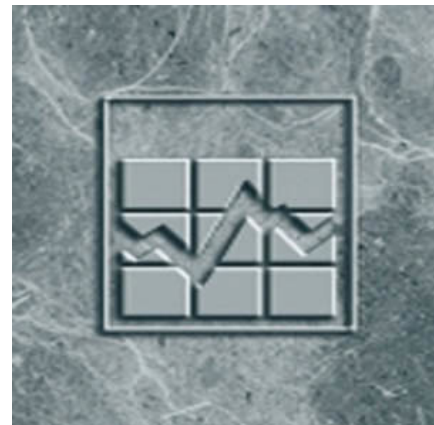


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Methodological changes to the Market Basket Measure in 2019

This note describes methodological changes made to the Market Basket Measure (MBM) of low income in calendar year 2019. These revisions mainly affect MBM estimates for 2008 and 2009, but they also affect the overall interpretation of the trends in the MBM over the 2000s.

The MBM was originally designed in the early 2000s. Between 2008 and 2010, the “first comprehensive review” updated the MBM methodology and basket contents. To avoid breaks between the statistics produced by the old and new methodologies, it was decided that the thresholds developed using the new methodology would be “blended” or “smoothed” in over multiple years. Different methods were used to smooth in different basket components (Hatfield, Pyper and Gustajtis, 2010).

Hindsight has shown that “smoothing” the series affected the interpretability of the incidences of low-income over time. Accordingly, in 2019 the decision was taken to remove this smoothing. In the future (and in this note), the original series will be denoted the “2000-base MBM” and the revised series based on the results of the 2008-2010 comprehensive review, will be denoted the “2008-base MBM”. The two series will be presented separately.¹ This paper describes the need for this change in more detail, and presents the new series.

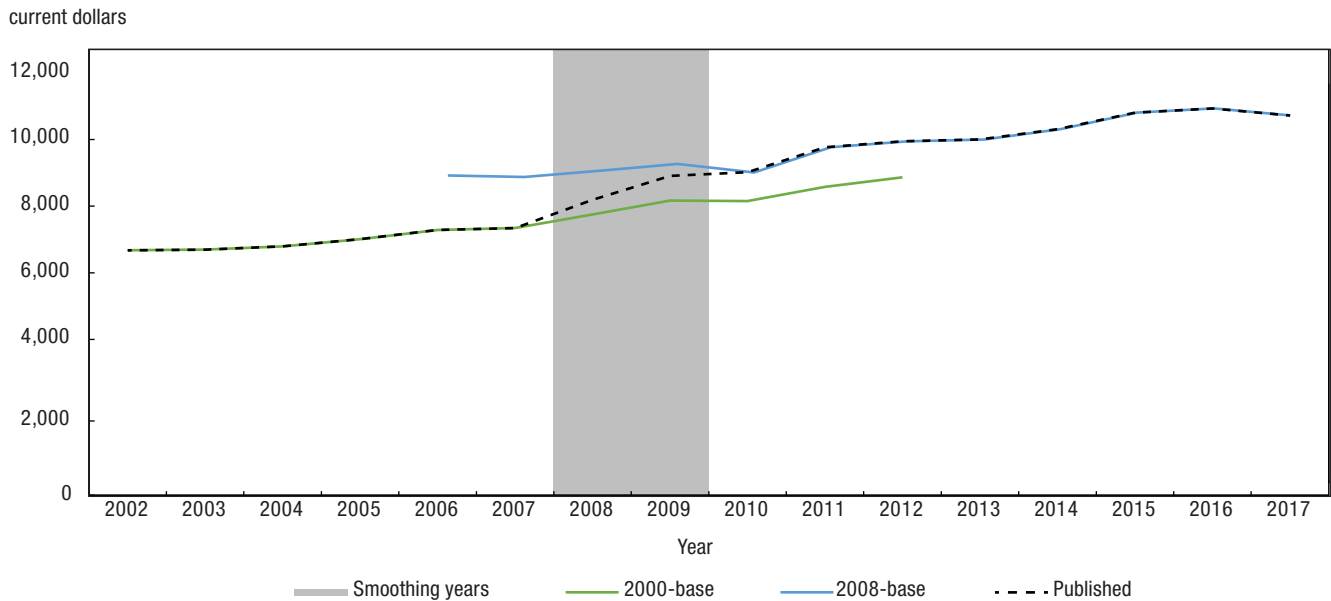
It should be noted that Statistics Canada is currently conducting a “second comprehensive review” with the intention to produce a new 2018-base MBM. Users should note that the results of this review will be made available in 2020, and that the methodological revisions described in this note are unrelated to this second comprehensive review.

Food Component

The threshold for the food component of the MBM is determined using the National Nutritious Food Basket (NNFB), produced by Health Canada. The 2000-base MBM used the 1998 version of the NNFB, while the 2008-base MBM used the 2008 version of the NNFB. As there were significant differences in the cost of the two baskets, it was decided that the higher cost of the 2008 NNFB would be smoothed in over two years.² This approach of “smoothing in” prices reduced the comparability over time of the food component thresholds. The increase in food prices in the resulting series derived partly from changes in food prices, but more so from a change in the composition of the food component itself. This would have a downstream effect on the low-income rates calculated using these thresholds. Chart 1 uses the food component threshold for Toronto to illustrate this point.³

1. In 2012 a revised methodology was introduced to address issues identified in the shelter component (Statistics Canada, 2015). To differentiate it from the previously published thresholds, this change was defined as the 2011-base. However, this change was not a true rebasing, in the sense that the basket was not updated to reflect the living standards of 2011. Rather it was a revision done to the 2008-base MBM. Therefore, going forward the 2011-base terminology will no longer be used.
2. For 2008, the cost of the food component was made up of two-thirds of the cost based on the 1998 NNFB and one-third of the cost based on the 2008 NNFB. For 2009, this mix became one-third of the cost based on the 1998 NNFB and two-thirds of the cost based on the 2008 NNFB. In 2010, the cost was based entirely on the specifications of the 2008 NNFB.
3. To extend the 2008-base MBM back to 2006, a few food items needed to be updated using an appropriate price index, since prices for these goods were not collected in these years. All food items in the 1998 NNFB use observed prices.

Chart 1
Comparison of 2000-base, 2008-base and originally published food component thresholds, Toronto, 2002 to 2017



Note: There may be differences in non-smoothing years due to data revisions.
Source: Statistics Canada, special tabulation.

Private Transportation Component

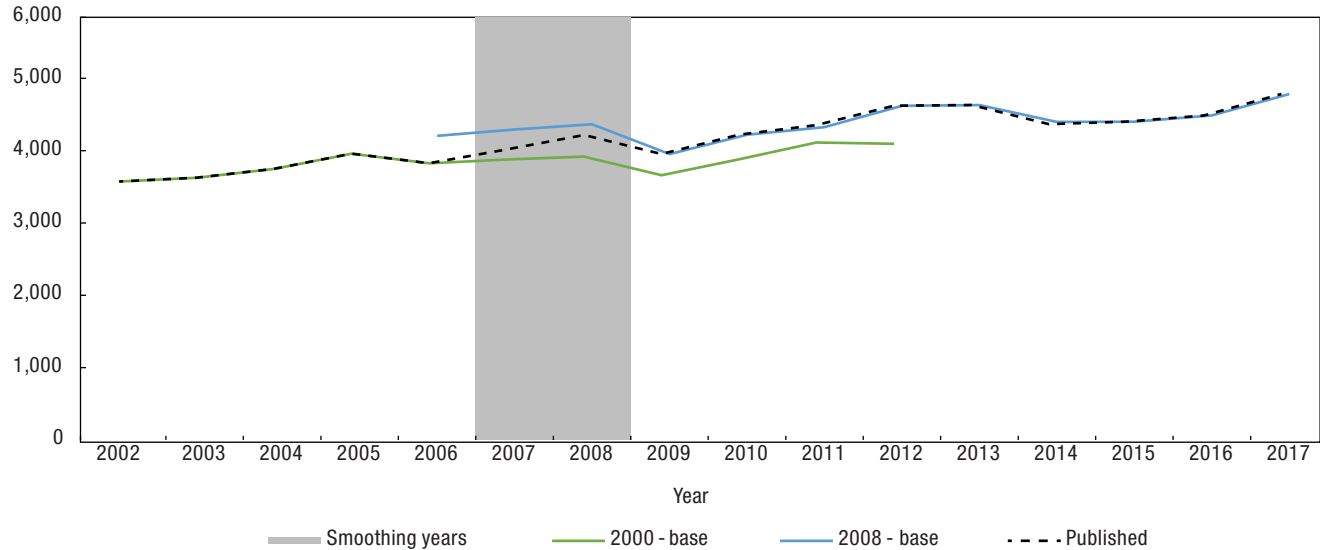
During the first comprehensive review, it was determined that the reference vehicle for the private transportation component would need to be changed, because the previous reference vehicle had ceased production. Specifically, in the 2000-base MBM, the private transportation component was based on the cost of owning and operating a four-door, four-cylinder Chevrolet Cavalier. In the 2008-base MBM, the vehicle was changed to the four-door Ford Focus sedan. As with the food component, there was a significant difference in the costs of these two automobiles, and so the transition was introduced gradually, over two years.⁴ Similar to the food component, the “smoothing in” of this new transportation expense reduced the interpretability of the series. In contrast, the revised methodology clearly separates the change over this period resulting from the change in the vehicle and the change in the vehicle price. Chart 2 uses the transportation component threshold for Alberta cities that have a population less than 30,000 to illustrate this point.⁵

4. Up to 2006, the Cavalier was solely used. In 2007, two-thirds of the value of the Cavalier and one-third of the value of the Focus were used. In 2008, one-third of the value of the Cavalier and two-thirds of the value of the Focus were used. Finally, in 2009, the full value of the Focus was used in the MBM. Similarly, the insurance cost differences between the Cavalier and the Focus were introduced on a gradual basis.

5. The last year it was possible to buy a 5-year old Cavalier was in 2010. In Chart 2, to extend the 2000-base MBM to 2012, the prices for the Cavalier in 2011 and 2012 were generated by taking the average depreciation rate for the last five years the Cavalier was available and extrapolating the last observed prices by that rate. The last observed insurance costs for the Cavalier were also extrapolated using a rate based on the average historical five-year price change for each of the individual cities where insurance prices were collected.

Chart 2**Comparison of 2000-base, 2008-base and originally published transportation component thresholds, Alberta cities with a population less than 30,000, 2002 to 2017**

current dollars

**Note:** There may be differences in non-smoothing years due to data revisions.**Source:** Statistics Canada, special tabulation.

Shelter Component

In the MBM, shelter costs are based upon the weighted average of the costs of two and three bedroom apartments in the respective MBM regions. These estimates come mainly from the Census, and are updated in post-Censal years using a rental price index. Prior to the first comprehensive review, shelter costs were based on 1996 Census results and adjusted for inflation using the provincial level rented accommodation index of the CPI. During the first comprehensive review, shelter costs were updated to the most recent available, 2006 Census data, and as with the food and transportation revisions, the new 2006 census data were found to produce cost estimates that were higher than the previous costs. To avoid a break in the series, shelter costs were produced in the following way:

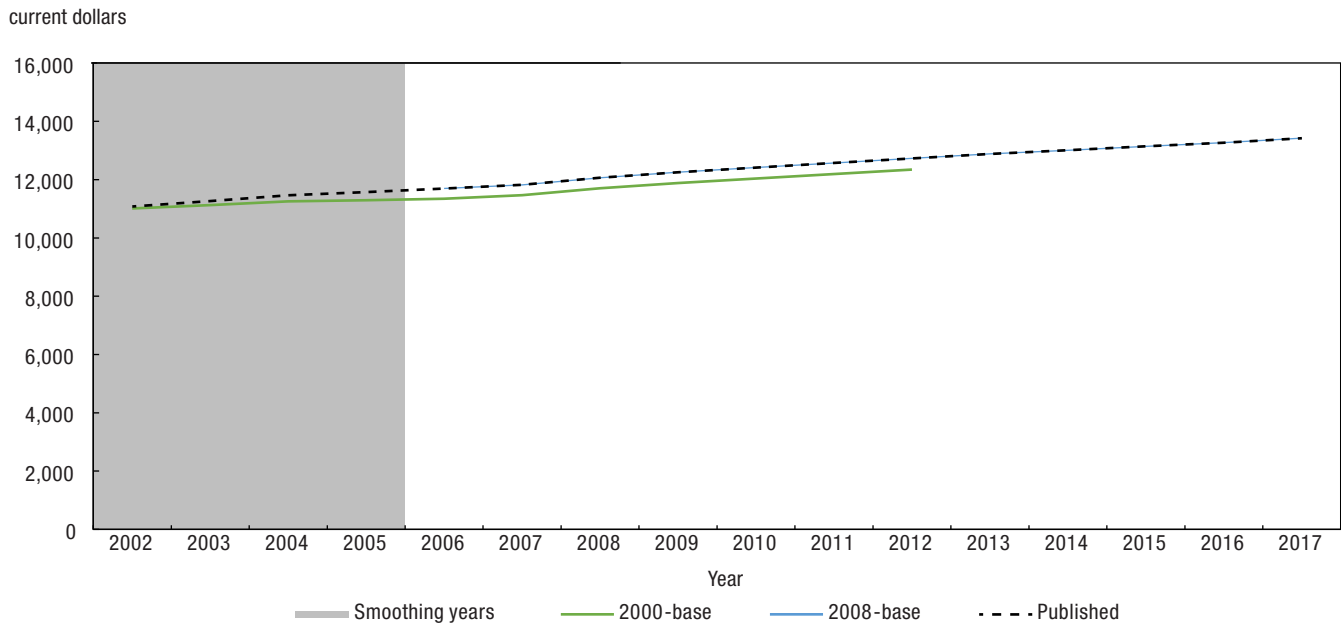
- Shelter costs for 2000 came from 1996 census, with an adjustment forward using the rental price CPI.
- Shelter costs for 2001 came from the 2001 census.
- Shelter costs for 2002 to 2005 were a “blend” of 2001 and 2006 census estimates.
- Shelter costs for 2006 were derived from 2006 census estimates, and estimates for 2007 onward were based on 2006 estimates adjusted using the rental price CPI.

As with the food and transportation components, this combination of two methodologies has resulted in a reduction in the interpretability of the series. Since 2006, growth in the shelter costs has been due to pure price movements in shelter costs, while for the 2001-2006 period, growth in shelter costs were due to a combination of price increases, and changes in the rental stock associated with shifts in quality or the appearance of new units.⁶ In the current revision, the 2001 census shelter estimates will be used for the 2000-base series and the 2006 census shelter estimates will be used for the 2008-base series, with the rental price index used to update changes over time. This ensures that a consistent price adjustment method is used within each base. Chart 3 uses the shelter component threshold for Vancouver to illustrate this point.⁷

6. See <https://www.statcan.gc.ca/eng/blog/cs/shelter-cost> for an explanation of why the rental price index may trend differently than average rental costs.

7. The series used to deflate the shelter cost estimates is “Rented accommodation”, Statistics Canada, Table 18-10-0005-01 Consumer Price Index, annual average, not seasonally adjusted.

Chart 3
Comparison of the 2000-base, 2008-base and originally published shelter component thresholds, Vancouver, 2002 to 2017



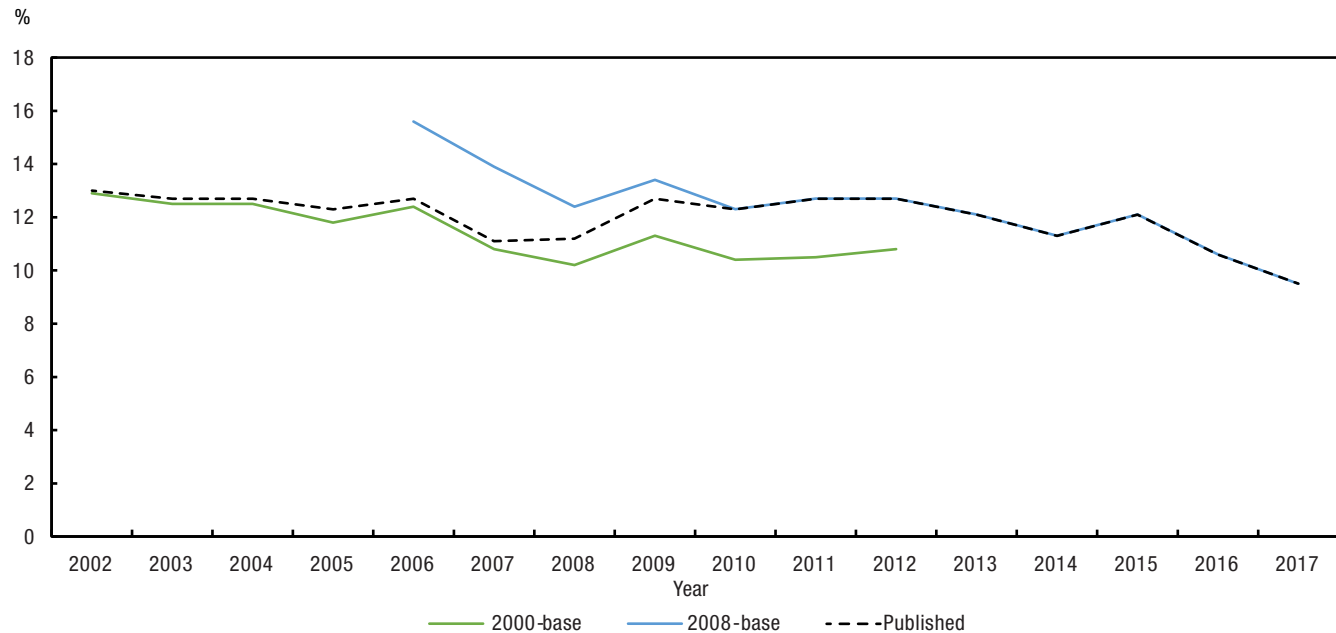
Source: Statistics Canada, special tabulation.

Over time, one would also want to account for changes in the rental stock associated with shifts in quality or the appearance of new units. Statistics Canada is currently conducting a “second comprehensive review” which will consider this question, and produce a new 2018-base MBM. Results of this review will be made available in early 2020.

Conclusion

This paper introduces changes made to the Market Basket Measure (MBM) in 2019. These changes improve the interpretability of the MBM series over the previously published ones through methodological revisions that removed “smoothing” that had been done in the past to mask breaks between differently defined baskets. These revisions mainly affect MBM estimates for 2008 and 2009. On the aggregate, these revisions can be quite important to our understanding of MBM low-income trends in Canada over this period.

Chart 4 illustrates how the estimates will appear using the new methodology, as well as the previously published estimates for comparison purposes.

Chart 4**Comparison of low-income rates based on the 2000-base, 2008-base and those originally published, Canada, 2002 to 2017**

Source: Statistics Canada, special tabulation.

The data in Chart 4 would describe two different evolutions of the MBM in Canada over this period. In the originally, “published” series, the MBM low-income rate fell from 2002 to 2007, then rose from 2007 to 2009, and gradually fell again. By 2016, low income in Canada was at a similar level as nine years earlier. As indicated in this note, this trend was partially influenced by the “smoothing in” of MBM thresholds, which caused the historical years’ thresholds to increase not only because of higher prices, but also because of changes in the components of the basket. With the new methodological approach, it is clear that MBM rates declined over the period.

From a usability perspective, the main drawback to the revised MBM approach is that users will have multiple base years to choose from. For example, a user who wishes to compare low income “over the great recession” may need to choose between results using the 2000-base and results using the 2008-base. Users will be advised to use the base closest to their period of interest, where possible.

Again, it should be noted that Statistics Canada is currently conducting a “second comprehensive review” with the intention to produce a new 2018-base MBM. Users should note that the results of this review will be made available in early 2020, and that the methodological revision described in this note is unrelated to this second comprehensive review.

References

Hatfield, Michael, Wendy Pyper and Burton Gustajtis. (2010), “[First Comprehensive Review of the Market Basket Measure of Low Income](#)”, Applied Research Branch paper, Human Resources and Skills Development Canada.

Statistics Canada (2015). “[Low Income Lines, 2013-2014: Update](#)”, Statistics Canada 75F0002M. December 2015.