Guidelines for Managing the Processing of Consumer Price Indexes

Prepared by **Statistics Canada**
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This document summarizes high-level best practices for conducting the routine processing of Consumer Price Indexes by Head office staff. It does not attempt to identify all best practices for the compilation of a CPI, such as those for collection procedures, nor does it address methodological considerations, such as the various methods for quality adjustment. More detailed guidelines can be found in the ILO manual or the IMF manual.

1. Develop a **production schedule and checklist** that outlines the date for each critical task as well as the team member responsible, so that all team members have a common understanding of deadlines and responsibilities. A copy of this checklist can be created for each reference period, and used by both employees and managers to identify when each task is completed. Items that may need to appear in this schedule include:
    - When collection begins and ends, including dates for tasks needed to set up collection
    - When processing is conducted, including imputation, the compilation of indexes, and any other sub-steps that need to be performed in a specific sequence.
    - The planned date on which data will be finalized for the current reference period, including when the current cycle is ‘closed’ in the processing system.
    - The date for public release and/or delivery of data to users and stakeholders.

2. Create **guidelines for maintaining a representative sample of outlets and varieties**.
    - These guidelines should include how to identify whether an outlet or a variety is (still) representative, perhaps by using other data sources on expenditures.
    - Build time into the team’s annual plans to review the sample.
    - The collection mode is also important to consider; if retailers are increasingly selling products online, some prices should also be collected online.

3. Establish **standard practices and responsibilities for reviewing and correcting collected prices**.
    - This includes procedures or documentation indicating what dollar values or percent changes are worthy of investigation, which can vary by variety and commodity class. The seasonality of price changes in the variety or class is an important factor to consider. Ideally, the processing system is set up to flag any ‘suspicious’ records.
    - Collectors are trained to identify capture errors before finalizing collection, and price index analysts are trained to identify and address changes in quantity or quality.

- Ideally, collectors are able to record and communicate the pricing challenges they encounter to the price index analysts. This can be done through comments in the processing system or through a separate document.
- The standard practices should also include procedures for identifying and addressing quality or quantity changes. Usually a standard approach can be applied to most classes. Documentation on both the standard approach as well as the exceptional cases is recommended.

4. Identify and document a **standard strategy for applying imputations** so that all team members have a common understanding.
    - Ideally, the imputation step is handled by the processing system, and all records that are imputed are flagged as such in order to distinguish them from the collected records in the processing system's database.
    - An example of a strategy is that, when imputing a price, the first choice is method A (such as imputing using the same variety in other outlets), but if there is insufficient data, then the second choice is method B (such as imputing from the class).
    - For classes or varieties that are exceptional and follow another approach, ensure the reasons for this are clearly documented in a shared location.

5. Develop a **clear process for compiling statistics.**
    - Ideally, there is one person responsible for initiating the system jobs to compile statistics following a schedule laid out in advance. This helps to ensure all team members or managers know when the data will be ready for review.
    - Ensure more than one person is trained to use the processing system, and that documentation for these steps exists.
    - Processing system errors should be reviewed and addressed as quickly as possible.

6. Establish **standard practices and responsibilities for reviewing the indexes**.
    - This can include defining which classes are assigned to each price index analyst.
    - It is important to analyze how the change in the current period compares to changes in the previous period and to the same period in previous years.
    - Ideally, graphs for all published indexes are available for the analytical review. Graphs help to identify data issues and visualize seasonal patterns.
    - It is also useful to have a report that summarizes what indexes were the top contributors to the current period's change, where the contribution is a function of each component indexes' weight and price change.

7. **Track changes or adjustments** made to compiled indexes.
    - If the processing system has issues or is unable to complete a necessary calculation, and an 'override' is applied to insert the correct price index level or price change, ensure this 'override' and the reason for it is documented in a shared, central location.

8. Establish procedures for **validating outputs for dissemination**
    - Once the processing steps have been completed, all outputs that will be posted in a public forum or sent to stakeholders need to be validated.
    - This involves comparing the finalized outputs to the data residing in the processing system's database, and ensuring that no formatting or versioning issues are present.

9. Develop an explicit **revision policy**
    - Clearly elaborate under what circumstances already published CPI numbers are revised, and how any corrections to published data will be communicated to users

10. **Identify lessons learned and areas for improvements**.
    - When things don't go smoothly, identify the cause and update procedures where possible, to avoid repeating the same issue. This may involve clarifying instructions for price collectors, identifying needed training, or updating documentation.
    - Use information gathered by collectors and price index analysts to identify areas where the sample of outlets or varieties is too small or out of date. This type of review should occur on a regular (often annual) basis, as part of item 2 above.
    - Keep track of issues that need to be addressed by a basket update, such as the introduction of a class. Ideally, basket updates should occur every few years.
    - Develop and regularly update an emergency plan. This plan should identify potential risks (i.e., power outages, COVID-19-related closures) and how the CPI team will adapt to the situation (i.e., work in a different location, delay the data release).
    - When things go smoothly, celebrate!