

The Consumer Price Index

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Article abstract

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The changes made recently by the Dominion Bureau of Statistics (which we shall call by its initials D. B. S.) in its *Cost of Living Index* — now to be known as *Consumer Price Index* — have given this index publicity which has certainly made it, along with the decennial census, the best known statistical work in Canada. The modifications introduced are worth being pointed out and discussed because of the growing importance of this index in collective bargaining and therefore of its influence in the labour world. A better knowledge of the *Consumer Price Index* (that we shall call by its initials C. P. I.) is desirable because of its usefulness.

From the beginning of the century, the Dominion Government statisticians have established an index which attempted to measure the variations which occurred in the prices paid by the consumer to procure for himself and his family necessities or luxuries. From 1900, they established an index taking into account the variations in the price of shelter and of 36 articles of consumption, especially food and fuel. A revision and correction of this measurement brought a new index having as

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base period 1913 = 100.0. A second revision made a few years later gave another index having this time as base period 1926 = 100.0. This index was used up to the last war, at the beginning of which was established the one we all know, the Cost of Living Index (C. L. I.). This index indicated, as did the others and more than the others, a great improvement in the measuring of the prices paid by the consumers; the first to be widely known and used in Canada.

Because of the importance that this index had and that it still has, and also because of the perfection that it reached, it is worth while to spend a little time on it.

1—THE COST OF LIVING INDEX

The Cost of Living Index — as its predecessors, but with more success — was the attempt to measure the influence of retail price changes on the cost of a certain quantity of goods bought by a typical worker's family. The meaning of the term "typical" must be well understood; it is the city worker's family, representing all those in Canada, including an average of 4.6 persons and having an income ranging between \$1,200 and \$1,600.

In spite of its title of Cost of Living Index, it did not represent all of the cost of living, but only an important list of commodities and services consumed by these typical families. It represented to some extent the cost at different periods of a constant "basket" of goods and services consumed by families of medium income in the principal cities of the country.

The period 1935-1939 was chosen as the basis for this index — did we not notice at the top of each table indicating the average index, 1935-1939 = 100.0? — because it was just before the war, that is to say, it permitted comparisons to be made more easily with the war period which had just started. It had been found by experience, that it was a good thing to change the index at the beginning and the end of wars, as well as at the beginning and end of depression periods. In this way may be registered the quite considerable changes which always take place during these periods.

The great advantage of this index, however, was that it represented better than ever before the average urban family's budget in Canada. The estimates were no longer based on the retail sales, but rather on an extensive survey carried on all across Canada on family expenditures. All expenditures were recorded and analyzed for these families of which

the income ranged from \$600 to \$2800, although, as we have already mentioned, the majority had an income between \$1200 and \$1600.

This survey permitted obtaining for the first time a good idea of the expenditures of Canadians, and it was discovered that expenditures by percentage were as follows:

| | |
|---------------------------|-------|
| Food | 31.3% |
| Shelter | 19.1% |
| Fuel and lighting | 6.4% |
| Clothing | 11.7% |
| Household operation | 8.9% |
| Other expenditures | 22.6% |

The C. L. I. was therefore built up by placing on the price of food, a *weight* — to use the technical term — of 31, that is to say that the importance of food was placed at 31% of the total of the index, that of shelter at 19% etc.

II—THE CONSUMER PRICE INDEX

After having used the C. L. I. for ten years, the statisticians, aware of its weaknesses, (when will a perfect index be set up?) felt that the time had come to make changes in it, more so as we were getting away from the base period chosen then — that of 1935-1939 — and that the new post-war economic situation necessitated being compared with a year of that period and not with before the war, so little like the years we were now living in.

Furthermore, a new survey made in 1948 indicated that since 10 years Canadians had changed considerably the make-up of their budget and that the constant "basket" of goods and services consumed did not represent very closely today's consumption.

It was therefore resolved to establish a new index on which the best specialists of the D.B.S. worked for nearly three years. Outside experts were called in and the work was carried on in close cooperation with the Washington Bureau of Labour Statistics, who was engaged in improving its own Consumer Price Index. The exchange of information and experience was very profitable to both Bureaus. The new *Consumer Price Index* published in October was the result of this tremendous work.

The consumer price index having as base period 1949 = 100.0, provided with a new sense of measure, a new name and established on

the basis of the survey of 1948, was released to the public after having been examined by many people, industrialists, labour leaders, consumers, as well as a group of economists and statisticians from all parts of the country, that were called on especially to this end.

A—New Base Period

The new base period was fixed at 1949, that is the year after the war which felt the least the upsets in consumption due to war-time shortages, and, on the other hand was a year of full employment. The index was therefore established in taking 1949 prices as equalling 100.0 and those of the following years are shown in accordance to this base or standard.

B—New Categories

A new measure was established for all the products included in the index. First of all new categories were chosen to classify the goods consumed. Experience had shown that the six categories established for the *Cost of Living Index* were not as useful as would have been desired or as another arrangement of categories could have seen. Thus may be found in the *Consumer Price Index* the following categories, of which there are five:

- Food
- Shelter
- Clothing
- Household Operation
- Other commodities and services

It was decided to include the former category — *fuel and lighting* — in that of *household operation*.

C—The 1948 Survey

The 1948 survey was a more complete and more important study than that of 1938. Made in accordance with the most modern methods of sampling, it covered families in the 27 cities of Canada whose population exceeded 30,000 at the 1941 census. This survey revealed how Canadian families had changed their way of spending their money. From the total families studied, a *target group*, or what might be called a representative group, was selected. This group consisted of families ranging in size from two adults to two adults with four children. Their income is between \$1,650 and \$4,050 although the majority of them had

an income between \$2000 and \$3000. This target group is a good sample of the total population, since families of this type make up two-thirds of the consuming units of the cities mentioned which in turn form nearly 60% of the population of Canada. The 1948 survey determines in a remarkable way the expenditures of Canadian consumers.

D—A New Name

Why was a new name given to the cost of living index? There were two reasons for this. One is that the change in name will avoid confusion between the former *Cost of Living Index* and the new *Consumer Price Index*.

Furthermore, the old title did not exactly describe the index since the name *Cost of Living Index* left the impression that it took into account what it costs to live at a certain time, reflecting all the changes in the pattern of expenditures, whereas in reality it did not show in any way these changes in the pattern, but on the contrary was based on fixed expenditure. Those who were not familiar with this, could be led astray by this title which the statisticians had chosen for their own use and which did not cause any confusion among themselves.

E—New Measurements

Obviously, there was a considerable change made in the measurement of the various commodities of which the price is used in establishing the index. If no change had been made in the weights of each of the parts, we should have had:

| | |
|-------------------------------------|-----|
| Food | 31% |
| Shelter | 19% |
| Clothing | 12% |
| Household operation | 15% |
| Other commodities and services..... | 23% |

whereas the new measurement gives:

| | |
|-------------------------------------|-----|
| Food | 32% |
| Shelter | 15% |
| Clothing | 11% |
| Household operation | 17% |
| Other commodities and services..... | 25% |

This difference between the two measurements is due to two main reasons: first, the 1948 survey, and from it the new index, gave a much

better picture of the true consumption than that of 1938; secondly, because of the increase in incomes and prosperity, consumption has considerably changed, shelter takes a smaller part of the available income, which allows more to be reserved for luxuries and useful improvements of the standard of living (furniture and electrical appliances, for example, are more numerous and of better quality in Canadian homes).

However, many articles formerly neglected were added: let us mention as examples, cheese, margarine, smoked ham, chocolate bars, plastic articles, dry-cleaning, transportation by taxi or bus, phonograph records, beer and nearly 80 other articles. These articles were added because they are consumed more than before and because their prices affect the general level of prices.

III—TWO PROBLEMS

The change of index presents to those who make regular use of it — labour leaders, for example — two problems: A) how to go from one index to the other; B) how to explain the different variations which may appear in the two indices.

A—How to Go From One Index to the Other

When a collective agreement provides for a cost of living bonus or a sliding wage scale in accordance with the variations in the index, how is it possible to go from one index to the other ?

It is possible, as the employees of General Motors have done in a similar case in the United States, to use the old index as long as it was published and then use the new one. Or again use the new index from any one month after its publication. There still remains a problem: how to go arithmetically from one index to another; how can it be arranged that the cost of living bonus be measured in exactly the same way according to both indices ?

Let us take a fictitious case to illustrate how this may be done.

The enterprise XYZ pays its employees a cost of living bonus of \$1.00 per week per point increase in the C. L. I., what will be the weekly bonus based on the new C. P. I. ?

The basis of the C. P. I. is 1949, that is to say that at that date the C. P. I. equals 100.0. In 1949 the C. L. I. was 160.8. If one point of

the C. L. I. equals \$1.00, a point of the C. P. I. equals \$1.61, as may be shown:

$$\text{\$1.00} \times \frac{160.8}{100.0} = 100 \times 1.608 = \text{\$1.61}$$

It is possible to make the changeover at any time as long as the two indices are available. Let us suppose that the Company XYZ and its employees wish to change not according to the proportion of 1949, but according to that of 1951:

$$\text{C. L. I. in 1951} = 184.5$$

$$\text{C. P. I. in 1951} = 113.7$$

$$\text{daily allowance: } \text{\$1.00} \times \frac{184.5}{113.7} = \text{\$1.00} \times 1.622 = \text{\$1.62}$$

or might choose the month of August, 1952:

$$\text{C. L. I. in August, 1952} = 187.6$$

$$\text{C. P. I. in August, 1952} = 116.0$$

$$\text{daily allowance: } \text{\$1.00} \times \frac{187.6}{116.0} = \text{\$1.00} \times 1.617 = \text{\$1.62}$$

As it may be seen, the changeover can be made easily; it only requires a simple calculation in arithmetic.

B—Different Variations

It may well happen that the two indices may vary differently or that one may go higher than the other. How can this variation be explained?

Two principal factors should be taken into consideration here 1) the index weights, and 2) seasonality.

1—Index Weights

The different weights put on a certain number of articles in the C. L. I. and the C.P.I. means that the changes in prices of these articles have a different effect on the behavior of the two indices. These different index weights are due to the fact that, as the 1938 and 1948 sur-

veys show, the consumption habits have greatly changed since the 1938 survey.

2—Seasonality

A new improvement made in the C. P. I. is also responsible to a certain extent for this difference. The C. L. I. did not permit taking into account the differences in consumption according to seasons and yet everybody knows very well that the price of certain commodities, particularly food, varies considerably, according to the time of year; and not only does the price vary, but also the quantity sold. Out-of-season strawberries sell well in stores, but how much dearer and how much less in quantity than those of June. The same importance cannot be given to strawberries in December as in June. It is the same for many other products. The C. P. I. now offers the possibility of taking into account these variations, which obviously prevents it always changing in exactly the same direction as the C. L. I.

* * *

In conclusion, it may be said that the changes made by the D. B. S. to its C. L. I. had as its aim to make the index more useful, more descriptive and easier to use.

A simple calculation in arithmetic allowing a changeover without difficulty from the former *Cost of Living Index* to the new *Consumer Price Index*, the comparison between the variations caused by the system of measurement used in each one of the indices, is facilitated. Moreover, the D. B. S. will continue the simultaneous publication of both indices for several months in order to allow consumers time to get used to the new measurement.

The new *Consumer Price Index*, will prove, after trial, to be of more use and of a greater accuracy than the *Cost of Living Index*.
