

### ESTIMATION OF PRODUCTION



## AGRICULTURE SECTOR

### METHODOLOGY

Quantity of production and relevant prices information on quarterly basis are used to obtain output at current and constant prices as follows:

- Rubber: production of rubber;
- Oil Palm: production of crude palm oil, palm kernel and fresh fruit bunches;
- Livestock: relevant indicators;
- Other Agriculture: relevant indicators;
- Forestry and Logging: production of logs; and
- Fishing: quantity of landed marine fish and aquaculture.

The latest available constant prices input-output ratio is used to derive intermediate consumption at constant prices; inflating this gives intermediate consumption at current prices. Value added are derived as residuals by subtracting intermediate consumption from output.

### DATA SOURCES

#### **RUBBER**

- Monthly Rubber Statistics, Malaysia
- Malaysian Rubber Board
- Monthly External Trade Statistics

#### **OIL PALM**

- Malaysian Palm Oil Board
- Monthly External Trade Statistics

#### **LIVESTOCK**

- Department of Veterinary Services, Peninsular Malaysia
- Department of Veterinary Services, Sabah
- Department of Veterinary Services, Sarawak
- Monthly External Trade Statistics
- Agriculture and Environment Survey

#### **OTHER AGRICULTURE**

- Department of Agriculture, Malaysia
- Malaysian Pineapple Industry Board
- Malaysian Pepper Board
- Federal Agriculture Marketing Authority
- Malaysian Cocoa Board
- Agriculture and Environment Survey
- Monthly External Trade Statistics

### **FORESTRY AND LOGGING**

- Forestry Department of Peninsular Malaysia
- Sabah Forestry Department
- Forestry Department Sarawak
- Monthly External Trade Statistics
- Malaysia Timber Industry Board

### **FISHING**

- Department of Fisheries, Malaysia
- Monthly External Trade Statistics



## **MINING AND QUARRYING SECTOR**

### **METHODOLOGY**

Quantity of production and relevant prices information on quarterly basis are used to obtain output at current and constant prices as follows:

- Crude Oil, Condensate and Natural Gas: production of crude oil, condensate and natural gas; and
- Other Mining: quantity by type of minerals.

The latest available constant prices input-output ratio is used to derive intermediate consumption at constant prices; inflating this gives intermediate consumption at current prices. Value added are derived as residuals by subtracting intermediate consumption from output.

### **DATA SOURCES**

#### **PETROLEUM AND NATURAL GAS**

- Petroliaam Nasional Berhad (PETRONAS)
- Industrial Production Index
- Monthly External Trade Statistics

#### **OTHER MINING & QUARRYING AND SUPPORTING SERVICES**

- Minerals and Geoscience Department Malaysia
- Quarterly Construction Survey
- Quarterly National Accounts Survey



## **MANUFACTURING SECTOR**

### **METHODOLOGY**

The Monthly Manufacturing Survey, Industrial Production Index and relevant price indices are used to generate output at current and constant prices.

The latest available constant prices input-output ratio is used to derive intermediate consumption at constant prices; inflating this gives intermediate consumption at current prices. Value added are derived as residuals by subtracting intermediate consumption from output.

### DATA SOURCES

- Monthly Manufacturing Survey
- Industrial Production Index
- Monthly External Trade Statistics



## CONSTRUCTION SECTOR

### METHODOLOGY

Value of work done on quarterly basis is used to estimate output at current prices.

The latest available constant prices input-output ratio is used to derive intermediate consumption at constant prices; inflating this gives intermediate consumption at current prices. Value added are derived as residuals by subtracting intermediate consumption from output.

### DATA SOURCES

- Quarterly Construction Statistics
- Monthly External Trade Statistics



## SERVICES SECTOR

### METHODOLOGY

#### **A) PRIVATE SERVICES**

**Output** for Private Services sector is estimated at current and constant prices based on quarterly information from various sources which applies to the following sub-sectors:

#### **UTILITIES**

Consumption data of electricity, gas and water are used to estimate output at constant prices.

#### **WHOLESALE & RETAIL TRADE**

Output at current and constant prices are moved by sales value indicators that obtained from Monthly Survey of Distributive Trade and Index of Distributive Trade.

#### **FOOD & BEVERAGE, ACCOMMODATION, TRANSPORTATION & STORAGE, INFORMATION AND COMMUNICATION, REAL ESTATE, BUSINESS SERVICES, PRIVATE EDUCATION, PRIVATE HEALTH AND OTHER PRIVATE SERVICES**

Quarterly Survey of Services and Index of Services data is used as a mover to estimate output at current prices.

#### **FINANCE**

Main output consists of explicit service charges and (Financial Intermediation Services Indirectly Measured) FISIM. FISIM is calculated based on reference rate method as recommended in 2008 SNA. Allocation of FISIM is made according to the composition of stock of loans and deposits in the banking system.

**INSURANCE**

Output at current prices is derived by adding premium income and net investment income minus claims paid.

**OWNER OCCUPIED DWELLINGS**

The quarterly estimate at constant prices is extrapolated based on changes in housing stock which includes the increased proportion factor of home ownership population in Malaysia.

Relevant price indices are used to deflate output to arrive at constant prices. Estimation of **intermediate consumption** at constant prices are using input-output ratio which is updated based on the latest data available. **Value added** is derived as residuals by subtracting intermediate consumption from output.

**B) GOVERNMENT SERVICES**

Value added at current prices of Government Services equals the sum of compensation of employees, pension allocated to the current employees and consumption of fixed capital.

The Government Services at current prices is compiled based on accounts of four levels of government namely Federal, State, Local Authority and Statutory Bodies. For quarterly estimates, the Federal Government account is used as movers for the whole government sector.

Relevant price indices are used to obtain the constant value added.

**DATA SOURCES**

| Sub-sectors |                                      | Data Sources |                          |                 |               |                          |                             |         |           |             |                   |                   |                |                |                          |                     |
|-------------|--------------------------------------|--------------|--------------------------|-----------------|---------------|--------------------------|-----------------------------|---------|-----------|-------------|-------------------|-------------------|----------------|----------------|--------------------------|---------------------|
|             |                                      | Utilities    | Wholesale & retail trade | Food & beverage | Accommodation | Transportation & storage | Information & communication | Finance | Insurance | Real estate | Business services | Private education | Private health | Other services | Owner occupied dwellings | Government services |
| 1           | Monthly Survey of Distributive Trade |              | ✓                        |                 |               |                          |                             |         |           |             |                   |                   |                |                |                          |                     |
| 2           | Quarterly Survey of Services         |              |                          | ✓               | ✓             | ✓                        | ✓                           |         |           | ✓           | ✓                 | ✓                 | ✓              | ✓              |                          |                     |
| 3           | Index of Distributive Trade          |              | ✓                        |                 |               |                          |                             |         |           |             |                   |                   |                |                |                          |                     |
| 4           | Index of Services                    |              |                          | ✓               | ✓             | ✓                        | ✓                           | ✓       | ✓         | ✓           | ✓                 | ✓                 | ✓              | ✓              |                          |                     |
| 5           | Population and Housing Census        |              |                          |                 |               |                          |                             |         |           |             |                   |                   |                | ✓              | ✓                        |                     |
| 6           | Central Bank of Malaysia             |              |                          |                 |               |                          |                             | ✓       | ✓         |             |                   |                   |                |                |                          |                     |

## METHODOLOGY AND DATA SOURCES

| <b>Sub-sectors</b> |  | <b>Data Sources</b> |                          |                 |               |                          |                             |         |           |             |                   |                   |                |                |                          |                     |
|--------------------|--|---------------------|--------------------------|-----------------|---------------|--------------------------|-----------------------------|---------|-----------|-------------|-------------------|-------------------|----------------|----------------|--------------------------|---------------------|
|                    |  | Utilities           | Wholesale & retail trade | Food & beverage | Accommodation | Transportation & storage | Information & communication | Finance | Insurance | Real estate | Business services | Private education | Private health | Other services | Owner occupied dwellings | Government services |
| 7                  | Accountant General's Department of Malaysia  |                     |                          |                 |               |                          |                             |         |           |             |                   |                   |                |                |                          | ✓                   |
| 8                  | Public Services Department                   |                     |                          |                 |               |                          |                             |         |           |             |                   |                   |                |                |                          | ✓                   |
| 9                  | National Property Information Centre (NAPIC) |                     |                          |                 |               |                          |                             |         | ✓         |             |                   |                   |                | ✓              |                          |                     |
| 10                 | Securities Commission Malaysia               |                     |                          |                 |               |                          | ✓                           |         |           |             |                   |                   |                |                |                          |                     |
| 11                 | Bursa Malaysia                               |                     |                          |                 |               |                          | ✓                           |         |           |             |                   |                   |                |                |                          |                     |
| 12                 | Companies Financial Statements               | ✓                   |                          |                 |               |                          |                             |         |           |             |                   |                   |                |                |                          |                     |



## IMPORT DUTIES

### METHODOLOGY

Import duties at current prices are obtained from Royal Malaysian Customs Department which provides monthly data. Value at constant prices is derived by using relevant price indices.

Starting from year 2015 onwards, import duties data have been reconciled with the data provided by Royal Malaysian Customs Department in line with the implementation of new tax system.

### DATA SOURCES

- Royal Malaysian Customs Department

**ESTIMATION OF EXPENDITURE**



**PRIVATE FINAL CONSUMPTION EXPENDITURE**

**METHODOLOGY**

The quarterly household consumption expenditure is analysed by goods and services group as classified in Classification of Individual Consumption by Purpose (COICOP).

Monthly Survey of Distributive Trade and Quarterly Survey of Services are the main data sources. Additional information such as loans and deposits by households, life and selected general insurance premiums paid, information on the consumption of utilities by residence, selected components of transport, communication, private services and business services are also used in the estimation. FISIM is also included in the estimation of expenditure.

Expenditure by residents purchased abroad and expenditure by non-residents in domestic market are obtained from the Quarterly Balance of Payments.

**DATA SOURCES**

- Monthly Survey of Distributive Trade
- Quarterly Survey of Services
- Quarterly Balance of Payments
- Monthly External Trade Statistics
- Monthly Manufacturing Survey
- Central Bank of Malaysia



**GOVERNMENT FINAL CONSUMPTION EXPENDITURE**

**METHODOLOGY**

Government Final Consumption Expenditure is measured with the sum of value added, intermediate consumption and FISIM, less revenue from sales of goods and services produced by government.

Value added is calculated as the sum of compensation of employees, pension allocated to the current employees and consumption of fixed capital. The estimate of intermediate consumption is obtained by calculating the value of goods and services used in the production of government services.

For the quarterly series, the Federal Government accounts are used as a mover for the whole government sector. With assumption that the proportion of Federal Government to total Government remains the same as the previous year for which annual estimates have been made.

The constant prices estimates of value added, intermediate consumption and sales are deflated by using relevant prices.

**DATA SOURCES**

- Accountant General's Department of Malaysia
- Public Services Department



# GROSS FIXED CAPITAL FORMATION

## METHODOLOGY

Gross Fixed Capital Formation (GFCF) is measured by the total value acquired, less disposal of fixed assets by the residents during the accounting period which are used repeatedly or continuously for production plus expenditure on services that adds value to the non-produced assets.

Acquisition includes both purchases of assets (new or used) and the construction of assets by producers for their own use. Disposal include sales of assets for scrap as well as sales of used assets in a working condition to other producers.

Quarterly estimates of GFCF by type of assets is divided into three type of assets i.e. Structure, Machinery & Equipment and Other Assets. The value of GFCF by type of assets is estimated by applying the GFCF SUT 2015 ratio on the output obtained from Quarterly Construction Survey, Monthly Manufacturing Survey and imports of capital goods. Moreover, exploration expenditure of oil & natural gas and various data from government agencies are used in the compilation.

Public GFCF is obtained from the expenditure on assets of the Federal Government Accounts, Quarterly Construction Statistics, Monthly External Trade Statistics, Balance of Payments Statistics and Quarterly Survey of Capital Expenditure for Public Establishments.

The estimates of Private GFCF are derived from information of Quarterly Survey of Services, Quarterly National Accounts Survey, Quarterly Construction Statistics, Monthly External Trade Statistics, Quarterly Balance of Payments and various related administrative data.

GFCF at constant prices is obtained by deflating the GFCF at current prices with the relevant price index.

## DATA SOURCES

- SUT 2015
- Malaysian Palm Oil Board
- Quarterly Construction Statistics
- Monthly Manufacturing Survey
- Monthly External Trade Statistics
- Quarterly Balance of Payments
- Intellectual Property Corporation of Malaysia
- National Property Information Centre (NAPIC)
- Financial Statement of Federal Government
- Quarterly Survey of Services
- Quarterly National Accounts Survey
- Quarterly Survey of Capital Expenditure for Public Establishments
- Financial Statements from Companies



## CHANGES IN INVENTORIES

### METHODOLOGY

Measures of changes in inventories is built up from the Monthly Manufacturing Survey and quarterly survey of other industries. Changes in inventories of major agriculture commodities are obtained from the administrative data of the relevant agencies.

Quantity measures on inventories are converted to values using base year average prices; the difference between closing inventories and opening inventories in base year prices gives the changes in inventories at constant prices. Similarly, closing inventories valued at the average price of the reference quarter less the opening inventories valued at the average price of the previous quarter gives changes in inventories at current prices.

### DATA SOURCES

- Monthly Manufacturing Survey
- Monthly Survey of Distributive Trade
- Monthly Rubber Statistics
- Administrative data from relevant agencies



## VALUABLES

### METHODOLOGY

Valuables is defined as products bought for the purpose of investment where the purchase is made with the assumption that the value of the products will increase in the future. Examples of valuables are precious metals and stones, antiques, works of art and etc. Value at current prices is obtained from various indicators and data sources such as imports data, manufacturing survey and distributive trade. These data are then deflated by the relevant price indices to arrive the value at constant prices.

### DATA SOURCES

- Monthly Survey of Distributive Trade
- Monthly Manufacturing Survey
- Monthly External Trade Statistics



## EXPORTS AND IMPORTS

### METHODOLOGY

The current price series for these items are based on the balance of payments estimates. The merchandise trade is the major item in both imports and exports value which the trade statistics provides the measure of the current value. Services trade flows are estimated from quarterly survey conducted by DOSM.

Relevant prices, exchange rates and international price indices adjusted for exchange rate changes are used to obtain constant price estimates.



### DATA SOURCES

- *Monthly External Trade Statistics*
- *Quarterly Balance of Payments*
- *Malaysia External Trade Indices*



### **RECONCILIATION**

*Quarterly and annual estimates are reconciled where necessary. In situation, whereby the annual and quarterly accounts uses the same data sources, no reconciliation of the quarterly need to be made to fit the annual accounts.*

*In other cases, whereby the annual and quarterly accounts uses different data sources and if the quarterly accounts are extrapolated by using annual benchmarks, quarterly estimates are reconciled with the annual estimates. Reconciliation of quarterly is made by using the benchmarking technique. This allows the quarterly accounts to be summed up to the annual accounts while maintaining the quarterly trend.*

*In this publication reconciliation between supply and use of goods and services is based on the best practice, make use of the best available information and knowledge that the national accountants have on item that contributing to the GDP.*