NOTA TEKNIKAL

TECHNICAL NOTES

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1. INTRODUCTION

The publication of Producer Price Index (PPI) local production is a monthly publication which presents statistics covering five main sectors namely Agriculture, forestry and fishing; Mining; Manufacturing; Electricity and gas supply; and Water supply. PPI is compiled based on the data from the Producer Price Survey which is conducted on a monthly basis. Commencing in reference month of January 2018, PPI was updated using the "basket" of goods for year 2015 by maintaining the same base year, 2010=100.

2. OBJECTIVE

The main objective of PPI local production is to measures the average changes in price of commodities charged by domestic producers of an industry. The PPI, which is an output-based index, is also a macroeconomic indicator used to monitor the price movements of local outputs and is often viewed as a leading indicator of Consumer Price Index.

3. SCOPE AND COVERAGE

PPI covers the following five sectors of the economy, namely Agriculture, forestry & fishing, Mining, Manufacturing, Electricity & gas supply and Water supply. The indices are published at three-digit group level, two-digit division levels and one-digit sector level for Malaysia. PPI is also compiled by Stage of Processing and Commodity Section (SITC). PPI for local production by stage of processing is compiled by reclassifying the commodities according to the following stage of processing i.e. Crude materials for further processing, Intermediate materials, supplies and components and Finished goods. Meanwhile, PPI by commodity section covers 9 groups namely Food, Beverages & tobacco, Crude materials, inedible, Mineral fuels, lubricants, etc, Animal and vegetable oils & fats, Chemicals, Manufactured goods, Machinery & transport equipment and Miscellaneous manufactured articles.

A total of 1,063 commodity items are used in the compilation of the PPI for local production.

4. CONCEPT AND DEFINITIONS

4.1 Classification

The classification of the PPI local production by industry is based on the Malaysia Standard Industrial Classification (MSIC) 2008, which adhere to the International Standard Industrial Classification (ISIC) Rev. 4. Meanwhile, the classification of the PPI for local production by commodity section is based on the Standard International Trade Classification (SITC) Rev. 4.

4.2 Prices

This refers to prices received by the producer at the first stage of commercialisation. Producer price of local production which refers to ex-factory price is the amount receivable by the producer from the purchaser for a unit of a good produced. It excludes indirect taxes such as excise duties, sales and services tax (SST) and any transport charges invoiced separately by the producer. As for goods produced, processed or assembled in Malaysia, producer prices refer to prices which are net of discounts and rebates given by the manufacturers and net of freight by hired transport and other transport costs between producer and purchaser.

The cost of transport for establishments which do not hire transport services but utilise their own transport facilities normally forms part of the cost of the item, are included as they are difficult to segregate.

4.3 Weights

The weights for PPI calculations are obtained from the 2016 Economic Census and other alternative data sources of data for the value of production from the PPI reference month of January 2018. The PPI weights are generally updated within five years. The weight of the product is determined based on the percentage contribution of the item to the output value in the economy. The weight of the PPI according to MSIC and Commodity Sections are given as follows:

Weights by MSIC

<table>
<tr><th rowspan="2">Sector (2005=100)</th><th colspan="3">Weights</th><th rowspan="2">Sector (2010=100)</th></tr>
<tr><th>2005</th><th>2010</th><th>2015</th></tr>
<tr><td>Agriculture</td><td>6.60</td><td rowspan="2">8.15</td><td rowspan="2">6.730</td><td rowspan="2">Agriculture, forestry and fishing</td></tr>
<tr><td>Fishing</td><td>0.81</td></tr>
<tr><td>Mining</td><td>9.83</td><td>9.67</td><td>7.927</td><td>Mining</td></tr>
<tr><td>Manufacturing</td><td>80.00</td><td>78.79</td><td>81.571</td><td>Manufacturing</td></tr>
<tr><td rowspan="2">Electricity, gas and water supply</td><td rowspan="2">2.76</td><td>3.05</td><td>3.442</td><td>Electricity and gas supply</td></tr>
<tr><td>0.34</td><td>0.330</td><td>Water supply</td></tr>
<tr><td>Total</td><td>100.00</td><td>100.00</td><td>100.000</td><td>Total</td></tr>
</table>

Weights by Commodity Section (SITC)

Commodity Section	Weights	
	2010	2015
Food	5.71	7.454
Beverages and tobacco	1.36	1.307
Crude materials, inedible	8.24	5.769
Mineral fuels, lubricants, etc.	24.58	21.075
Animal and vegetable oils and fats	10.29	9.287
Chemicals	8.12	8.557
Manufactured goods	11.21	13.672
Machinery and transport equipment	25.04	25.611
Miscellaneous manufactured articles	5.45	7.268
Total	100.00	100.000

4.4 Selection of Products

The selection of the products for the monthly producer price survey is based on their contributions to the total output of the industry. The selected items are representative of their group. The items included in the compilation of the index collectively accounted for at least 85 per cent of the total output of the industry selected.

4.5 Selection of Establishments

The selection of establishments is based on their contributions to the total output of the selected industry. The selected establishments are representative of their products. These establishments collectively accounted for at least 85 per cent of the total output of the products selected. The lists of establishments are drawn from the Economic Census 2016 as well as from other supplementary sources. The sample covers 1,569 establishments selected on a cut-off basis from the monthly and annual manufacturing frames. The list of these establishments has been updated every year to take into account new establishments and any changes in the status of the establishments such as closed down, non-operation, change in activities, factory location and postal addresses. In 2025, the number of establishments covered are 1,605.

4.6 Selection of Commodities

A preliminary survey is conducted to identify the major selling product varieties under each of the commodity item selected as well as detailed description/ specification pertaining to the brand, grade, size and unit of measurement of items produced for price collection purposes. Questionnaires are dispatched to all selected establishments at the initial stage to enquire the following information:

(a) Regularly produced commodity brands

(b) Commodity brands that constitute a significant share of the companies' production

(c) Detailed descriptions and specifications of the brands stated in (a) and (b)

(d) Brochures/catalogues of the commodity brands

1,063 commodities are covered from 1,605 establishments for local production monthly in the compilation of PPI calculation. These commodities are selected in view of their relative importance within the establishments.

5. SOURCES OF DATA

A total of 4,539 price quotations are collected on a monthly basis, from both establishments and government agencies. The list of government agencies covered by the survey are as follows:

- *Gas Malaysia Sdn Bhd*
- *State Water Supply Department*
- *Department of Fisheries*
- *Malaysian Cocoa Board*
- *Malaysian Pepper Board*
- *Malaysian Rubber Board*
- *Malaysian Palm Oil Board (MPOB)*
- *Federal Agriculture Marketing Authority (FAMA)*
- *Malaysian Timber Industry Board (MTIB)*
- *Petroliam Nasional Berhad (PETRONAS)*
- *Tenaga Nasional Berhad (TNB)*

6. QUALITY CONTROL

A series of checks on the prices received are carried out to ensure their reasonableness, consistency and accuracy. The checking procedures include comparisons of prices supplied for the month against those of the previous months of the same respondents as well as with prices reported by other respondents for the same commodity items. Prices that display unusual variations are clarified with respondents to ensure the accuracy.

Prices quoted in the forms are verified on the ground by field supervisors and these are subjected to further scrutiny in the headquarters. Significant price changes are referred to the field supervisors for verifications and in certain cases, the respondents are directly contacted for clarifications.

The data are subjected to thorough checking before being captured. The staff of the Department of Statistics state office is given training at least once a year regarding procedures, concepts and definitions as well as any changes in the selected items and product specifications.

7. METHODOLOGY INDEX CALCULATION

Effective from the reference month of January 2018, Laspeyres chain index method is used in the calculation of the PPI which employs December 2017 as the link month. PPI are calculated as a chain of fixed-basket indices. This means that a sequence of fixed-basket indices has been chained together to create a continuous time series. This is necessary to avoid having breaks in an index when a basket update is performed.

In order to chain indices across baskets, weights for the old and new baskets must be expressed at the prices of a common period. This common period is called as the link month. The IHPR basket of local production is using the old basket (2010 = 100) and the product is updated with weight to become a new basket (2015 = 100).

In the month following the basket link month, price indices calculated using the new basket are multiplied by the index levels previously published for the old basket.

$$p^{ch}_{t/10} = p^{new}_{t/15} \times \left(\frac{p^{previous}_{D17/10}}{p^{new}_{D17/15}} \right)$$

Where

$p^{ch}_{t/10}$ = *is a chain index that measures price changes from 2010 to any period until December 2017*

$p^{new}_{t/D15}$ = *is a new series composite index comparing prices at any period t to December 2017*

$p^{previous}_{D17/10}$ = *Is a previous series composite index comparing prices for December 2017*

$p^{new}_{D17/15}$ = *is a new series composite index comparing prices for December 2017 to 2015 prices*

In the case of the chain index, the weighted averages of indices of lower level groups or items do not match those of the corresponding upper level groups (the chain index has no additivity).

8. RATE OF CHANGE

A rate of change representative of movement in prices may be derived in several ways. The current method of calculating PPI use three measures of change, i.e. the percentage change between any given month and the same month a year ago (year-on-year); the current month over previous month (month-on-month) and the percentage change between annual average for the specific current year to the same fixed period on the previous year. The following example illustrates the computation of index point and percentage change.

Index Point Change		***Percentage Change***
Producer Price Index	*125.4*	*Index point difference divided by the previous index, multiplied by one hundred*
Less Previous Index	*124.3*	
	-------	$\frac{125.4 - 124.3}{124.3} \times 100$
Equal to	*1.1*	

		= 0.9 %

9. SEASONAL ADJUSTMENT

Time-series data are very useful for economists, policy & decision makers and time-series analysts to identify the important features of economic series such as direction, turning point and consistency between other economic indicators. Sometimes this feature is difficult to observe because of seasonal movements. Thus, if the seasonal effect can be removed, the behaviour of the series would be better viewed. The estimation and removal of the seasonal effects is called seasonal adjustment.

Seasonal adjustment is a process to identify and to remove the regular within-a-year seasonal pattern, which may also include the influences of moving holidays and working/trading days effect in each period. The ultimate objective of the process is to highlight the underlying trends and short-term movements in the series.

In Malaysia, most of the time series data are affected by seasonal effects. Hence, to eliminate the seasonal effect as well as to seasonally adjust the Malaysian economic time series data, a standard seasonal adjustment package, X-12 ARIMA was used by Department of Statistics, Malaysia. Malaysian economic time series data also often affected by major religious festivals such as Eid-ul Fitr for Muslims, Chinese New Year to the Chinese and the Indian Deepavali. These festivals' dates are fixed according to the lunar year but vary according to the Gregorian calendar. Therefore, to estimate and remove moving holiday effect from time-series data, a procedure was developed, namely Seasonal Adjustment for Malaysia (SEAM).

10. FREQUENCY OF COMPILATION

The PPI is compiled for each calendar month while the quarterly and annual indices are computed from the monthly series.

11. CONFIDENTIALITY REQUIREMENTS

The data used for the compilation of PPI have been collected under the provisions of the Statistics Act 1965 (Revised-1989). The Act stipulates that the contents of individual return are confidential. In conformity with the stipulations of this Act, only aggregated figures are published.

12. SYMBOLS AND ABBREVIATIONS

-	*negative sign*
etc	*et cetera*
n.e.c	*not elsewhere classified*

13. REVISION

Revision will be made to the published figures based on the latest data available.