NOTA TEKNIKAL

3

TECHNICAL NOTES

1. Scope and Coverage

This publication used data from Annual Economic Survey 2022 (reference year 2021). The survey covered registered establishments engaged in Construction as main activity. Overall coverage of the survey for Construction sector consists of 72 industries at 3-digit level according to Malaysia Standard Industrial Classification (MSIC) 2008 Ver. 1.0. The complete list of industries covered as shown in the Appendix *(page 49).*

2. Statistical Frame

The statistical frame of this survey from the Malaysia Statistical Business Register (MSBR). MSBR is a list of organisations/enterprises operating in Malaysia that includes the Register of Companies (ROC), Register of Business (ROB) and Limited Liability Partnership (LLP) registered with the Companies Commission of Malaysia (CCM) as well as organisations registered with local authorities (PBT) and professional bodies. The list in MSBR is updated regularly based on surveys and censuses conducted by the Department of Statistics Malaysia (DOSM) and administrative data sources from various agencies. The main source of administrative data is from the CCM. In addition, DOSM also cooperates together to obtain the latest information from other agencies such as the Employees' Provident Fund (EPF), the Royal Malaysian Customs Department (JKDM), the Inland Revenue Board of Malaysia (LHDNM) and PBT.

The frame is updated to take into account new establishments and to record any changes in the status of the establishments such as closed down, not in operation, change in activity and location/ correspondence address to ensure the frame is at the current status.

3. Type of Business Activity

Type of business activity refers to both principal and secondary activities. The principal activity refers to the activities to which the establishment devoted most of its resources or activity which derived most of its income. Secondary activities are defined as those incidental or ancillary to the principal activity. The classification of the industry of the establishment is based on the principal activity and is in accordance with the MSIC 2008 Ver. 1.0. The MSIC 2008 Ver. 1.0 conforms to the International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4, United Nations, with modifications to suit local conditions.

4. Concept and Definition

4.1 Concepts and definitions used are based on the recommendations of the International Recommendations for Industrial Statistics, United Nations Statistical Division. The definition of Construction used in this survey accordance with the MSIC 2008 Ver 1.0.

4.2 Construction is defined as:
New construction, alteration, repair and demolition. Installation of any machinery or equipment which built-in at the time of the original construction is included, as well as installation of machinery or equipment after the original construction but which requires structural alteration in order to install.

5. Survey Year

Survey year refers to the year in which a survey was conducted.

6. *Reference Year*
   The reference year of the survey was the calendar year 2021. Establishments whose accounting year differed from calendar year were requested to report according to the accounting year or financial year covering at least six (6) months in the reference year.

   The data for this sectors in the year of 2018 to 2020 was prepared using an estimation method based on secondary data sourced from short-term surveys in DOSM and administrative data in other related agencies.

7. *Method of Collection*
   This survey was generally conducted through three (3) methods of data collection, namely:

   7.1 *Data collection method via online method through the e-AES portal*
      This method targets respondents who have used this method for previous routine surveys.

   7.2 *Data collection method via e-mail, post, fax and telephone*
      This method targets respondents who have used this method for previous routine surveys. Respondents were given a period of one month to complete and return the questionnaire to the DOSM.

   7.3 *Face-to-face data collection method*
      Field work operation is carried out to get feedback from establishments that have not yet given answers from the two methods above and this method also targets establishments that have never been involved in a routine survey the DOSM.

8. *Sampling Design*
   Sampling design of the survey is a one-stage stratified random sampling. Categories of three (3) digit MSIC at state level have been classified as stratum and the establishment as the sampling unit.

   Each stratum (industry) has been set up to four (4) substrata to ensure the distributed sample takes into account the economic characteristics of the industry. The main substratum is heterogeneous was fully covered, whereas other substratum that are homogeneous were sampled.

   Main substratum include large establishments that have a significant total revenue in the industry while for the second to fourth substratum are based on micro, small and medium enterprise (MSME) categories.

9. *Sample Size*
   The main statistics used to estimate the sample size is the total revenue. The formula used in the estimation of the sample size for a stratum is as follows:

$$n = \frac{\left(\sum N_i S_i\right)^2}{V + \sum N_i S_i^2}$$

   where;

$$n \quad = \quad \text{Sample size}$$

$$N_i \quad = \quad \text{Population size for stratum } i$$

$$S_i \quad = \quad \text{Variance for stratum } i$$

$$V \quad = \quad \text{Desired variance}$$

$$V = RSE^2 \cdot \left(\frac{\hat{Y}_i}{Z} \right)^2$$

where;

$$\hat{Y}_i \quad = \quad \text{Estimated total revenues for stratum } i$$

$$RSE \quad = \quad \text{Relative standard error}$$

$$Z \quad = \quad \text{Value of confidence level}$$

Sample is distributed to substratum of the industry using Neyman Allocation Method as follows:

$$n_{hi} = \left(\frac{N_h S_h}{\sum N_h S_h} \right) n_i^{'}$$

$$h \quad = \quad 2,3 \text{ dan } 4$$

$$i \quad = \quad 1,2,\ldots k$$

where;

$$n_{hi} \quad = \quad \text{Sample size for substratum } h \text{ of stratum } i$$

$$N_h \quad = \quad \text{Population size for substratum } h$$

$$S_h \quad = \quad \text{Standard deviation for substratum } h$$

$$n_i \quad = \quad \text{Sample size for stratum } i$$

$$h \quad = \quad \text{Substratum}$$

$$i \quad = \quad \text{Stratum}$$

The optimum sample size for this survey is 6,547 establishments. Establishments of the large categories were fully covered while establishments of the second to fourth substratum were randomly selected using systematic random sampling.

10. **Weighted**

Weighted analysis is done using sampling weight to ensure that the selected sample can reflect population survey. The weights required are the sampling design weight and non-response weight.

The sampling design weight for the establishment at stratum h is as follows:

$$W_h = \frac{N_h}{n_h} \quad , \quad h = 1,...,4$$

where,

N_h = Total population of substratum h; and

n_h = Total sample of substratum h

Non-response weight at substratum h as below:

$$NRW_h = \frac{1}{n_h' \big/ n_h} \quad , \quad h = 1,...,4$$

where,

n_h' = Numbers of respond sample size for substratum h

n_h = Numbers of sample size for substratum h

The method of calculating the sampling design weight after the survey (adjusted weight) on substratum h as below:

$$W'_h = W_h \times NRW_h \quad , \quad h = 1,...,4$$

where,

W_h = Sampling design weight at substratum h

NRW_h = Non-response weight at substratum h

11. *Reporting Unit*

The reporting unit used in the survey was the **establishment**. *The establishment is defined as "an economic unit engaged in one activity, under a single legal entity and operating in a single physical location". Each establishment was assigned an industry classification based on its principal activity. In the case of a multi-activity entity, units engaged in separate activities in the same location constituted distinct establishments.*

Thus, each branch of a multi-branch organization at a different location was conceptually treated as a different establishment. The establishment was requested to give separate returns for each activity in terms of value. However, if in practice, the accounts were centrally kept such that it was not possible to obtain separate data for each individual unit or branch. The entity or enterprise was treated as a single reporting unit and allowed to submit a consolidated questionnaire covering all the units or branches.

12. *Value of Gross Output*

The value of gross output is defined as follow:
Value of sales of construction products

+ *Value of construction work done during the reference year*
+ *Income from industrial services rendered: Fees received for processing of goods for other establishments' on their materials*
+ *Income from industrial services rendered: Income from repairs and maintenance work for other establishments machinery and equipment*
+ *Values of sales (from goods / material purchases for resale without further processing)*
+ *Value of other industrial work done (e.g.: Manufacturing, Quarry etc.)*
+ *Income from other output n.e.c. (e.g. scrap, electricity, waste product etc.)*
+ *Professional fees received (e.g. accounting, management, engineering, legal services, research and development etc.)*
+ *Commissions and brokerage earned*
+ *Rental income received: Residential building*
+ *Rental income received: Non-Residential building*
+ *Rental income received: Transport equipment*
+ *Rental income received: Machinery and equipment*
+ *Rental income received: Furniture and fittings*
+ *Rental income received: Others*
+ *Royalties, copyrights, licensing and franchise fees*
+ *Others operating income*
- *Cost of goods sold (goods / materials purchased for resale without undergoing further processing)*
+ *Research and development expenditure (in-house)/100 x total research and development expenditure*
- *Opening stocks: Others*
+ *Closing stocks: Others*
+ *Built / self-produced: Total*

13. **Value of Intermediate Input**
    The value of intermediate input is defined as follow:
    Value of raw materials and supplies consumed

    + Cost of building materials used for the reference year
    + Materials used for repairs and maintenance
    + Stationery and office supplies
    + Water purchased
    + Electricity purchased
    + Fuels, lubricants and gas
    + Payments for processing work done by others on materials supplied by this establishment
    + Payments for current repairs and maintenance work done by others on this establishment's fixed assets: includes buildings (office, factory, warehouse etc.), transport equipment, machinery & equipment, furniture & fittings and computer
    + Transportation of goods (carriage outwards)
    + Travelling expenses (include both local and overseas travelling, petrol / diesel bills and parking fees for own vehicles)
    + Accounting, secretarial and audit fees
    + Legal fees
    + Management fees
    + Entertainment expenses
    + Postage (includes courier services)
    + Bank charges
    + Insurance premium on building, machinery, transport equipment and goods
    + Commissions and agency fees
    + Advertising and promotion
    + Payment for other professional services (e.g. architectural, engineering, surveying consultancy fees etc.)
    + Payment for data processing and other services related to information technology
    + Telecommunication fees (e.g. telephone, internet etc.)
    + Other payments for non-industrial services
    + Rental payments: Operational lease (exclude payment for rent of land) and others
    + Royalties paid to: Non-government organisations / corporate sponsorship
    + Others operating expenditure
    + Employment costs: Fees paid to non-working directors for their attendance at Board of Directors' meetings
    + Employment costs: Value of free wearing apparel provided
    + Employment costs: Staff training cost
    + Payment to other establishment for providing workers
    + Opening stocks: Building materials
    - Closing stocks : Building materials

14. **Value Added**
    Value added is the difference between gross output and intermediate input. It is approximately equivalent to commercial profit, salaries and wages, depreciation and indirect taxes; plus, interest paid less interest received.

15. **Persons Engaged**
    Number of persons engaged refers to all persons working during December or the last pay period of the reference year. The number persons engaged was classified under the following categories:

    15.1 **Working proprietors and active business partners**
    This category refers to all individual proprietors and partners, part-time or full-time, who are actively engaged in the work of the establishment. Therefore, excludes silent and inactive partners.

    15.2 **Unpaid family workers**
    This category encompasses all persons (full-time or part-time) in the household of the owners of the establishment who perform a specified job and work for a minimum of one third of the normal working time of the establishment but do not receive regular payment, either in cash or in kind for work done. Such workers generally receive food, shelter and other support as part of the household of an owner and this would continue whether they worked in the establishment not.

    15.3 **Paid employees (full-time)**
    It refers to all paid workers who work for at least six (6) hours a day and for at least 20 days a month.

    15.4 **Paid employees (part-time)**
    It refers to all paid workers who work for less than six (6) hours a day and/or less than 20 days a month.

16. **Category of Skills**
    Category of skills has also been categorized according to Malaysia Standard Classification of Occupations 2020 (MASCO) as follow:

    16.1 **Skilled**
    Managers, professionals & researchers; and Technicians & associate professionals;

    16.2 **Semi-skilled**
    Clerical support workers; Service & sales workers; Craft and related trade workers; and Plant & machine operators & Assemblers; and

    16.3 **Low-skilled**
    Elementary occupations

17. **Value of Fixed Assets**
    Assets cover all goods, new or used, tangible or intangible, which have a normal economics life span of more than one year (e.g. land, building and structure, transport equipment, computer and peripheral equipment, computer software, other machinery, equipment and furniture and fittings). Value of assets as at the beginning and end of 2021 was based on net book value. Purchases, alterations and major repairs or capital expenditure during the year were valued at actual costs incurred. Value of assets sold during the year refers to the actual value.

18. **Rounding**

    The sum of components may not add up to the total in the tables presented in this publication due to rounding.

19. **Annual Growth Rate**

    The calculation of annual growth rate (r) is based on the following formula:

    $$Y_{t1} = Y_{to}(1 + r)^t$$

    where r,

    $$r = \left[e^{\frac{1}{t}\ln\left(\frac{y_{t1}}{y_{t0}}\right)} - 1 \right] \times 100$$

    where,

    Y_{t1} = Value at current year

    Y_{to} = Value at previous year

    t = Number of years, $t_1 - t_o$

    r = Annual growth rate

20. **Symbols and Abbreviations**

    The following symbols and abbreviation have been used throughout the publication:

&	:	and
%	:	per cent
}	:	combine
0	:	the value reported has less than 1,000
0.0	:	less than 0.05 billion
e.g.	:	for example
etc.	:	et cetera
n.a	:	not applicable
RM	:	Ringgit Malaysia
n.e.c	:	not elsewhere classified
Ver.	:	Version
W.P.	:	Wilayah Persekutuan