



Statistics
Canada

Statistique
Canada

infomat

Updated Reprint

Supplément

Work Completed On Time-Consuming Updating

Don't Shoot The CPI — Whether Bringing Good News Or Bad It's The Best Messenger We've Got

ORIGINS OF THE CONSUMER PRICE INDEX AS WE NOW KNOW IT CAN BE TRACED BACK

to the turn of the century. And, as careers go, the run enjoyed by the CPI can only be described as distinctly checkered; not arising from any activities of its originators but because of the abuse it has had to take. Users in the past have manipulated the CPI any which way to try to prove it would support *their* cause and blow to smithereens the case of their opponents. Trouble was, the CPI was pretty much a sitting duck in its monthly analysis. An honest attempt to establish an impartial measure the index nevertheless ended up in something of the same position as the fabled tavern piano-player — the victim of more than the occasional potshot.

Less than perfect — and never claiming to be otherwise — the CPI in its own fashion has, however, risen above its imperfections and built a reputation with the general public in spite of all the detractors. Each month it almost certainly kindles more common-denominator recognition among citizens than any other national index and no element of the country's media can afford to fail to report its swings (yes, there are times it drops). Specifically, these are some of the key ways it influences our lives:

- For a great many workers, collective bargaining agreements include cost of living adjustment (COLA) clauses that result in automatic wage adjustments linked to movements in the CPI.
- Various benefits, alimony and child support payments plus many other contractual or regulatory arrangements are frequently tied in some manner to the CPI.
- Old age security pensions and family allowances are adjusted each year to take into account the changes in the CPI. Since 1973, personal income tax exemption levels and brackets have been adjusted in accordance with changes in the CPI, thus directly having an influence on what we pay in income taxes.



Consumer prices section chief Peter De Vries keeps Denis Desjardins, acting director of prices division and Hugh Scobie, technical co-ordinator, closely informed on every step of the CPI Updating.

THE SIMPLEST WAY OF THINKING ABOUT THE CPI IS TO IMAGINE

A WIDE-RANGING basket of selected goods and services of the kind bought by representative urban households. As prices vary, the total cost of this basket varies. The CPI is simply a measure — expressed in relative terms — of the changes in the cost of this basket as the prices of items in it change.

Value of the CPI basket is assigned the number 100 and the value over time is expressed as a percentage of the cost in the base period (currently 1971=100). For example, if the price of the basket had increased 97% since 1971 the index would read 197.0.

In total, nearly 400 items which, in turn, offer further eventual breakdown through

some 640 "specifications" are included in the basket.

Family expenditure surveys carried out periodically provide information on spending patterns and are used to determine which goods and services should be designated for pricing in the CPI. Our total basket is divided into the following expenditure categories: food; housing; clothing; transportation; health and personal care; recreation, reading and education; and tobacco and alcohol.

These categories are further sub-divided into groups, sub-groups and finally to the item level. For example, "transportation" includes a "private transportation" and a "public transportation" group and the former is further sub-divided into the "automobile purchase" and "automobile maintenance and operation" sub-groups. Within the latter sub-group are included such items as gasoline, car insurance and parking charges.

IN ADDITION TO IDENTIFYING THE ITEMS FOR INCLUSION IN THE CPI, FAMILY

expenditure surveys also define the proportion which average spending on *each* item bears to average total spending for *all* items. This is a very important element in the CPI calculation; a 5% rise in the price of milk, for instance, would normally have a much greater impact on everyday budgeting than even a 50% increase in the price of pepper. This distribution of expenditures or "weights" is essential so that differing item price movements can be combined in a manner which properly reflects their overall impact on the typical family. Every item in the CPI has its own weight — as used in the past and as it will exist in the CPI updating. A comparison of distributions of weights at the major component level shows:

	Updated 1978 weights	Previous 1974 weights
--	----------------------------	-----------------------------

Food	21.1	21.5
Housing	35.4	34.1
Clothing	9.5	10.1
Transportation	16.3	15.8
Health/Personal Care	3.7	4.0
Recreation/Reading/Education	8.6	8.3
Tobacco/Alcohol	5.4	6.2

MEASURING IMPACTS OF PRICE CHANGES ON LARGE GROUPINGS OF URBAN FAMILIES

means movements must be monitored where the action is. This calls for a great deal of sampling of supermarkets, specialty shops, department stores, garages, dentists' offices, hairdressers — retailers and service agencies of all types. Bus, rail and air fares, hydro and gas rates, telephone charges and property taxes are collected from the appropriate local or regional utilities and government offices. Rent fluctuations are obtained from a monthly survey of thousands of households in urban areas. Underpinning the CPI is a total of well over 100,000 individual price quotations collected each month in over 35 cities. Pricing cycles start in the latter part of each month and extend to the middle of the following month for most items, including food, clothing, pharmaceuticals and gasoline. Some are priced less frequently: for haircuts and dry cleaning, checks are normally made quarterly; for property taxes, annually. Such goods and services, however, will be priced in any given month when all the signs are that significant price changes may come before the next regular scheduled pricing.



The Updaters in review, snapped in the prices division library, after many months engaged in updating Canada's Consumer Price Index. From left to right: John Degan, Kathy Purcell-Broome, Andy Baldwin, Keith Hannett and Henry Pressel.

THE CONSTANT BASKET OF GOODS AND SERVICES IS WHAT THE CPI

AIMS TO MONITOR for price change. For this reason, efforts are made to ensure that identical or equivalent items are priced in successive time periods. However, products may be improved, downgraded, packaged differently — altered in all manner of ways. In the circumstances, the price index-maker must evaluate the effect of quality change separately from price change to arrive at a "pure price" change. Introducing this element into any price index construction is an extremely complex step.

FOLLOWING RIGID SCREENING OF ALL STATISTICS ENTERING THE CPI

CALCULATION comes the massive undertaking of actually computing them. Simply put, the procedure consists of developing for each item a separate measurement of price change since the base period. The resulting item price indexes are then weighted and aggregated to a total.

For technical reasons item price indexes are calculated in two steps. First, the percentage change is calculated between the average price of the item in the current month and its average price in the preceding month. This one-month price movement must then be linked with the total price movement which has taken place between the CPI's base reference period and the preceding month.

This calculation process is performed at the city-item level. The national calculation

for an item involves combining price movements for all cities bearing in mind each city's relative importance for this item in relation to each other.

After each item's separate price index has been calculated they are then aggregated using their respective weights. For example, once the fresh milk index has been computed it's aggregated with other items to arrive at the dairy products index; this index is in turn weighted with other food index aggregates to yield the total food-purchased-from-stores index. Further weighted aggregations eventually result in the all-items CPI.

IN GETTING THE CPI IN PERSPECTIVE IT SHOULD BE EMPHASIZED

WHAT THE INDEX is not — it cannot, strictly speaking, be regarded as a cost of living index. No country in the world produces a cost of living index. A cost of living index would include income taxes in the "basket". It would need to take account of the substitutions consumers make in the face of spiralling prices. Consumers may decide to buy more poultry products and less beef when beef prices are the faster rising. Relatively short-run shifts in spending patterns are not taken into account in the CPI although longer-term ones are reflected through the process of updating.

The CPI is designed to provide a broad measure of the changes in retail prices that urban consumers encounter, it shouldn't be expected to reflect exactly any one family's experience. Families within a group may have different spending patterns and certainly not purchase every single item in the lengthy list of CPI goods and services.

FIFTY MONTHS OF CPIs REPROCESSED BY THE SYSTEMS/OPERATIONS UNIT TO GET UPDATING

Following the decision to carry out CPI updates on a regular four-year cycle, the Prices Division has since mid-1979 been heavily engaged in the 1978 Consumer Price Index updating process.

A CPI updating can best be described as a periodic review of the CPI existing at the time with the objective of improving it.

All aspects are considered: the updating of expenditure weights in use, population coverage, geographical coverage, the introduction of new items for pricing, frequency of pricing, the sample of outlets from which prices are collected, review of concepts, review of Index methodologies, the re-design of publications and the development of systems and procedures for implementing changes.



The people responsible for reprocessing 50 months of CPIs. Left to right: Jana Tomcik, Dyane Maurice, Jerry Fiori and Jim Tremblay.

Queen's Grad Heads Systems

One principal figure involved in the CPI revision has been Jerry Fiori, head of the Systems and Operations Unit of the Prices Division. Jerry, a graduate of Queen's University, joined the division in early 1975.

Jerry's main responsibility is for the regular on-going production of the CPI, an onerous task in itself.

Midsummer Night Indexes

On most nights last winter and this spring, Jerry could be seen in Statistics Canada's computer room poring over the tabulations generated by the system.

By the time the updating was introduced, Jerry and his staff had reprocessed over 50 months of CPIs.

At the same time, the staff of the Development and Analysis Unit — under the supervision of Keith Hannett — were conducting the analysis of the weight changes and the reprocessed CPI results.



Bohdan Szulc, Chief of the Central Research Section of the Prices Division, puts finishing touches to the Consumer Price Index Reference Paper. This 150-page document is the basic reference source describing the concepts and procedures underpinning the CPI. The main features of this latest CPI Updating include the introduction of 1978 family expenditure information to calculate the CPI, replacing the 1974 information which had been in use since October 1978. In addition, a second monthly food pricing has been implemented in order to render the index more representative of the month as a whole. Finally, improvements have been brought about to item and geographical sampling approaches.



CPI INFORMATION FLOW

A close monitoring of the various media provides Statistics Canada with tips on price change possibilities. Candace Ruscher, an information officer with the prices division, ensures that Harold Harnarine, the information and current analysis unit head, is kept up-to-date on trends noted in the business and financial columns from various Canadian newspapers and trade journals. Sandra Shadlock, using CANSIM, the Canadian Socio-Economic Information Management System, Statistics Canada's databank, responds to requests for information found on computer printouts. Special requests for information are handled by Anita Jekabson, who uses direct input to the databank through a computer terminal to produce special tabulations. The information and current analysis unit is always looking for new avenues for obtaining pertinent data. Harold Harnarine explains mathematical concepts of index numbers to other staff members (l to r) Jim Tremblay, Marc LaHaye, and Andrew Belmers, who are involved with information retrieval and dissemination.

When Consumer Price Index is Released Inquiries Staff Gets Set for Busy Day

TORONTO: The single busiest day in our reference centre during the month is the Consumer Price Index release day. Other major data releases such as the Labour Force Survey or Gross National Product generate a great deal of demand but nothing beats the CPI for sheer volume!

The Toronto reference centre has seven inquiries staff on duty to answer the 300+ requests that constitute the normal day's workload. On CPI release day we will handle over 500.

CPI release day begins about 8:00 a.m. for the staff member on CANSIM duty that particular day. A special program to retrieve CPI data from CANSIM in a particularly useful format has been prepared by the Toronto office. This two-page printout is retrieved and photocopies are sitting on everybody's desk when they arrive for work. The telephones start ringing "off the hook" when the reference centre opens at 8:30 a.m.

Most of the callers, at least early in the day, call every month and represent unions, insurance companies, manufacturing plants, educational institutions, accounting firms, legal offices and the media; many are private individuals. These "regular" callers usually know exactly what data they need and spend only a short period of time on the telephone. On the other hand there are many less knowledgeable callers. For example, one football fan (obviously a disgruntled Argonaut supporter) has called and asked for the *CFL* index.

In our region, demand is highest for Toronto and Canada CPI information but there are also requests for most other regional cities. The majority of users request data on the 1971=100 base but there are still some who are using the 1961 base or even the 1949 base.

The uses people find for the CPI are as varied as the users themselves. Many call for personal reasons to see how the change will affect their wages or rent. Employers and unions want to determine possible changes in their COLA agreements. Changing social trends are reflected in the increased demand for CPI information for child support and alimony payments.

The reaction of callers to the latest CPI news depends to a large extent on their point of view: some respond with an "ouch" and some shout "hurray". Some users express doubts about the validity of the data and there are always a few who question the virtue or parentage of our inquiries officers!

Although release day is our busiest time, we also get many CPI inquiries throughout the month. Many of these inquiries are more complex, with users wanting advice on which index to use in a contract or things to consider in an escalation clause. Continuing high rates of inflation in Canada keep interest in price indexes very high and some users seem intent on using the CPI for purposes for which it was never intended. In these cases, we'll caution the user and suggest using alternate data or applications.

Users are constantly being educated in the differences between percentage and index points, or how to calculate a percentage change. Currently, there is some concern about the updating of the CPI. A number of internal training sessions have helped prepare our staff to respond to these sorts of questions.

CPI is our number one subject and is popular all month long. But no day compares with release day. Serious consideration is being given to setting up a CPI "hot-line" that users could telephone to get the

By Douglas Newson

Assistant Regional Director

Advisory Services, Toronto

latest CPI information on a recorded message. This would provide a welcome break for the staff and allow for increased efficiency. The release day becomes almost the exclusive preserve of the CPI — we find it difficult to answer an inquiry on another subject and **not** give the user the CPI as well!

Price Measurement Review Initiated by Chief Statistician

In response to recent criticisms concerning the Consumer Price Index and the multiple uses to which it is put, Martin Wilk, Chief Statistician of Canada announced last January that Statistics Canada was organizing a Price Measurement Review Program. The objectives of the program are:

- to expose the CPI to public scrutiny;
- to foster a better public understanding of the CPI and its limitations;



Martin B. Wilk

- to search out and review alternate solutions to longstanding conceptual and technical problems inherent to CPIs.

There are three principal elements to the program. The first, an information exchange program in the form of three in-house symposia conducted by leading experts in the field, has already been completed. These symposia addressed the inflation process, its measurement and the uses to which such measures are put.

The second element of the program consists of a consultation process. A well-known Canadian economist from the private sector has already completed the consultation process, which was national in scope and which solicited the views from all areas of endeavour, including federal and provincial governments, business, labour, academics and various interest groups.

The last phase of the program will be a public conference to be held in Ottawa this fall. This conference will provide a forum for the presentation of papers whose topics will largely be drawn from the results of the consultation process. These papers are being prepared by experts from both Canada and elsewhere in the field of price indexes.

This program should serve as testimony to the confidence and crucial importance that Statistics Canada attaches to the public acceptance of the CPI and its credibility.