

Measurement of Inflation: New Colombo Consumers' Price Index (CCPI)

A reliable, accurate and timely available measure of price movements of goods and services is needed to assess inflationary pressure in a country and for policy formulation to achieve price stability, the key objective of monetary policy. In most countries, a Consumer Price Index (CPI) is used for this purpose. The CPI is a social and economic indicator constructed to measure changes over time in the general level of prices of consumer goods and services that a representative group of households acquire, use or pay for consumption. In other words, a CPI measures over period of time, the change in the cost of a fixed basket of goods and services commonly purchased by majority of households. If the quantity and quality of this market basket is held constant at the base period, the index solely reflects price changes. It is estimated as a weighted average of the prices of a sample of goods and services obtained from selected markets in a defined geographical area.

A CPI serves a number of purposes. It is essential as an objective measure of the changes in the general level of prices, i.e., inflation. It is used for deflation of current value aggregates in national accounts; for formulation of policy for the determination and evaluation of wages and other monetary incomes; for indexation of wages, salaries and social security benefits and for economic and social analyses. An inappropriate index could give misleading information about the price changes over time, adversely affecting determination of correct policies, particularly monetary policies, and providing misleading assessment about economic performance and the social and economic impacts of policies.

In most countries, the national Consumer Price Index (CPI) is used for various different uses, and these uses can have conflicting requirements with regard to CPI definition and coverage. In Sri Lanka, this conflict seems particularly acute, and the only index used for this purpose for more than five and a half decades was Colombo Consumers' Price Index (CCPI), computed by the Department of Census and Statistics (DCS), with 1952 as the base year. Partly as a result of the legal position of the official CPI as a basis for determining wages, the use of 1952 as the base year had been irrelevant today in measuring general inflation.

Colombo Consumers' Price Index

Colombo Consumers' Price Index (CCPI) had been used as the official CPI of Sri Lanka, from

1953 to November 2007 when a new Colombo Consumers' Price Index was introduced. The weights for consumer items in the CCPI was based on the average household expenditure of a sample of 455 working class households determined by the Colombo family budget survey of 1949-1950 and re-valued at the annual average prices of 1952 which was considered as the base year. Since the index was more than 5½ decades old and significant changes in consumer habits and family income on the demand side, and in the range and availability of goods and services on the supply side have taken place, it was no longer a good indicator of current changes in retail prices. Though the CCPI served as a measure of general inflation at the time of its introduction, with many structural changes that had occurred since then, its applicability had been limited today.

The soundness of a CPI depends on the extent to which it captures the consumption pattern of an average household in the reference population. The items to be chosen for constructing a CPI and relative weights assigned to them need to be based on findings of a Socio-Economic Survey on consumption patterns of the targeted group. The relative importance of each item consumed by the household is represented by the aggregate weight assigned to each item in the index determined normally through income and household surveys conducted periodically. CCPI, the oldest index in Sri Lanka, was based on the monthly spending patterns of 455 working class households who lived in the Colombo Municipal area in 1949/50. Consequently, the CCPI could not be considered as the best measure of inflation currently prevailing in the country for the following reasons:

- i. It does not represent true changes in costs in line with changing consumption patterns. The range and availability of goods and services have widened over the years, but these new items have not been included in the index.
- ii. The index is highly sensitive to the prices of a few items due to unrealistic weights attached to those items, based on the outdated-consumption pattern.
- iii. It has limited in scope, both in terms of coverage of geographical areas and income groups.

The Need for a New Index

Recognising the need for a new and more reliable index of consumer price changes, the DCS had on

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6 previous occasions, in 1960, 1972, 1978, 1983, 1990 and 2002, constructed revised series of index numbers. However these were not adopted, and in spite of its limitations, the old CCPI with its outdated base of 1952 had continued to be the sole index used in the country.

A Consumers' Price Index requires regular revisions based on consumer expenditure surveys; normally the base weights should be revised at least every 5-10 years, to reflect changes in consumption patterns. Generally, most countries adopt a 'five year rebasing' of the CPI.

Since the current official index of retail prices (CCPI) is based on 1952 prices, and it has an outdated base expenditure pattern of five and a half decades old, it no longer reflects the current pattern of consumer purchases. Thus the size and composition of the typical "market basket of goods", the cost of which the index seeks to measure, would have substantially altered today.

The 1952 base of the CCPI makes the index to lack its credibility. Consequently, people tend to feel that the inflation rate indicated by CCPI is inaccurate. It is therefore essential to compute an index with a scientific basis, which could properly reflect price changes and earn public credibility.

Hence, the need for a better consumer price index had been repeatedly highlighted by many quarters for decades. In view of this long-felt need, DCS constructed a more comprehensive CPI called the new Colombo Consumers' Price Index in November 2007 addressing many of the deficiencies of the old index. This index was accepted as the official measure of inflation in Sri Lanka in November 2007, replacing the outdated Colombo Consumer Price Index CCPI (Base: 1952=100). Further, in order to have a single standard measure of inflation in the country and for other purposes, a policy decisions was taken to discontinue with the compilation of old CCPI (Base: 1952=100) from May 2008.

New Colombo Consumer Price Index

The new Colombo consumer price index, is based on the Household Income and Expenditure Survey

conducted in 2002, and its main features as compared with those of the old are shown in Table 1.

The salient features of the new CCPI are as follows:

Wider basket of goods and Services: The scope of the new CCPI in terms of the content of the market basket of goods and services is wider than that of the old CCPI. It contains 10 groups and 83 sub classes as against 5 groups and 38 sub classes in the old CCPI. The food ratio has decreased to 46.7% from 68.3% while the Non-food ratio has increased to 53.3% from 31.7%.

Full-year coverage of consumption patterns: Expenditure weights were obtained using data on household expenditure for the 12-month period from January 2002 to December 2002. Since the survey covered over 1300 households from the Colombo urban area, over 12 months of the year, it captures seasonal variations of consumption pattern.

Coverage of all socio-economic groups:

Households covering all socio-economic groups in the above-listed areas of Colombo District are included. The average household size was 5.9 persons in 1952 when computing CCPI, and this has reduced to 4.5 persons in 2002, the base period of new CCPI.

Twelve price collection centres: The number of price collection centres was increased from 7 for the old index to 12 for the new index. They are Pettah, Maradana, Wellawatta, Dematagoda, Grandpass, Borella, Kirilapana, Dehiwala, Kotte, Nugegoda, Kolonnawa and Ratmalana compared with 7 markets.

Exclusion of alcohol, tobacco and narcotics: The new CCPI does not include alcoholic beverages, tobacco and narcotics as an expenditure item in the consumption basket, consistent with government policy of discouraging their consumption.

$$I_{t,o} = \frac{\text{Current budget value}}{\text{Base budget Value}} \times 100 \text{ --- Equation (3)}$$

This formula (Equation (3)) can also be written in a slightly different form as follows (Equations (4), (5) and (6)):

$$I_{t,o} = \frac{\sum P_{it} Q_{io}}{\sum P_{io} Q_{io}} \times 100 \text{ --- Equation (4)}$$

$$I_{t,o} = \sum \frac{P_{io} Q_{io}}{\sum P_{io} Q_{io}} \left(\frac{P_{it}}{P_{io}} \right) \times 100 \text{ --- Equation (5)}$$

$$I_{t,o} = \sum_i w_{io} \left(\frac{P_{it}}{P_{io}} \right) \text{ --- Equation (6)}$$

Where W_{io} = base period weight
 P_{it} = current period price
 P_{io} = case period price

Collection of Price Data

In principle, relevant prices for a CPI should be those actually paid by households, but collecting prices every month directly from households is neither practical nor cost effective. However, expenditure data are collected directly from households in household expenditure surveys. In practice, the prices that are collected are not actual transaction prices, but rather prices at which good and services are offered for sale in outlets such as retail shops, supermarkets or service providers. The price collecting centres for the Old CCPI are Pettah, Maradana, Wellawatta, Dematagoda, Grandpass, Borella and Kirulapana while for New CCPI, they are Pettah, Maradana, Wellawatta, Dematagoda, Grandpass, Borella, Kirulapana, Dehiwala, Kotte, Nugegoda, Kolonnawa and Ratmalana.

Prices of all goods and services in the basket for the new CCPI are collected, and its frequency depends on the nature of the commodity. The mentioned below are some details of price data collection:

- ◆ Prices of those goods which tend to vary more often are collected more frequently than monthly, e.g., Vegetables, fresh fish, rice, fruits, etc.
- ◆ Prices of those goods which do not vary very often are collected less frequently than monthly, e.g., Textile and Footwear.

Table 1
Salient features of the old and new CCPI

Basic Component	Old CCPI	New CCPI
Base Period	1952 = 100	2002 = 100
Target Population	Limited (Working class)	Increased (All urban)
Geographical Coverage	Narrow (Colombo Municipality)	Wide (Colombo District)
Sample size	455 Households	1300 Households
Price collection centres	07	12
Number of items	213	334
Groups	05	10
Classes	38	83
Weights - Food	68.3	46.7
Non-food	31.7	53.3
Total Basket value	Rs. 202.24	Rs. 17,996.38
Value of one index points	Rs. 2.02	Rs. 179.96

Source : Department of Census and Statistics

Laspeyres base weighted price formula: The method for computing the new CCPI is the same as that was used in the old CCPI. It uses the Laspeyres base weighted price index formula as shown in Equation (1):

Laspeyres Formula

$$I_{t,o} = \frac{\sum P_{it} Q_{i0}}{\sum P_{i0} Q_{i0}} \times 100 \text{ --- Equation (1)}$$

Where $I_{t,o}$ = price index for the current month
 P_{it} = price of the ith item in the current period
 P_{i0} = price of the ith item in the base period
 Q_{i0} = quantity of the ith item consumed in the base period

Equation (1) can be expressed as follows (Equation (2)):

$$I_{t,o} = \frac{\text{Average HH expenditure at current period in base period goods and services}}{\text{Average HH expenditure in base period}} \times 100 \text{ --- Equation (2)}$$

The above formula (Equation (1)) may be written alternatively as follows (Equation (3)):

Base period value: The total value of the base period expenditure on the basket of goods and services in the new CCPI is Rs.17,996.38 which is about 88 times greater than the base period expenditure of Rs.202/- in the old CCPI. This increase reflects the increased expenditure due to higher incomes, prices and the change in the consumption basket.

Wider coverage of consumers living in different areas in Colombo district: The geographical coverage of the new index has been widened to the urban area of Colombo District which is defined to include the urban localities of the municipal councils of Colombo,, Sri Jayawardenapura, Dehiwala-Mt. Lavinia, and Moratuwa, and urban councils of; Kolonnawa, Seethawakapura, Maharagama,, Kesbawa and Borelasgamuwa.

- ◆ Over 95 per cent of the price quotes used in the new CCPI is collected by personal visits.
- ◆ Price collectors are employees in the Department of Census and Statistics, who have been trained and equipped with descriptions of the items to be observed and forms for entering price data.
- ◆ Price data are collected only from selected outlets during a specific period for given specifications of items.

insignificant. The shares of expenditure on utilities and other services such as communication, education and health care were also comparatively low.

The new CCPI is a more reliable indicator of overall movements in consumer prices since it covers a wider spectrum of consumer goods and services. Therefore, the new index **CCPI (Base 2002=100)** is now used as the official index for measuring

inflation in Sri Lanka from April 2008, replacing the outdated old CCPI (Base:1952=100).

The movements of year on year inflation (point to point change) and the annual average inflation (12 months moving average) of new CCPI for the period 2002-2008 October is given in Table 3 and Figure 1.

Table 2
Survey Weights for CCPI (Base :1952=100) and CCPI (Base : 2002=100)

GROUPS	CCPI Base : 1952=100 HH Size :5.8 %	CCPI Base : 2002=100 HH Size :4.5 %
Total Expenditure Value	100.00	100.00
1. Food and Non Alcoholic Beverages	68.32	46.71
2. Alcoholic Beverages, Tobacco and Narcotics	7.85	
3. Clothing and Footwear	5.44	3.08
4. Housing, Water, Electricity, Gas and Other Fuels	9.54	18.29
5. Furnishing, Household Equipment and Routine Household Maintenance		3.22
6. Health	0.43	4.18
7. Transport	1.76	9.47
8. Communication	0.16	4.42
9. Recreation and Culture		2.18
10. Education	6.50	5.79
11. Miscellaneous Goods and Services		2.65

Source: Department of Census and Statistics

Note: The five sub groups of the CCPI (Base: 1952=100) were reclassified according to the Classification of Individual Consumption by Purpose (COICOP) for comparison purposes.

Table 3
CCPI from 2003 to October 2008 (Base : 2002 =100)

Year	Month/Avg.	Index Number	Inflation		
			Month to Month	Year on Year (Pt. to Pt.)	Annual Average Change
2003	Avg.	105.8	-	-	5.8%
2004	Avg.	115.3	-	-	9.0%
2005	Avg.	128.0	-	-	11.0%
2006	Avg.	140.8	-	-	10.0%
2007	Avg.	163.1	-	-	15.8%
2008	January	183.5	3.0%	20.8%	16.4%
	February	188.6	2.8%	21.6%	16.9%
	March	191.9	1.7%	23.8%	17.6%
	April	195.4	1.8%	25.0%	18.5%
	May	198.5	1.6%	26.2%	19.5%
	June	205.9	3.7%	28.2%	20.6%
	July	206.4	0.2%	26.6%	21.5%
	August	206.3	0.0%	24.9%	22.1%
	September	207.2	0.4%	24.3%	22.7%
	October	206.6	-0.3%	20.2%	22.8%

Source : Price and Wages Division

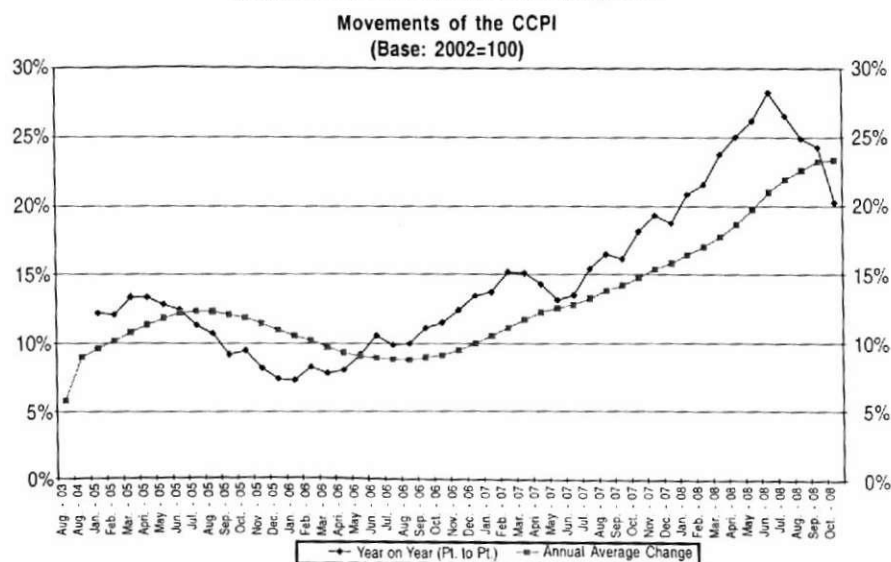
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- ◆ Detailed specifications and conventions for items are given to ensure consistency of the price data.

Table 2 gives weights used for each group of items in the market basket of old and new CCPI.

The most notable change in the household consumption has been the sharp decline in the share of expenditure on food or Food Ratio, from 68 per cent in the old CCPI to 47 per cent in the new CCPI while the Non-Food ratio has increased to 53 per cent in the new CCPI from 32 per cent in old CCPI. The old CCPI also had relatively higher weights for kerosene, firewood, vegetables and coconut while petrol, diesel, cooking gas, telephone charges, tuition fees, private school bus charges were in the market basket. The 'Housing, Water, Electricity, Gas and Other Fuels' group inadequately represented in the old index. For example, it did not contain liquefied petroleum gas (LPG) and water charges at all, and the weight for electricity to was

Figure 1
Variation of CCPI from 2003 to October, 2008.



References

ILO/IMF/OECD/UNECE/Euro stat/World Bank (2004), *Consumer Price Index manual: Theory and Practice*.