

Technical Annex

to the *Viewpoint* “Supply Management Makes the Poor Even Poorer”

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The Impact of Supply Management on Poverty in Canada

This Technical Annex provides the calculations used to estimate the effect on poorer households of higher prices for eggs, dairy and poultry products due to supply management. These calculations rest upon hypotheses where exact data are not available. The hypotheses adopted are conservative.

The estimate is made in three steps.

1. Estimate poverty and low income lines.
2. Estimate the cost differential caused by supply management.
3. Use the *Survey of Labour and Income Dynamics* to extract two measures of disposable income and measure how many households and individuals fall below the actual poverty and low income lines, but above those same lines adjusted for the cost imposed by supply management.

1. Low Income and Poverty Lines

The first step consists in finding a poverty line. However, there is not one *single* poverty line. Poverty lines are designed to take geography and household size into account. Given lower population density in rural areas, housing is expected to be cheaper there than in urban areas. This justifies adjustments for geography. As for household size, the corrections relate to economies of scale associated with large families. Some expenditures do not increase as fast as family size. For example, one does not need to buy twice as much electricity when a second person joins a household.

Statistics Canada provides a measure of “low income” which is not the same as a measure of poverty. The low income cut-off (LICO) is a measure that defines low income households as those that spend 20 percentage points more of their incomes than the average household on necessities (food, shelter, and clothing). Although it is often presented as a poverty line, it is not. This is why Statistics Canada presents this measure as a “low income” measure (see Table 1).

Thus, while the Statistics Canada measure should be sufficient to estimate how many people fall into low income status, the question of how many people fall into poverty requires another metric. Poverty lines are rarer and harder to measure. Thankfully, there is one that has been constructed by Christopher Sarlo of the University of Nipissing in the 1990s and that has often

been updated (albeit at irregular intervals).¹ That line was conceived as a “basic necessities” line. It is meant to capture the cases of absolute and dire material deprivation. Sarlo did not break his estimates down by type of area, but he did provide estimates by size of household.

These two measures are used to create a range of estimates instead of a point estimate. The two measures are shown in Tables A-1 and A-2.

As we are using the data from the *Survey of Labour and Income Dynamics* for 2011 (the latest available year), we used the 2011 low income lines provided by Statistics Canada.

Table A-1: After-tax low income cut-off lines for 2011

	Rural areas	Fewer than 30,000 people	30,000 to 99,999 people	100,000 to 499,999 people	500,000 + people
1 person	\$12,629.00	\$14,454.00	\$16,124.00	\$16,328.00	\$19,307.00
2 people	\$15,371.00	\$17,592.00	\$19,625.00	\$19,872.00	\$23,498.00
3 people	\$19,141.00	\$21,905.00	\$24,437.00	\$24,745.00	\$29,260.00
4 people	\$23,879.00	\$27,329.00	\$30,487.00	\$30,871.00	\$36,504.00
5 people	\$27,192.00	\$31,120.00	\$34,717.00	\$35,154.00	\$41,567.00
6 people	\$30,156.00	\$34,513.00	\$38,502.00	\$38,986.00	\$46,099.00
7 + people	\$33,121.00	\$37,906.00	\$42,286.00	\$42,819.00	\$50,631.00

Source: CANSIM Table 206-0094: Low income cut-offs (LICOs) before and after tax by community and family size in current dollars.

Table A-2: Sarlo basic necessities line for 2011

1 person	2 people	3 people	4 people	5 people	6 people
\$12,746.71	\$18,026.92	\$22,077.74	\$25,492.38	\$28,502.45	\$31,223.26

Source: See footnote 1.

¹ Christopher Sarlo, *Poverty in Canada*, Fraser Institute, 1992; Christopher Sarlo, *Poverty: Where Do We Draw the Line?* Fraser Institute, 2013.

2. Estimating the Cost Differential Caused by Supply Management

The second step is to estimate the cost of supply management in Canada. In order to do so, we relied on *Canada's Food Guide* produced by Health Canada.² The *Food Guide* provides recommended servings per person and what quantities are represented by one serving.

On a daily basis, one adult male should consume 3 servings of meat (or alternatives) and 2 servings of milk (or alternatives). One adult female must consume two servings of each. One serving of milk is 250ml or 175g of yogurt or 50g of cheese. One serving of meat may be satisfied by 2 eggs or 75g of poultry, lean meat or cooked fish, 30ml of peanut butter or 175ml of cooked beans.

In order to conceive the basket, we assumed that those required servings are not fully satisfied through the use of products affected by supply management. Thus, we postulated that there was a daily need for 125ml of milk, 25g of cheese, 1.66 eggs and 50g of chicken.

To estimate the price of consuming these quantities, we used the prices provided by Statistics Canada.³ We arrived at a cost, per person, of C\$476.36. To estimate the cost in the United States, we relied on the prices provided by the Bureau of Labor Statistics.⁴ We used prices from the Midwest of the United States in order to minimize any differences that could be induced by transport costs.⁵ Using the current exchange rate,⁶ we found that this basket cost C\$250.31.

We assume that Canadians could have imported these items and saved the cost difference between the US and Canadian baskets. In this case, the difference was C\$226.06⁷ per person. We estimated that the second person inside a household consumed the same quantity of food as the first. All additional individuals are considered as consuming 30% as much as the first person. Thus, we have the following costs according to household size in Canada (see Table A-3). Again, we used the 2011 prices because the best available survey concerned the year 2011. In this case, this is an advantage as we can benchmark our estimate against the one found for 2011 by Cardwell, Lawley, and Xiang in the *Canadian Public Policy* article. Our estimate is that the cost for the average Canadian household is C\$438 while theirs was C\$444.

² Health Canada, *Canada's Food Guide*, 2011.

³ Statistics Canada, CANSIM Table 326-0012: Average retail prices for food and other selected items, monthly, 2016.

⁴ Bureau of Labor Statistics, Average Retail Food and Energy Prices, U.S. and Midwest Region, 2016 (consulted July 27th 2016).

⁵ This is also what Cardwell, Lawley and Xiang did in their article published in *Canadian Public Policy*. Ryan Cardwell, Chad Lawley and Di Xiang, "Milked and Feathered: The Regressive Welfare Effects of Canada's Supply Management Regime," *Canadian Public Policy*, Vol. 41, No. 1, March 2015, p.7.

⁶ Statistics Canada, CANSIM Table 176-0049: Foreign exchange rates, United States and United Kingdom, Bank of Canada, 2016.

⁷ Due to rounding, the figure is C\$226.06 instead of C\$226.05.

Table A-3
Cost of supply management per person

1 person	\$226.06
2 people	\$452.12
3 people	\$519.93
4 people	\$587.75
5 people	\$655.57
6 people	\$723.39
7 + people	\$791.20

3. Using the Survey of Labour and Income Dynamics

The next step was to use a recent survey of income that gives us the distribution of income. We relied on the *Survey of Labour and Income Dynamics* for 2011—the latest which is publicly available—which we obtained through a request to Statistics Canada. In this survey, a wide decomposition of income by source is available. Also available is the information about household size, geographic location (the same categories used for the Low Income Cut-Offs in step 1) and two measures of disposable income. Disposable income refers to income after taxes and after transfers.

The two measures differ only by a matter of degree. The first is labelled “mbinc27” which is income after taxes and after deducting employment insurance contributions, public pension contributions, registered pension contributions, union dues, professional membership dues, malpractice liability insurance, child care expenses incurred in order to hold a paid job, support payment paid, public health insurance premiums, and direct medical expenses including private insurance premiums. The second is “atinc27” and is defined as after-tax income.

We use these two measures to provide a deeper range of estimates with both the Low Income Cut-Off and the Basic Necessities Line (see step 1).

With these variables, all that remained was to estimate the lines from step 1 adjusting for the cost of supply management. Any individual or household between the original lines and the new lines are considered to be in low income status or in a state of poverty because of supply management. The results presented in the *Viewpoint* are available here in Table A-4.

Table A-4**Estimates of households and individuals in low-income status or poverty as a result of supply management policies**

	Households	Individuals
Basic Necessities Line - Income measure #1	79,422	189,278
Basic Necessities Line - Income measure #2	68,739	148,396
Low Income Cut-Off - Income measure #1	67,980	161,435
Low Income Cut-Off - Income measure #2	66,998	133,032