Export Price Index (EPI)

Methodology for the computation of the EPI

1.   Definition

The Export Price index (EPI) provides an overall measure of pure price changes in Mauritian Rupees of goods exported to other countries. This index is constructed from the export prices of a "constant" well-defined representative basket of commodities selected from trade data in the base year.

The concepts and definitions of the EPI largely follow the guidelines provided in the "IMF Export and Import Price Index Manual, Theory and Practice, 2009".

2.   Scope

The 2018 index is based on the Nomenclature of the Standard International Trade Classification of the United Nations (SITC Rev 4). The EPI covers four of the 10 sections of the SITC, namely "Food and live animals", "Chemicals and related products, n.e.s", "Manufactured goods classified chiefly by material" and "Miscellaneous manufactured articles". Exports of goods falling under these sections covered 87% of total exports in the base year. Separate sub-indices are produced for each SITC section and division.

The EPI covers total exports (domestic exports and re-exports). The most important commodities in the 2018 EPI are "Articles of apparel and clothing accessories", "Fish and fish preparations", "Sugar" and "Textile yarn, fabrics, made-up articles, n.e.s., and related products".

However, some commodities were excluded in the computation of the weights because of their heterogeneity and the inherent difficulties in pricing them to a constant quality. Those were precious stones, jewellery, recorded media and free publications, and all products classified within the Sections 1, 3, 7 and 9 of the SITC; together they accounted for around 20% of total exports in 2018. In addition, SITC sections 2 and 4 were not represented due to low exports value.

The index thus covers about 80% of the value of merchandise exported during 2018. Commodities directly represented (i.e, price movements followed) constitute 62% of the total value of exports. For the 18% not directly represented, their prices are considered to move similarly to those represented directly.

3.   Selection of products to be priced and outlets

Around 56 exporters (outlets) have been selected from trade declarations submitted to the Customs Department in 2018 for pricing of the commodities through quarterly price surveys. These exporters are the major ones trading on a regular basis.

A total of around 125 products, representing the 33 commodities directly represented in the index, were selected for pricing on the basis of their share in total exports, regularity of trade

of exports and also their importance in the trader's exports. There must also be a sustained demand for the product variety.

Specifications of products to be priced (physical and qualitative) were established in collaboration with the selected exporters to ensure that same items are priced at each price survey. Specifications include: pricing basis, contract basis, country of destination, unit of measurement, mode of transport, terms of payment, currency and any other conditions like quality and quantity of the product, that have a bearing on the price.

4.   Price collection

A preliminary survey of the selected exporters was conducted in 2021 to gather information on products (specific brand and type) relating to the selected commodities and monthly prices for 2018 onwards were collected. Hereafter, the selected exporters are visited every quarter but prices are collected for each month of the quarter for the computation of monthly and quarterly indices. The collected prices are reported on a free on board (F.O.B.) basis and are mostly contract prices.

5.   Updating of weights

Weights for each section, division, group and commodity are based on their export values. Products selected for pricing purposes represent all commodities that fall within that weight group.

5.1   Historical background

Statistics Mauritius first published the EPI in August 1996 with 1993 as base period (1993 = 100). The base year was subsequently revised to 1997, 2003, 2007 and 2013.

The current weights have been updated with year 2018 as base period.

6.   Uses of the EPI

The Export Price Index is an important economic indicator which is used, inter alia, to:

   i.   measure changes in prices of exports
   ii.   analyse the effect of export price changes on the various sectors of the economy
   iii. calculate changes in the volume of exports
   iv.   calculate the terms of trade (that is the ratio of export prices to import prices)
   v.   analyse the effect of exchange rates on export prices.

It also serves as a basis to assess the competitiveness of Mauritian products in relation to price trends of common products of other countries with which Mauritius competes for markets.

7.   Calculation of the EPI

The lowest level (SITC 7 digit) indices are calculated as a geometric average of the price relatives of the basic observations (products). Laspeyres formula, based on the weighted

average of price relatives, is used to calculate higher level indices. The mathematical form of the formula is shown below:

$$I_{ot} = \frac{\sum W_i \times \frac{P_{it}}{P_{io}} \times 100}{\sum W_i}$$

Where 1_{ot} is the index for period t compared to base period 0

w_i is the weight of the ith element

P_{io} is the base price of the ith element

P_{it} is the price of the ith element in period t

$\frac{P_{it}}{P_{ot}}$ is the price relative of the ith element in period t relative to base period 0

Σ means summation over all selected elements

8. Missing Prices

In case of missing prices for a product, imputation is carried out as recommended in the "IMF Export and Import Price Index Manual, Theory and Practice, 2009".

Import Price Index (IPI)

Methodology for the computation of the IPI

1.   Definition

The Import Price Index (IPI) provides an overall measure of pure price changes in Mauritian Rupees of goods imported into the country. This index is constructed from import prices of a "constant" well-defined representative basket of commodities selected from imports data in the base year.

The concepts and definitions of the IPI largely follow the guidelines provided in the "IMF Export and Import Price Index Manual, Theory and Practice, 2009".

2.   Scope

The commodities are classified according to the United Nations Standard International Trade Classification (SITC Rev 4). The IPI covers nine out of the 10 Standard International Trade Classification sections. The only section not covered is "Commodities and transactions not classified elsewhere", because of the heterogeneity of the products and the inherent difficulties in pricing items of a constant quality.

For the computation of the 2018 weights, some commodities accounting for around 16% of total imports in 2018 were excluded because of their heterogeneity and the inherent difficulties in pricing them to a constant quality. Those were: precious stones, jewellery, cellular telephones, recorded media and free publications, aircraft, helicopters and marine vessels, certain machine parts, textile wastes and Section 9 of the SITC described as "Commodities and transactions not classified elsewhere".

Thus, the index covers about 84% of the value of merchandise imported in 2018. Commodities directly represented (price movements followed) constitute around 57% of the total value of imports. For the 27% not directly represented, their prices are considered to move similarly to those represented directly.

3.   Selection of products to be priced and outlets

Some 178 importers (outlets) have been selected from trade declarations submitted to the Customs Department in 2018 for the pricing of the commodities. These importers are the major ones importing the selected commodities on a regular basis.

A total of around 275 products, representing the 112 commodities directly represented, were selected for pricing on the basis of regularity of imports and also their importance in the trader's imports. There must also be a sustained demand for the product variety.

Specifications of products to be priced (physical and qualitative) were established in collaboration with the selected importers to ensure that same items are priced every quarter. Specifications include: pricing basis, contract basis, country of origin, unit of measurement,

mode of transport, terms of payment, currency and any other conditions like quality and quantity of the product, that have a bearing on the price.

4.   Price collection

A preliminary survey of the selected importers was conducted in 2021 to gather information on the products (specific brand and type) relating to the selected commodities and to collect prices for the four quarters of 2018. Hereafter, the selected importers are visited every quarter to collect the required prices for updating the index. Given that most imports occur at intervals longer than a month, prices refer to the last consignment of the quarter. The collected prices are reported on a cost, insurance, freight (C.I.F) basis and are mostly contract prices.

5.   Updating of weights

Weights for each section, division, group and commodity are based on their import values. Products selected for pricing purposes represent all commodities that fall within that weight group.

5.1   Historical background

The first series of IPI were calculated with year 2002 as base and reference prices for the year 2003. It was subsequently rebased to years 2007, 2013 and the present series has as base period year 2018.

6.   Petroleum products and rice

It is to be noted that the index for petroleum products is calculated differently given that these products, namely gasoline, gas oil, aviation fuel, fuel oil, LPG are imported more than once during a quarter. All prices available for the quarter are collected and average prices for the quarter are computed for each product. The same pricing system is applicable for rice imported by the State Trading Corporation.

7.   Uses of the Import Price Index

The Import Price Index is an important economic indicator, which is used, inter alia, to:

> (i)   measure changes in prices of imports
> (ii)   analyse the effect of import price changes on the various sectors of the economy
> (iii)   calculate changes in the volume of imports
> (iv)   calculate the terms of trade (that is the ratio of export prices to import prices)
> (v)   analyse the effect of exchange rates on import prices.

8.   Calculation of the IPI

The lowest level indices (SITC 7 digit) are determined as a geometric average of the price relatives of the basic observations (products). Laspeyres formula, based on the weighted average of price relatives, is used to calculate higher level indices.

The mathematical form of the formula is shown below:

$$I_{ot} = \frac{\sum W_i \times \frac{P_{it}}{P_{io}} \times 100}{\sum W_i}$$

Where I_{ot} is the index for period t compared to base period 0

w_i is the weight of the ith element

P_{io} is the base price of the ith element

P_{it} is the price of the ith element in period t

$\dfrac{P_{it}}{P_{ot}}$ is the price relative of the ith element in period t relative to base period 0

Σ means summation over all selected elements

9.   Missing Prices

In case of missing prices for a product, imputation is carried out as recommended in the "IMF Export and Import Price Index Manual, Theory and Practice, 2009".

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