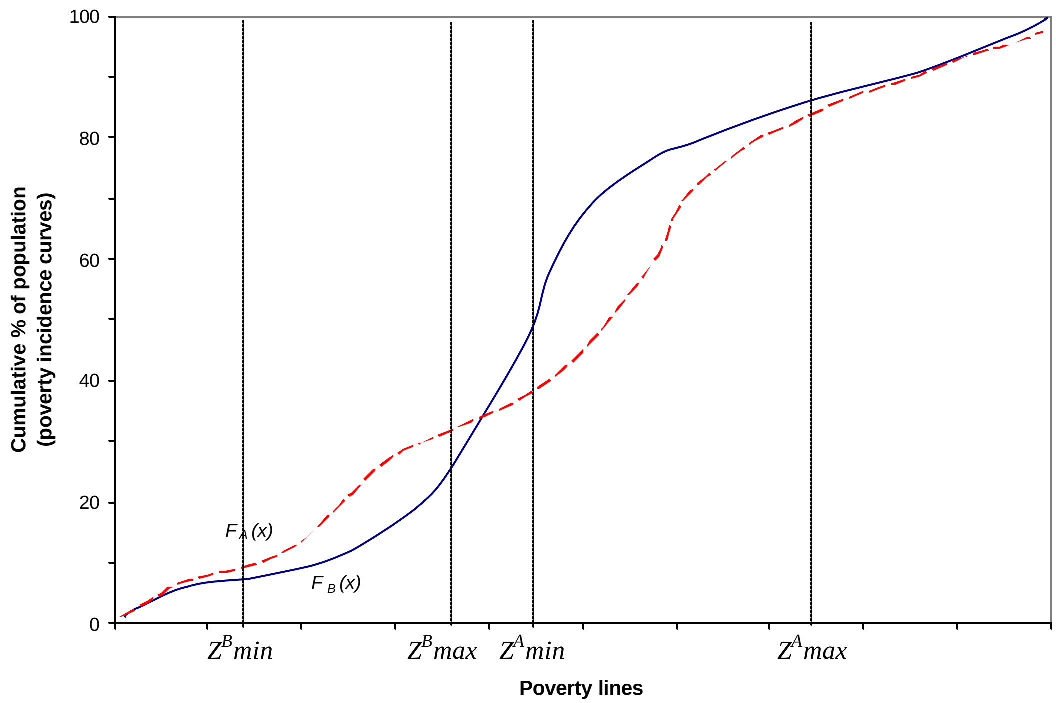


Figure 3:
Poverty incidence curves, the LICO-based equivalence scale & cost-of-living, 2000

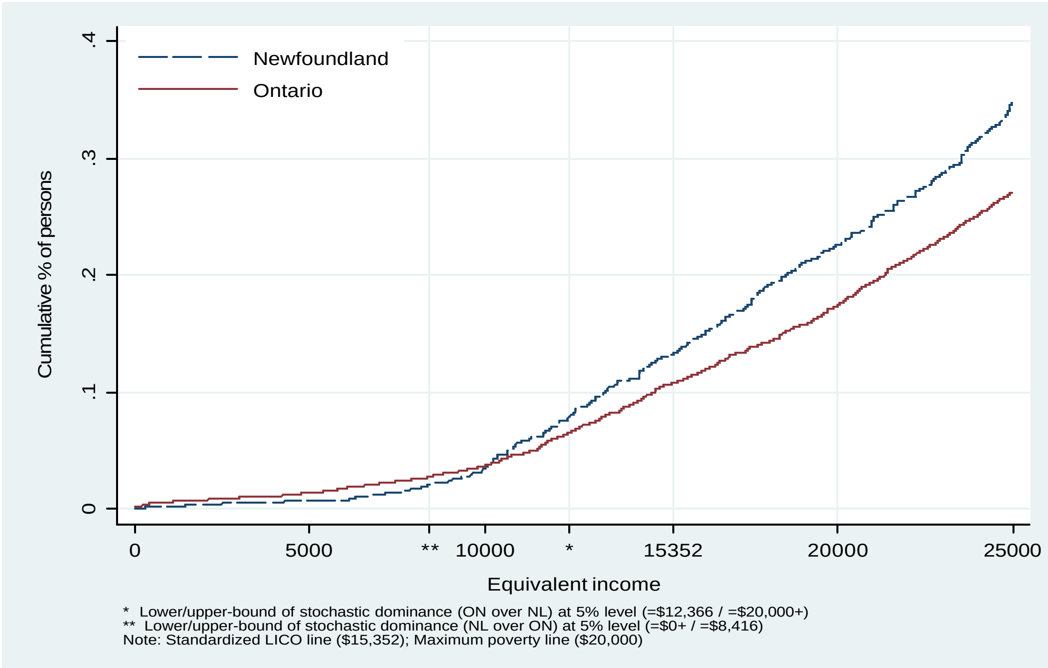
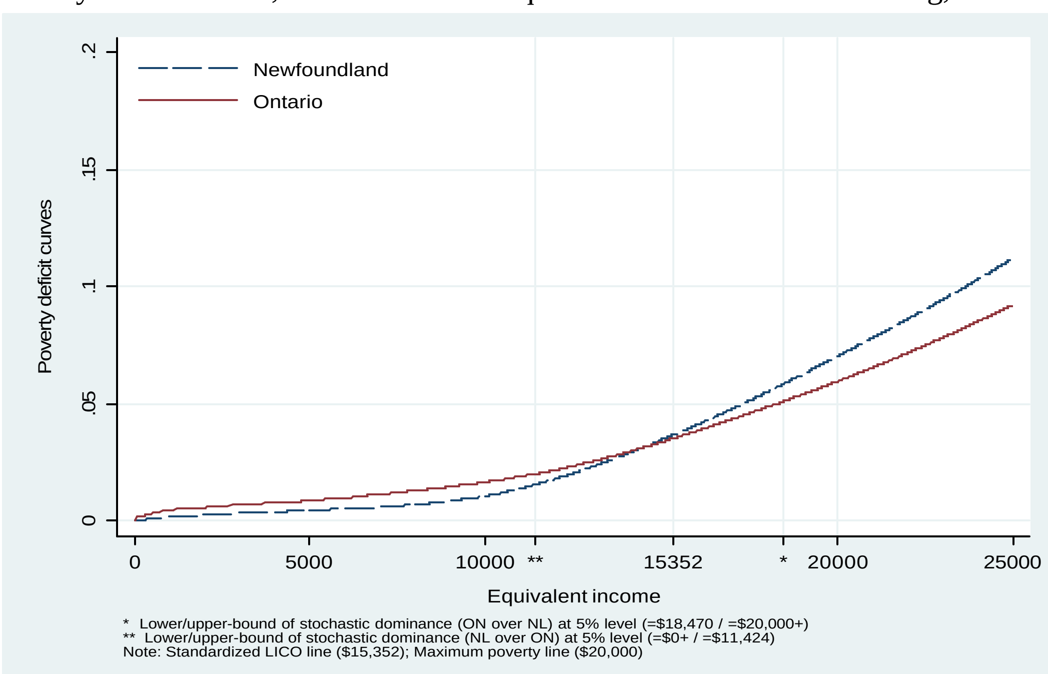


Figure 4:
Poverty deficit curves, the LICO-based equivalence scale & cost-of-living, 2000



Source: SLID (2000)

Figure 5:
Poverty severity curves, the LICO-based equivalence scale & cost-of-living, 2000

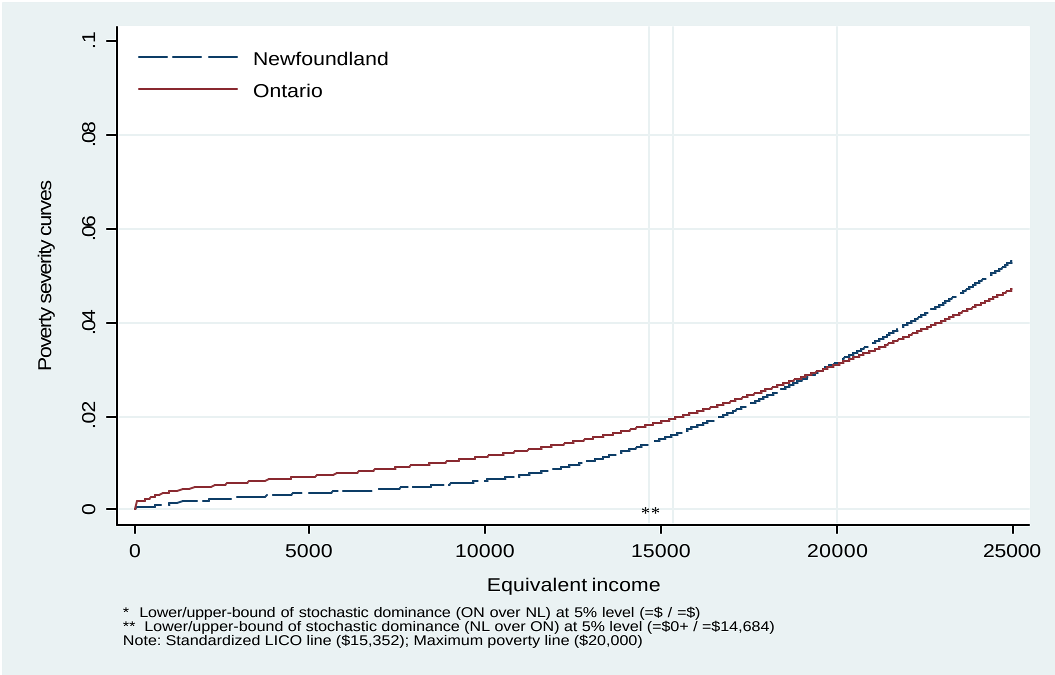
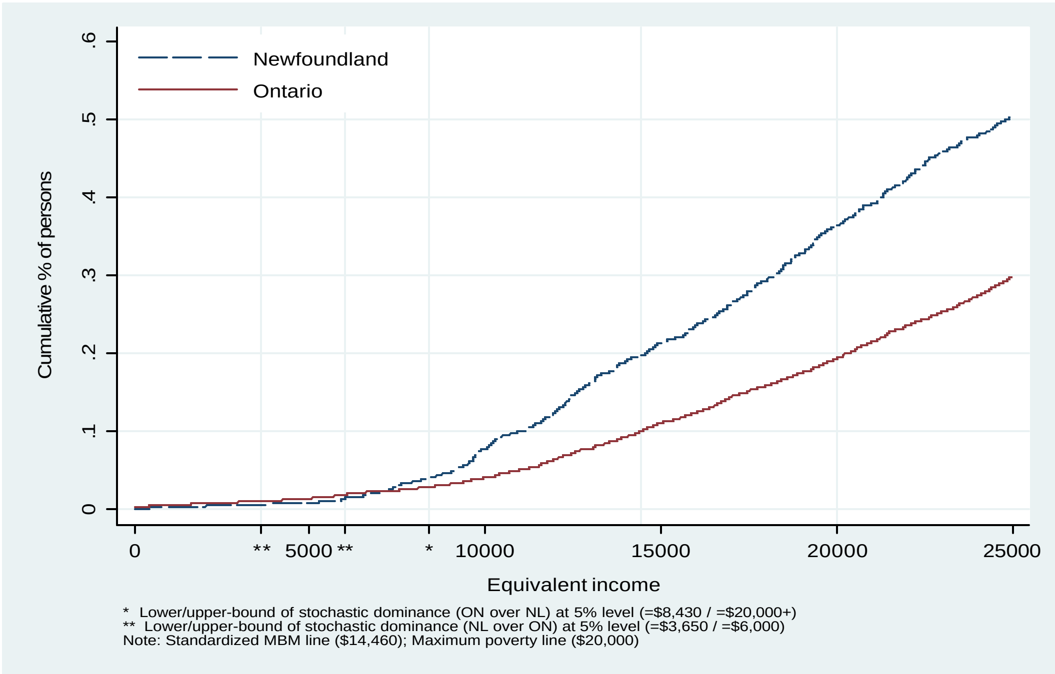


Figure 6:
Poverty incidence curves, the MBM-based cost-of-living*, 2000



Source: SLID (2000)

* The LICO-based equivalence scale is still used.

Figure 7:
Poverty deficit curves, the MBM-based cost-of-living*, 2000

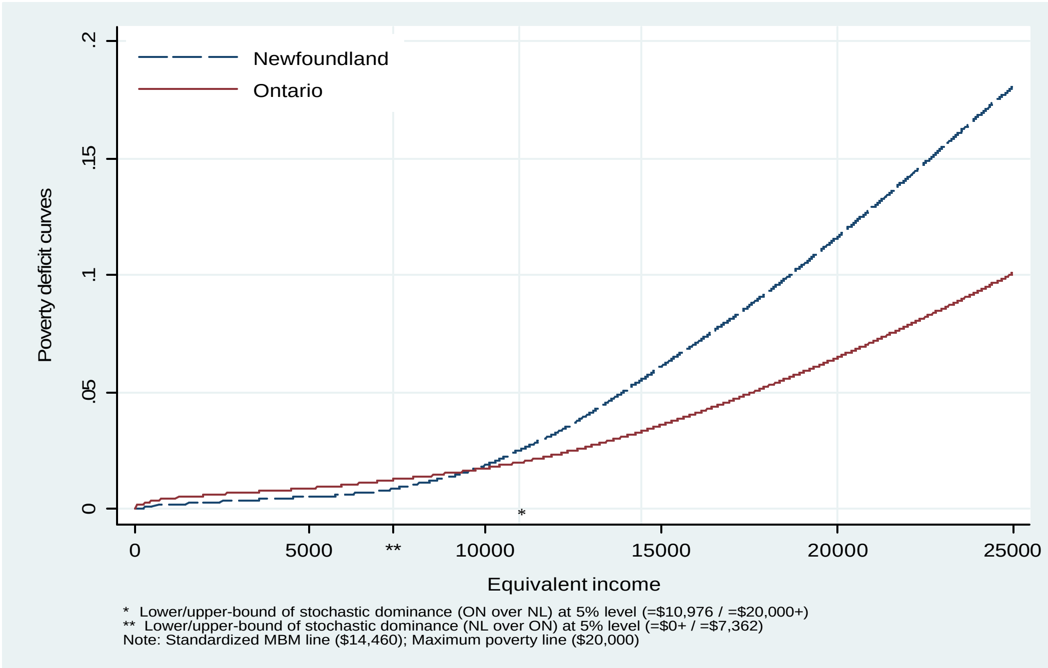
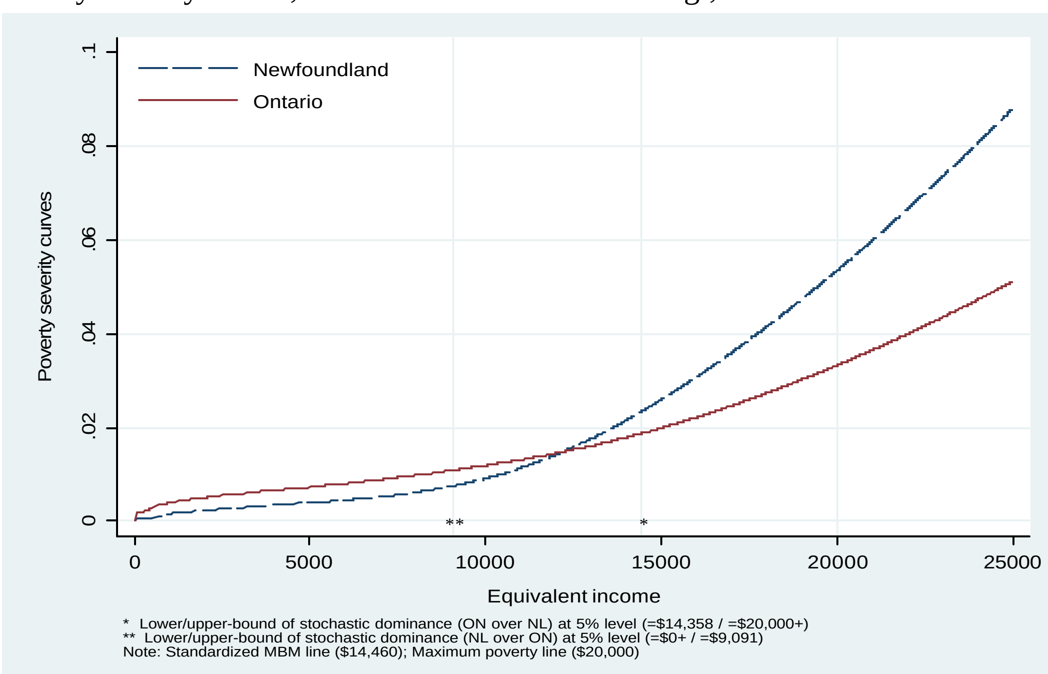
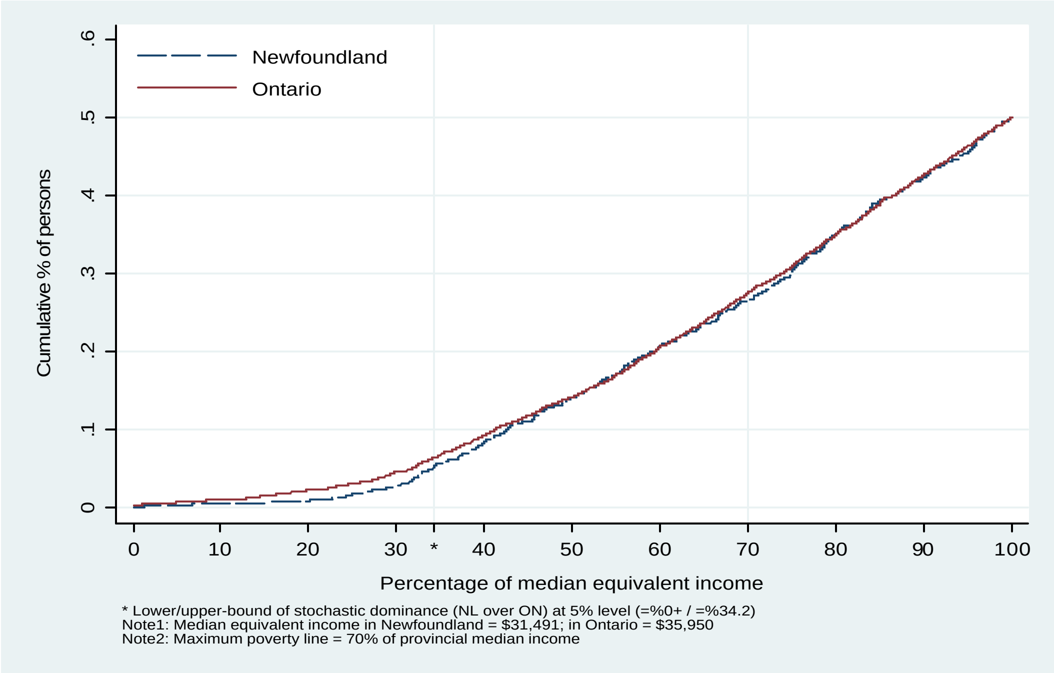


Figure 8:
Poverty severity curves, the MBM-based cost-of-living*, 2000



Source: SLID (2000)
* The LICO-based equivalence scale is still used.

Figure 9:
Poverty incidence curves for normalized equivalent income*, 2000



Source: SLID (2000)
* Equivalence income is normalized by dividing median income of respective province. Scaling factors are based on the LICO equivalence scale and cost-of-living factors. Test of dominance is evaluated at every *x* value in the sample between 15% and 70% of the provincial median income.

Table 1: Difference between poverty incidence curves for Newfoundland and Ontario for selected poverty lines, year 2000

Equivalent income	Poverty incidence curves (asymptotic standard error)		Difference	Test Statistics
	Newfoundland	Ontario		
1,000	0.003	0.006	-0.003	-1.752*
	(0.002)	(0.001)	(0.002)	
2,000	0.004	0.008	-0.004	-2.023*
	(0.002)	(0.001)	(0.002)	
3,000	0.006	0.010	-0.004	-1.866*
	(0.002)	(0.001)	(0.002)	
4,000	0.006	0.011	-0.005	-2.045*
	(0.002)	(0.001)	(0.002)	
5,000	0.008	0.014	-0.007	-2.363**
	(0.002)	(0.001)	(0.003)	
6,000	0.008	0.018	-0.010	-3.451**
	(0.002)	(0.001)	(0.003)	
7,000	0.012	0.022	-0.010	-2.936**
	(0.003)	(0.001)	(0.003)	
8,000	0.018	0.026	-0.008	-1.937*
	(0.004)	(0.002)	(0.004)	
9,000	0.024	0.032	-0.007	-1.597
	(0.004)	(0.002)	(0.005)	
10,000	0.036	0.038	-0.002	-0.345
	(0.005)	(0.002)	(0.006)	
11,000	0.057	0.047	0.009	1.360
	(0.006)	(0.002)	(0.007)	
12,000	0.070	0.060	0.010	1.308
	(0.007)	(0.002)	(0.008)	
13,000	0.093	0.073	0.020	2.264*
	(0.008)	(0.003)	(0.009)	
14,000	0.110	0.088	0.022	2.340**
	(0.009)	(0.003)	(0.009)	
15,000	0.129	0.104	0.024	2.455**
	(0.009)	(0.003)	(0.010)	
16,000	0.146	0.115	0.031	2.937**
	(0.010)	(0.003)	(0.010)	
17,000	0.167	0.132	0.035	3.184**
	(0.010)	(0.003)	(0.011)	
18,000	0.191	0.142	0.049	4.172**
	(0.011)	(0.004)	(0.012)	
19,000	0.211	0.158	0.053	4.401**
	(0.011)	(0.004)	(0.012)	
20,000	0.226	0.174	0.052	4.183**
	(0.012)	(0.004)	(0.012)	

Source: SLID (2000)
Note: Equivalent income is needs-adjusted using LICO equivalence scale, and spatial prices-adjusted using LICO-based deflator. Baseline group is unattached individuals living in urban (500,000) area. *t*-statistics are calculated at each value of *x* in the sample, while only 20 selected points are reported in this table.
* Significance of difference at 5% level (1.645); ** 1% level (2.326).

Table 2: Difference between poverty deficit curves (relative poverty gaps) for Newfoundland and Ontario for selected poverty lines, year 2000

Equivalent income	Poverty deficit curves (asymptotic standard error)		Difference	Test Statistics
	Newfoundland	Ontario		
1,000	0.002	0.005	-0.003	-2.312*
	(0.001)	(0.001)	(0.001)	
2,000	0.003	0.006	-0.003	-2.250*
	(0.001)	(0.001)	(0.001)	
3,000	0.003	0.007	-0.004	-2.166*
	(0.001)	(0.001)	(0.002)	
4,000	0.004	0.008	-0.004	-2.150*
	(0.002)	(0.001)	(0.002)	
5,000	0.005	0.009	-0.004	-2.214*
	(0.002)	(0.001)	(0.002)	
6,000	0.005	0.010	-0.005	-2.419**
	(0.002)	(0.001)	(0.002)	
7,000	0.006	0.011	-0.006	-2.637**
	(0.002)	(0.001)	(0.002)	
8,000	0.007	0.013	-0.006	-2.715**
	(0.002)	(0.001)	(0.002)	
9,000	0.009	0.015	-0.006	-2.629**
	(0.002)	(0.001)	(0.002)	
10,000	0.011	0.017	-0.006	-2.437**
	(0.002)	(0.001)	(0.002)	
11,000	0.014	0.019	-0.005	-1.963*
	(0.002)	(0.001)	(0.003)	
12,000	0.018	0.022	-0.004	-1.332
	(0.003)	(0.001)	(0.003)	
13,000	0.023	0.025	-0.002	-0.768
	(0.003)	(0.001)	(0.003)	
14,000	0.029	0.029	-0.001	-0.200
	(0.003)	(0.001)	(0.003)	
15,000	0.035	0.034	0.001	-0.273
	(0.003)	(0.001)	(0.004)	
16,000	0.041	0.038	0.003	0.671
	(0.004)	(0.001)	(0.004)	
17,000	0.048	0.043	0.004	1.057
	(0.004)	(0.001)	(0.004)	
18,000	0.055	0.049	0.006	1.444
	(0.004)	(0.002)	(0.004)	
19,000	0.063	0.054	0.009	1.850*
	(0.004)	(0.002)	(0.005)	
20,000	0.070	0.060	0.011	2.199*
	(0.005)	(0.002)	(0.005)	

Source: SLID (2000)

Note: Equivalent income is needs-adjusted using LICO equivalence scale, and spatial prices-adjusted using LICO-based deflator. Baseline group is unattached individuals living in urban (500,000) area. *t*-statistics are calculated at each value of *x* in the sample, while only 20 selected points are reported in this table.

* Significance of difference at 5% level (1.645); ** 1% level (2.326).

Table 3: Difference between poverty severity curves (squared relative poverty gaps) for Newfoundland and Ontario for selected poverty lines, year 2000

Equivalent income	Poverty severity curves (asymptotic standard error)		Difference	Test Statistics
	Newfoundland	Ontario		
1,000	0.001	0.004	-0.003	-2.577**
	(0.000)	(0.000)	(0.001)	
2,000	0.002	0.005	-0.003	-2.327**
	(0.001)	(0.001)	(0.001)	
3,000	0.003	0.006	-0.003	-2.267*
	(0.001)	(0.001)	(0.001)	
4,000	0.004	0.006	-0.003	-2.232*
	(0.001)	(0.001)	(0.001)	
5,000	0.004	0.007	-0.004	-2.229*
	(0.001)	(0.001)	(0.002)	
6,000	0.004	0.008	-0.004	-2.271*
	(0.001)	(0.001)	(0.002)	
7,000	0.004	0.009	-0.004	-2.374**
	(0.002)	(0.001)	(0.002)	
8,000	0.005	0.009	-0.005	-2.480**
	(0.002)	(0.001)	(0.002)	
9,000	0.005	0.010	-0.005	-2.550**
	(0.002)	(0.001)	(0.002)	
10,000	0.006	0.011	-0.005	-2.575**
	(0.002)	(0.001)	(0.002)	
11,000	0.007	0.012	-0.005	-2.524**
	(0.002)	(0.001)	(0.002)	
12,000	0.009	0.014	-0.005	-2.372**
	(0.002)	(0.001)	(0.002)	
13,000	0.010	0.015	-0.005	-2.146*
	(0.002)	(0.001)	(0.002)	
14,000	0.013	0.017	-0.004	-1.864*
	(0.002)	(0.001)	(0.002)	
15,000	0.015	0.019	-0.004	-1.542
	(0.002)	(0.001)	(0.002)	
16,000	0.018	0.021	-0.003	-1.211
	(0.002)	(0.001)	(0.002)	
17,000	0.021	0.023	-0.002	-0.873
	(0.002)	(0.001)	(0.003)	
18,000	0.024	0.026	-0.002	-0.538
	(0.002)	(0.001)	(0.003)	
19,000	0.028	0.028	-0.001	-0.197
	(0.003)	(0.001)	(0.003)	
20,000	0.031	0.031	0.000	0.136
	(0.003)	(0.001)	(0.003)	

Source: SLID (2000)
Note: Equivalent income is needs-adjusted using LICO equivalence scale, and spatial prices-adjusted using LICO-based deflator. Baseline group is unattached individuals living in urban (500,000) area. *t*-statistics are calculated at each value of *x* in the sample, while only 20 selected points are reported in this table.
* Significance of difference at 5% level (1.645); ** 1% level (2.326).

Table 4: Difference between poverty incidence curves for Newfoundland and Ontario for selected *relative* poverty lines, year 2000

Percentage (%) of median income in respective province	Poverty incidence curves (asymptotic standard error)		Difference	Test Statistics
	Newfoundland	Ontario		
5	0.003	0.008	-0.004	-2.325*
	(0.001)	(0.001)	(0.002)	
10	0.006	0.011	-0.005	-2.201
	(0.002)	(0.001)	(0.002)	
15	0.007	0.015	-0.008	-3.121**
	(0.002)	(0.001)	(0.003)	
20	0.009	0.023	-0.014	-4.454**
	(0.002)	(0.002)	(0.003)	
25	0.018	0.032	-0.014	-3.266**
	(0.002)	(0.002)	(0.004)	
30	0.028	0.046	-0.018	-3.511**
	(0.002)	(0.002)	(0.005)	
35	0.057	0.068	-0.012	-1.628
	(0.006)	(0.003)	(0.007)	
40	0.086	0.093	-0.008	-0.901
	(0.008)	(0.003)	(0.008)	
45	0.112	0.119	-0.007	-0.711
	(0.009)	(0.003)	(0.009)	
50	0.142	0.142	-0.001	-0.046
	(0.010)	(0.004)	(0.010)	
55	0.171	0.171	-0.000	-0.031
	(0.011)	(0.004)	(0.011)	
60	0.208	0.207	0.001	0.079
	(0.011)	(0.004)	(0.012)	
65	0.237	0.238	-0.001	-0.086
	(0.012)	(0.004)	(0.013)	
70	0.268	0.275	-0.007	-0.519
	(0.012)	(0.005)	(0.013)	
75	0.303	0.308	-0.006	-0.397
	(0.013)	(0.005)	(0.014)	
80	0.352	0.350	0.002	0.110
	(0.013)	(0.005)	(0.014)	
85	0.394	0.390	0.004	0.259
	(0.014)	(0.005)	(0.015)	
90	0.423	0.426	-0.003	-0.203
	(0.014)	(0.005)	(0.015)	
95	0.455	0.463	-0.009	-0.595
	(0.014)	(0.005)	(0.015)	
100	0.500	0.500	0.001	0.030
	(0.014)	(0.005)	(0.015)	

Source: SLID (2000)

Note: Equivalent income is needs-adjusted using LICO equivalence scale, and spatial prices-adjusted using LICO-based deflator. Equivalent incomes are normalized by dividing median of respective province. *t*-statistics are calculated at each value of *x* in the sample, while only 20 selected points (expressed as % of the provincial median income) are reported in this table.

* Significance of difference at 5% level (1.645); ** 1% level (2.326).

Table 5: Headcount poverty rankings for selected poverty lines, year 2000

Equivalent income	Most poverty			Medium poverty				Least poverty		
	1	2	3	4	5	6	7	8	9	10
4,000	B.C. 0.023 (0.003)	Manitoba 0.014 (0.002)	Sask. 0.014 (0.002)	Ontario 0.011 (0.001)	Alberta 0.010 (0.002)	P.E.I. 0.010 (0.003)	Quebec 0.009 (0.001)	N.B. 0.009 (0.002)	N.S. 0.008 (0.002)	Nfld. 0.006 (0.002)
6,000	B.C. 0.032 (0.003)	Sask. 0.022 (0.003)	Alberta 0.022 (0.003)	Manitoba 0.021 (0.003)	Ontario 0.018 (0.001)	Quebec 0.016 (0.002)	N.S. 0.015 (0.003)	N.B. 0.012 (0.003)	P.E.I. 0.011 (0.003)	Nfld. 0.008 (0.002)
8,000	B.C. 0.044 (0.004)	Alberta 0.035 (0.004)	Sask. 0.033 (0.004)	Quebec 0.033 (0.002)	Manitoba 0.032 (0.004)	Ontario 0.026 (0.002)	N.S. 0.024 (0.003)	N.B. 0.022 (0.003)	P.E.I. 0.021 (0.005)	Nfld. 0.018 (0.004)
10,000	B.C. 0.066 (0.005)	Quebec 0.061 (0.003)	Manitoba 0.053 (0.005)	Alberta 0.052 (0.004)	Sask. 0.049 (0.005)	N.S. 0.039 (0.004)	Ontario 0.038 (0.002)	Nfld. 0.036 (0.005)	N.B. 0.033 (0.004)	P.E.I. 0.030 (0.006)
12,000	B.C. 0.093 (0.006)	Quebec 0.089 (0.004)	Manitoba 0.075 (0.005)	Nfld. 0.070 (0.007)	Alberta 0.065 (0.005)	Sask. 0.061 (0.005)	Ontario 0.060 (0.002)	N.S. 0.059 (0.005)	N.B. 0.051 (0.005)	P.E.I. 0.048 (0.007)
14,000	B.C. 0.130 (0.006)	Quebec 0.122 (0.004)	Nfld. 0.110 (0.009)	Manitoba 0.106 (0.006)	Alberta 0.093 (0.006)	N.S. 0.092 (0.006)	Sask. 0.090 (0.006)	Ontario 0.088 (0.003)	N.B. 0.079 (0.006)	P.E.I. 0.068 (0.008)
16,000	B.C. 0.163 (0.007)	Quebec 0.159 (0.005)	Manitoba 0.148 (0.007)	Nfld. 0.146 (0.010)	Alberta 0.125 (0.006)	N.S. 0.125 (0.007)	Sask. 0.121 (0.007)	Ontario 0.115 (0.003)	N.B. 0.105 (0.007)	P.E.I. 0.094 (0.010)
18,000	Quebec 0.196 (0.005)	B.C. 0.193 (0.007)	Nfld. 0.191 (0.011)	Manitoba 0.188 (0.008)	Sask. 0.160 (0.008)	N.S. 0.160 (0.008)	Alberta 0.151 (0.007)	Ontario 0.142 (0.004)	N.B. 0.14 (0.008)	P.E.I. 0.134 (0.011)
20,000	B.C. 0.246 (0.008)	Manitoba 0.245 (0.009)	Quebec 0.241 (0.006)	Nfld. 0.226 (0.012)	N.S. 0.202 (0.009)	Sask. 0.199 (0.009)	Alberta 0.187 (0.008)	N.B. 0.178 (0.009)	Ontario 0.174 (0.004)	P.E.I. 0.166 (0.012)

Source: SLID (2000); Equivalent income is needs-adjusted using LICO equivalence scale, and spatial prices-adjusted using LICO-based deflator. Asymptotic standard errors are in parentheses.

Table 6: Tests of poverty dominance for poverty lines between zero and $20,000

Poverty rankings	Province	LICO Headcount Rates	B.C.	Manitoba	Quebec	Sask.	Alberta	Ontario	Nfld.	N.S.	N.B.	P.E.I.
1	B.C.	***15.1***		1 [10,900] [14,817]	1 [0+] [8,641]	1 [3,576] [20,000]	1 [0+] [20,000]	1 [0+] [20,000]	1 [0+] [13,334]	1 [0+] [20,000]	1 [0+] [20,000]	1 [0+] [20,000]
2	Manitoba	***13.4***			3 [0+] [1,615]	1 [14,380] [20,000]	1 [14,390] [20,000]	1 [8,196] [20,000]	1 [1,251] [10,332]	1 [7,976] [20,000]	1 [7,480] [20,000]	1 [8,229] [20,000]
3	Quebec	***14.8***				2 [13,812] [20,000]	2 [13,711] [20,000]	1 [7,545] [20,000]	1 [5,301] [12,535]	1 [6,691] [20,000]	1 [6,298] [20,000]	1 [7,545] [20,000]
4	Sask.	***10.9***					X	1 [17,651] [20,000]	2 [4,313] [12,997]	1 [5,852] [9,845]	1 [5,053] [11,585]	1 [5,097] [16,227]
4	Alberta	***11.1***						1 [7,094] [11,559]	2 [5,328] [13,233]	1 [4,671] [10,421]	1 [4,790] [12,378]	1 [4,816] [17,123]
6	Ontario	***10.8***							3 [0+] [14,684]	X	1 [14,606] [15,904]	1 [11,557] [16,264]
7	Nfld.	***13.2***								X	1 [10,825] [20,000]	1 [10,697] [20,000]
7	N.S.	***11.6***									1 [14,130] [18,151]	1 [14,875] [20,000]
9	N.B.	***9.2***										X
9	P.E.I.	***9.1***										

Note: 1 in the cell indicates that the column first-order dominates the row at 5% level; similar interpretation for *2* (second-order) and *3* (third-order) dominance. The first (second) square bracket indicates the *lower-bound* (*upper-bound*) of stochastic dominance, at 5% significance level, at given order condition. The upper bound threshold is censored at $20,000. *X* indicates that dominance relation can not be found up to third-order condition. Data are from SLID 2000. Test of dominance is evaluated at every *x* value in the sample between zero and $20,000, where *x* is equivalent income based on LICO equivalence scale and cost-of-living deflator.

Table 7: Tests of poverty dominance for poverty lines between $5,000 and $20,000

Poverty rankings	Province	LICO Headcount Rates	B.C.	Quebec	Manitoba	Sask.	Alberta	Ontario	Nfld.	N.S.	N.B.	P.E.I.
1	B.C.	***15.1***		1 [5,000] [8,641]	1 [10,900] [14,817]	1 [5,000] [20,000]	1 [5,000] [20,000]	1 [5,000] [20,000]	1 [5,000] [13,334]	1 [5,000] [20,000]	1 [5,000] [20,000]	1 [5,000] [20,000]
2	Quebec	***14.8***			1 [13,167] [14,629]	2 [13,812] [20,000]	2 [13,711] [20,000]	1 [7,454] [20,000]	1 [5,301] [12,535]	1 [6,691] [20,000]	1 [6,298] [20,000]	1 [7,545] [20,000]
3	Manitoba	***13.4***				1 [14,380] [20,000]	1 [14,390] [20,000]	1 [8,196] [20,000]	1 [5,000] [10,332]	1 [7,976] [20,000]	1 [7,480] [20,000]	1 [8,229] [20,000]
4	Sask.	***10.9***					X	1 [17,651] [20,000]	2 [5,000] [12,997]	1 [5,852] [9,845]	1 [5,053] [11,585]	1 [5,097] [16,227]
4	Alberta	***11.1***						1 [7,094] [11,559]	2 [5,328] [13,233]	1 [5,000] [10,421]	1 [5,000] [12,378]	1 [5,000] [17,123]
6	Ontario	***10.8***							3 [5,000] [14,684]	X	1 [14,606] [15,904]	1 [11,557] [16,264]
7	Nfld.	***13.2***								X	1 [10,825] [20,000]	1 [10,697] [20,000]
7	N.S.	***11.6***									1 [14,130] [18,151]	1 [14,875] [20,000]
9	N.B.	***9.2***										X
9	P.E.I.	***9.1***										

Note: 1 in the cell indicates that the column first-order dominates the row at 5% level; similar interpretation for *2* (second-order) and *3* (third-order) dominance. The first (second) square bracket indicates the *lower-bound* (*upper-bound*) of stochastic dominance, at 5% significance level, at given order condition. The lower (upper) bound thresholds are censored at $5,000 and $20,000 respectively. *X* indicates that dominance relation can not be found up to third-order condition. Data are from SLID 2000. Test of dominance is evaluated at every *x* value in the sample between $5,000 and $20,000, where *x* is equivalent income based on LICO equivalence scale and cost-of-living deflator.

Table 8: Tests of poverty dominance for poverty lines between $10,000 and $20,000

Poverty rankings	Province	LICO Headcount Rates	B.C.	Quebec	Manitoba	Nfld.	Sask.	Alberta	N.S.	Ontario	N.B.	P.E.I.
1	B.C.	***15.1***		2 [10,000] [17,884]	1 [10,900] [14,817]	1 [10,000] [13,334]	1 [10,000] [20,000]	1 [10,000] [20,000]	1 [10,000] [20,000]	1 [10,000] [20,000]	1 [10,000] [20,000]	1 [10,000] [20,000]
2	Quebec	***14.8***			1 [13,167] [14,629]	1 [10,000] [12,535]	1 [10,000] [20,000]	1 [10,000] [20,000]	1 [10,000] [20,000]	1 [10,000] [20,000]	1 [10,000] [20,000]	1 [10,000] [20,000]
3	Manitoba	***13.4***				1 [10,000] [10,332]	1 [14,380] [20,000]	1 [14,390] [20,000]	1 [14,493] [20,000]	1 [10,000] [20,000]	1 [10,000] [20,000]	1 [10,000] [20,000]
4	Nfld.	***13.2***					1 [13,482] [20,000]	1 [14,570] [20,000]	1 [12,592] [20,000]	1 [12,366] [20,000]	1 [10,821] [20,000]	1 [10,697] [20,000]
5	Sask.	***10.9***						X	2 [10,000] [13,080]	1 [17,651] [20,000]	1 [10,000] [11,585]	1 [10,000] [16,227]
5	Alberta	***11.1***							1 [10,000] [10,421]	1 [10,000] [11,559]	1 [10,000] [12,378]	1 [10,000] [17,123]
7	N.S.	***11.6***								1 [17,400] [20,000]	1 [14,130] [18,151]	1 [14,875] [20,000]
8	Ontario	***10.8***									1 [14,606] [15,904]	1 [11,557] [16,264]
9	N.B.	***9.2***										X
9	P.E.I.	***9.1***										

Note: 1 in the cell indicates that the column first-order dominates the row at 5% level; similar interpretation for *2* (second-order) and *3* (third-order) dominance. The first (second) square bracket indicates the *lower-bound* (*upper-bound*) of stochastic dominance, at 5% significance level, at given order condition. The lower (upper) bound thresholds are censored at $10,000 and $20,000 respectively. *X* indicates that dominance relation can not be found up to third-order condition. Data are from SLID 2000. Test of dominance is evaluated at every *x* value in the sample between $10,000 and $20,000, where *x* is equivalent income based on LICO equivalence scale and cost-of-living deflator.

Table 9: Tests of poverty dominance for poverty lines between \$5,000 and \$20,000, *square-root family size* equivalence scale

Poverty rankings	Province	LICO Headcount Rates	B.C.	Quebec	Manitoba	Sask.	Alberta	Ontario	Nfld.	N.S.	N.B.	P.E.I.
1	B.C.	***15.1***		1 [5,000] [7,570]	1 [9,988] [14,980]	1 [5,000] [20,000]	1 [5,000] [20,000]	1 [5,000] [20,000]	1 [5,000] [11,459]	1 [5,000] [20,000]	1 [5,000] [20,000]	1 [5,000] [20,000]
2	Quebec	***14.8***			1 [14,283] [15,081]	2 [13,006] [20,000]	2 [12,452] [20,000]	1 [7,332] [20,000]	1 [5,000] [10,478]	1 [6,298] [20,000]	1 [5,804] [20,000]	1 [6,793] [20,000]
3	Manitoba	***13.4***				1 [13,855] [20,000]	1 [11,883] [20,000]	1 [7,970] [20,000]	1 [5,000] [9,829]	1 [8,899] [20,000]	1 [5,000] [20,000]	1 [7,469] [20,000]
4	Sask.	***10.9***					X	1 [17,158] [20,000]	2 [5,000] [11,814]	1 [5,885] [8,019]	1 [5,000] [10,317]	1 [5,000] [14,179]
4	Alberta	***11.1***						1 [6,691] [10,299]	2 [5,220] [11,754]	1 [5,000] [8,287]	1 [5,000] [10,557]	1 [6,607] [16,179]
6	Ontario	***10.8***							3 [5,000] [13,107]	X	1 [5,121] [7,126]	1 [9,945] [13,991]
7	Nfld.	***13.2***								1 [13,864] [18,871]	1 [10,470] [20,000]	1 [9,813] [20,000]
8	N.S.	***11.6***									1 [13,147] [17,488]	1 [14,794] [19,450]
9	N.B.	***9.2***										X
9	P.E.I.	***9.1***										

Note: 1 in the cell indicates that the column first-order dominates the row at 5% level; similar interpretation for *2* (second-order) and *3* (third-order) dominance. The first (second) square bracket indicates the *lower-bound* (*upper-bound*) of stochastic dominance, at 5% significance level, at given order condition. The lower (upper) bound thresholds are censored at \$5,000 and \$20,000 respectively. *X* indicates that dominance relation can not be found up to third-order condition. Data are from SLID 2000. Test of dominance is evaluated at every *x* value in the sample between \$5,000 and \$20,000, where *x* is equivalent income based on LICO equivalence scale and cost-of-living deflator.

Table 10: Tests of poverty dominance for poverty lines between $5,000 and $20,000, the *MBM* cost-of-living deflators

Poverty rankings	Model w/ MBM price-adj.	Base-model rankings	B.C.	Nfld.	P.E.I.	Sask.	N.S.	N.B.	Manitoba	Alberta	Ontario	Quebec
1	B.C.	B.C.		1 [5,000] [13,762]	1 [5,000] [19,071]	1 [6,710] [20,000]	1 [5,000] [20,000]	1 [5,000] [20,000]	1 [5,000] [20,000]	1 [5,000] [20,000]	1 [5,000] [20,000]	1 [5,000] [20,000]
2	Nfld.	Quebec			1 [5,912] [20,000]	X	1 [5,912] [20,000]	1 [5,912] [20,000]	1 [8,764] [10,332]	1 [9,368] [20,000]	1 [8,430] [20,000]	1 [7,310] [20,000]
3	P.E.I.	Manitoba				1 [18,854] [20,000]	X	1 [19,924] [20,000]	1 [16,788] [20,000]	1 [13,833] [20,000]	1 [13,833] [20,000]	1 [16,659] [20,000]
4	Sask.	Sask.					2 [7,731] [9,616]	1 [5,231] [7,641]	1 [15,018] [17,717]	1 [13,387] [20,000]	1 [13,241] [20,000]	1 [14,701] [20,000]
5	N.S.	Alberta						1 [13,264] [17,489]	1 [12,355] [20,000]	1 [11,480] [20,000]	1 [9,502] [20,000]	1 [12,247] [20,000]
6	N.B.	Ontario							1 [18,921] [20,000]	1 [13,336] [20,000]	1 [15,091] [20,000]	1 [17,259] [20,000]
7	Manitoba	Nfld.								1 [14,938] [20,000]	1 [17,053] [20,000]	1 [5,419] [7,191]
8	Alberta	N.S.									1 [8,718] [9,484]	2 [8,761] [10,885]
9	Ontario	N.B.										2 [6,021] [10,369]
10	Quebec	P.E.I.										

Note: 1 in the cell indicates that the column first-order dominates the row at 5% level; similar interpretation for *2* (second-order) and *3* (third-order) dominance. The first (second) square bracket indicates the *lower-bound* (*upper-bound*) of stochastic dominance, at 5% significance level, at given order condition. The lower (upper) bound thresholds are censored at $5,000 and $20,000 respectively. *X* indicates that dominance relation can not be found up to third-order condition. Data are from SLID 2000. Test of dominance is evaluated at every *x* value in the sample between $5,000 and $20,000, where *x* is equivalent income based on LICO equivalence scale and MBM cost-of-living deflator.

Table 11: Tests of poverty dominance for *relative* poverty lines between 15%-70% median income in respective province

Poverty rankings	Model w/ relative poverty lines	Base-model rankings	B.C.	Ontario	Alberta	Sask.	Quebec	Manitoba	Nfld.	N.S.	N.B.	P.E.I.
1	B.C.	B.C.		1 [15.0] [70.0]	1 [31.4] [70.0]	1 [31.1] [70.0]	1 [15.0] [70.0]	1 [15.0] [70.0]	1 [15.0] [42.5]	1 [15.0] [70.0]	1 [15.0] [70.0]	1 [15.0] [70.0]
2	Ontario	Quebec			1 [53.7] [70.0]	1 [34.3] [52.8]	1 [59.3] [70.0]	1 [36.1] [49.9]	1 [15.0] [34.2]	1 [32.4] [49.4]	1 [23.2] [67.1]	1 [23.3] [70.0]
3	Alberta	Manitoba				X	1 [15.0] [25.6]	1 [21.8] [24.1]	2 [15.6] [46.6]	1 [15.0] [32.2]	1 [15.0] [35.3]	1 [14.6] [66.5]
3	Sask.	Sask.					2 [19.7] [33.4]	1 [21.3] [23.8]	1 [15.0] [32.2]	1 [17.8] [30.1]	1 [15.3] [33.5]	1 [15.47] [70.0]
5	Quebec	Alberta						1 [44.6] [48.6]	1 [20.6] [34.2]	1 [33.2] [37.5]	1 [28.9] [54.5]	1 [27.4] [70.0]
6	Manitoba	Ontario							2 [15.0] [40.9]	2 [15.0] [17.5]	1 [31.0] [32.2]	1 [28.0] [70.0]
7	Nfld.	Nfld.								X	1 [42.3] [62.9]	1 [34.0] [70.0]
7	N.S.	N.S.									1 [46.4] [47.5]	1 [34.5] [70.0]
9	N.B.	N.B.										1 [37.0] [70.0]
10	P.E.I.	P.E.I.										

Note: 1 in the cell indicates that the column first-order dominates the row at 5% level; similar interpretation for *2* (second-order) and *3* (third-order) dominance. The first (second) square bracket indicates the *lower-bound* (*upper-bound*) of stochastic dominance, at 5% significance level, at given order condition. The lower (upper) bound thresholds are censored at 15% and 70% of the provincial median income respectively. *X* indicates that dominance relation can not be found up to third-order condition. Data are from SLID 2000. Test of dominance is evaluated at every *x* value in the sample between 15% and 70% of the provincial median income, where *x* is equivalent income based on LICO equivalence scale and cost-of-living deflator.

Table A1: Poverty rankings (mean relative poverty gaps) for selected poverty lines, year 2000

Equivalent income	Most poverty			Medium poverty				Least poverty		
	1	2	3	4	5	6	7	8	9	10
4,000	B.C.	Manitoba	Sask.	Ontario	Quebec	Alberta	P.E.I.	N.B.	N.S.	Nfld
	0.013	0.009	0.008	0.008	0.007	0.007	0.005	0.006	0.005	0.004
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
6,000	B.C.	Manitoba	Sask.	Ontario	Alberta	Quebec	N.B.	P.E.I.	N.S.	Nfld
	0.018	0.012	0.011	0.010	0.010	0.008	0.007	0.007	0.007	0.005
	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
8,000	B.C.	Sask.	Manitoba	Alberta	Ontario	Quebec	N.S.	P.E.I.	N.B.	Nfld
	0.023	0.015	0.015	0.014	0.013	0.012	0.010	0.010	0.009	0.007
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.003)	(0.002)	(0.002)
10,000	B.C.	Sask.	Manitoba	Alberta	Quebec	Ontario	N.S.	N.B.	P.E.I.	Nfld
	0.029	0.021	0.021	0.020	0.019	0.017	0.014	0.013	0.013	0.011
	(0.003)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.003)	(0.002)
12,000	B.C.	Quebec	Manitoba	Sask.	Alberta	Ontario	N.S.	Nfld	N.B.	P.E.I.
	0.037	0.028	0.028	0.026	0.026	0.022	0.020	0.018	0.018	0.017
	(0.003)	(0.001)	(0.003)	(0.003)	(0.002)	(0.001)	(0.002)	(0.003)	(0.002)	(0.003)
14,000	B.C.	Quebec	Manitoba	Alberta	Sask.	Ontario	Nfld	N.S.	N.B.	P.E.I.
	0.047	0.039	0.037	0.034	0.033	0.029	0.029	0.028	0.025	0.022
	(0.003)	(0.002)	(0.003)	(0.003)	(0.00.32)	(0.001)	(0.003)	(0.002)	(0.003)	(0.004)
16,000	B.C.	Quebec	Manitoba	Alberta	Sask.	Nfld	Ontario	N.S.	N.B.	P.E.I.
	0.060	0.052	0.048	0.043	0.042	0.041	0.038	0.038	0.033	0.030
	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.001)	(0.003)	(0.003)	(0.004)
18,000	B.C.	Quebec	Manitoba	Nfld	Alberta	Sask.	N.S.	Ontario	N.B.	P.E.I.
	0.073	0.066	0.061	0.055	0.054	0.053	0.050	0.049	0.043	0.040
	(0.004)	(0.002)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.004)
20,000	B.C.	Quebec	Manitoba	Nfld	Sask.	Alberta	N.S.	Ontario	N.B.	P.E.I.
	0.088	0.081	0.077	0.070	0.065	0.065	0.062	0.060	0.054	0.051
	(0.004)	(0.002)	(0.004)	(0.005)	(0.004)	(0.003)	(0.003)	(0.002)	(0.003)	(0.005)

Source: SLID (2000); Equivalent income is needs-adjusted using LICO equivalence scale, and spatial prices-adjusted using LICO-based deflator. Asymptotic standard errors are in parentheses.

Table A2: Poverty rankings (mean relative poverty gaps squared) for selected poverty lines, year 2000

Equivalent income	Most poverty			Medium poverty				Least poverty		
	1	2	3	4	5	6	7	8	9	10
4,000	B.C.	Manitoba	Ontario	Sask.	Alberta	Quebec	N.B.	N.S.	P.E.I.	Nfld
	0.011	0.008	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003
	(0.001)	(0.002)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
6,000	B.C.	Manitoba	Sask.	Ontario	Alberta	Quebec	N.B.	P.E.I.	N.S.	Nfld
	0.014	0.009	0.008	0.008	0.007	0.007	0.006	0.005	0.005	0.004
	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
8,000	B.C.	Manitoba	Sask.	Ontario	Alberta	Quebec	N.B.	N.S.	P.E.I.	Nfld
	0.017	0.011	0.010	0.009	0.009	0.008	0.007	0.007	0.007	0.005
	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)
10,000	B.C.	Manitoba	Sask.	Alberta	Ontario	Quebec	N.S.	N.B.	P.E.I.	Nfld
	0.020	0.013	0.013	0.012	0.011	0.011	0.009	0.008	0.008	0.006
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
12,000	B.C.	Manitoba	Sask.	Alberta	Quebec	Ontario	N.S.	N.B.	P.E.I.	Nfld
	0.024	0.017	0.016	0.015	0.015	0.014	0.011	0.010	0.010	0.009
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.003)	(0.002)
14,000	B.C.	Manitoba	Quebec	Sask.	Alberta	Ontario	N.S.	N.B.	P.E.I.	Nfld
	0.029	0.021	0.020	0.020	0.019	0.017	0.014	0.013	0.013	0.013
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.003)	(0.002)
16,000	B.C.	Manitoba	Quebec	Sask.	Alberta	Ontario	N.S.	Nfld	N.B.	P.E.I.
	0.034	0.026	0.026	0.024	0.024	0.021	0.019	0.018	0.017	0.016
	(0.003)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)
18,000	B.C.	Quebec	Manitoba	Sask.	Alberta	Ontario	Nfld	N.S.	N.B.	P.E.I.
	0.041	0.033	0.032	0.029	0.029	0.026	0.024	0.024	0.021	0.020
	(0.003)	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)
20,000	B.C.	Quebec	Manitoba	Sask.	Alberta	Nfld	Ontario	N.S.	N.B.	P.E.I.
	0.049	0.041	0.039	0.035	0.035	0.031	0.031	0.030	0.026	0.025
	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)	(0.003)	(0.001)	(0.002)	(0.002)	(0.003)

Source: SLID (2000); Equivalent income is needs-adjusted using LICO equivalence scale, and spatial prices-adjusted using LICO-based deflator. Asymptotic standard errors are in parentheses.