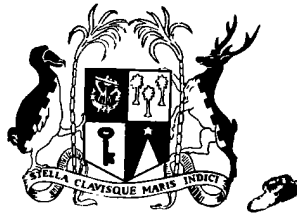


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MAURITIUS

Economic Indicators

An Occasional Paper

Issue No. 187

16th September 1994

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MINISTRY OF ECONOMIC PLANNING & DEVELOPMENT
PORT LOUIS
MAURITIUS

26 SEP 1994

The Agricultural Producer Price Index (PPI - A)

1. Introduction

The analysis of price data implies comparison of current and past prices. Comparison over time is required to study the price movement in order to understand the history and to indicate future outlook. While price relatives of single commodities can be studied in isolation, general conclusion can only be derived from averages, covering a given set or class of commodities. The indicators of average price changes are the price indices.

2. Purpose of the agricultural price indices

The purpose of the price indices is to provide information on trends in producer prices of agricultural products and purchase prices of the means of agricultural production.

The selling prices of agricultural products and the purchase of the means of production have a decisive influence on farmers' income. It would, therefore, seem useful to have indicators showing how agricultural revenue and expenditure are influenced by their price component.

The agricultural price indicators are of two types :-

- (i) Price received by farmers represent the producer prices of agricultural products (output prices)
- (ii) Prices paid by farmers are the purchase prices of agricultural requisites (input prices)

The two classes of prices mentioned above, are considered important in the context of economic analysis and agricultural policy decisions. Index numbers based on them show the average changes of these prices.

3. Uses of agricultural price indices

The construction of agricultural price index numbers may serve various purposes as shown below :-

- (i) Economic analysis, in particular the estimation of general price trends and their relationship with other pertinent variable, e.g. the study of domestic price changes in relation to prices observed in external markets or the movement of agricultural production.
- (ii) Monitoring the implementation of agricultural price policy decisions such as the introduction or modification of support prices.
- (iii) Forecasting price movements in connection with market studies or business cycle research.

- (iv) Compilation of national accounts at constant prices. In order to estimate the growth of the real product of the agricultural sector, deflator indices are needed. They are appropriately weighted indices of agricultural commodities or input items.

4. Frame for a system of agricultural price indices for Mauritius

It is the intention of the Central Statistical Office (CSO) to construct a battery of agricultural price indices from both the input as well as the output side. However, in the first instance, only the output price index for different groups of commodities has been compiled. Later on, an input price index will be constructed, and in the long run, it is proposed to have separate output price indices for sales on the local as well as the export market. It is to be noted that the index for the export market will refer to that part of production sold by the producer directly on the export market without going through local wholesale buyers who may subsequently export their purchases. At present, only a negligible proportion of agricultural products (mainly flowers) is exported directly by the producer without going through local wholesalers.

It is to be noted that international recommendations insist on a sharp line being drawn between sectors. In this respect, it must be mentioned that all sugarcane, which is a product of the agricultural sector, is sold on the local market although the bulk of sugar, which is produced by the manufacturing sector, is exported.

5. Definition of prices

A price is a pure price when the same amount of money refers to what the buyer pays and what the seller receives. Since the price series form the basis for calculation, the index of the output prices must be representative of what the farmer actually receives.

The prices must be recorded at a point in the marketing of the product which is as close as possible to the farmer. This means that the selling prices should be recorded at the farm-gate or (if this is not possible or advisable) at the next stage of the commodity flow.

In addition, as the prices must be representative of what the farmer actually receives, taxes and subsidies directly linked to the products must be taken into account. In Mauritius, there are no taxes on agricultural products. On the other hand, subsidies paid to the seller by the buyer are included (e.g. Agricultural Marketing Board for potatoes). It is to be noted that taxes on sugar, which is a product of the manufacturing sector, are not to be considered as taxes on sugarcane.

6. Price received by agricultural producers

As mentioned earlier, the prices for the index should be farm-gate prices, but this is not possible in many cases. Thus, farm-gate prices of vegetables are extremely difficult to obtain, not only because of the enormous resources to be mobilised but also because of the inexistence of a list of planters. Hence, in lieu of the farm-gate price, the wholesale price of the produce is recorded at the two auction markets located in Vacoas and Port Louis.

As regards sugarcane, there is no actual market price for the product. The final price for a crop is only available after the crop year to which it refers. The solution has been found in such a way that for all months the last available final price per tonne is used which, however, is corrected afterwards as soon as the final price is available. The same procedure is applied to tea and tobacco.

7. Weighting Scheme and Choice of the base period

As price data are associated with commercial transaction, it is logical to relate prices to sales rather than total production. However, since value of production for the market (sales) is not available here, the value of total production is considered as a proxy in calculation of weights. The same method is used in several countries like Australia, Austria and Norway etc. Furthermore, since meteorological conditions and market forces may generate high fluctuations, the weight base is taken as the average of the total production for several years.

It may be noted that 'FAO' and 'Eurostat' recommend that if the quantity weight base is the average of 3 years, then the reference base for prices should be the middle year. However, we are using 1990 - 1991 - 1992 as the quantity weight base because this is the latest period for which production data are available whilst 1993 is the earliest year for which price data can be collected. The discrepancy which is methodologically regrettable is mitigated by the fact that only the quantities for the weights are taken from the period 1990-92 and they are valued at average prices of 1993. Thus, at least as to the value component of the weights, there will be no big discrepancy. The procedure allows us to have an index right from now, otherwise, the collection of up-to-date data will necessitate waiting till 1995 to start the index.

The base weights are derived by multiplying the average production for 1990 - 92 by the average unit price in 1993. The weight assigned to each commodity group is on the basis of total production (as a proxy for sales) pertaining to each group. At commodity level, the weights are apportioned within the commodity group on the basis of production of each product.

8. Type of Index

The PPI will be calculated according to a modified Laspeyres formula :

$$I_t = \frac{\sum W_i (P_{ti}/P_{oi})}{\sum W_i} \times 100$$

Where :

I_t is the index for the current period t

P_{ti} is the price of the commodity i in the current period t

P_{oi} is the price of the commodity i in the reference period o (1993)

W_i is the weight associated with commodity i .

9. Commodity Coverage

The bulk of the products in agriculture, with the exception of forestry and fishing, is covered by the output price index. Thus, almost 95% of the total value of agricultural production is covered.

10. Observation Units

There are essentially three types of observation units for collecting producer prices (i) producers (ii) purchasers and (iii) markets. However, in the context of Mauritius, different type of observation units are used for different commodities as shown below :

- (i) For main Commercial crops (sugarcane, tea leaf and tobacco leaf etc) the respective marketing agencies is the source of the price data.
- (ii) For vegetables, price data is obtained mainly at the two auction markets which are situated at Vacoas and Port Louis respectively.
- (iii) For fruits, price is recorded from different source such as planters and first middlemen.
- (iv) For animals and animal products, price data is available at sources varying from marketing agencies to producers.

11. Frequency of Price Collection

Frequencies of price collection vary from weekly for some commodities to only once a year in others. Broadly speaking, the frequency of price collection is as follows :-

- (i) For vegetables, price data is collected once a week at the two auction markets.
- (ii) For commodities for which prices are fairly stable, data suppliers are visited on a quarterly basis, but prices are collected for each month of the quarter.
Example of such commodities are :-
 - (a) Crop products - Potato, Onion and Garlic etc.
 - (b) Animals & Animal products - cattle, Pigs and Cow's Milk etc.
- (iii) For the main Commercial crops like Sugarcane, tea leaf and tobacco leaf, the reported prices are normally fixed for the crop year by the respective marketing agencies.
- (iv) For the remaining type of items not mentioned above, the price data is collected on a monthly basis.

12. Seasonality

Prices and quantities of many agricultural commodities show seasonal variations. As vegetables and fruits are extremely seasonal products, it is therefore decided to use the method of variable baskets with fixed monthly weights in the base year.

There are 12 monthly baskets of representative products. The composition of these baskets varies each month. Certain products whose marketing period covers the whole year appear in all 12 monthly baskets, while others, which are more seasonal, appear only in some of them. However, the composition of the basket for a given month is fixed over time.

13. Missing Prices

There is also in the field of agricultural price observation the case of missing prices for a product which must be taken into account because there is an index weight for the respective month. In such a case, it is recommended that a fictitious price be used; the least bad way, which is to make use of the last real price, has been adopted.

ANNEX

Index of Producer Prices of Agricultural Products- 1st Quarter 1993 & 1994
(1993=100)

Commodity Group	Weights	Index	
		Q1(1993)	Q1(1994) ¹
<u>Crop Products</u>	865.16	103.4	105.2
Cereal	1.84	100.0	100.0
Root Crops	15.19	95.9	100.8
Fruits	22.44	101.4	109.9
Fresh vegetables	64.60	147.2	164.4
Flowers&Ornamental plants	10.65	96.4	112.5
Sugar Cane	719.44	100.0	100.0 ²
Tea	20.30	100.0	100.0 ²
Tobacco	10.71	100.0	100.0 ²
<u>Animals & Animal Products</u>	134.84	97.3	106.0
Cattle	5.16	100.0	100.0
Pigs	6.61	99.7	100.3
Goat	3.81	92.4	105.6
Sheep	0.31	100.0	100.0
Deer	6.05	97.2	103.6
Poultry	66.54	100.0	105.0
Eggs	32.06	92.8	110.5
Milk	13.96	93.3	106.7
Honey	0.35	100.0	110.0
Total	1000	102.6	105.3

¹ Provisional

² Based on last available final price (refer to section 6 para . 2)