

# Technical Notes

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## OBJECTIVE

*The main objective of this publication is to provide additional indicators for the users in assessing the performance of the manufacturing sector in Malaysia.*

## SCOPE AND COVERAGE

*Manufacturing capacity utilisation data was collected from the Monthly Manufacturing Survey which covered the whole Malaysia. This publication presents statistics on the Manufacturing capacity utilisation at Division (2-digit), Group (3-digit) and state level since January 2015 which was released for the first time in May 2023.*

*Statistics for industries with less than three establishments was combined to the closest industry to ensure the confidentiality of the respondents as stipulated under the Statistics Act 1965 (Revised-1989).*

<b>Manufacturing sector</b>  <b>2 5 1</b>  <b>Industries</b>  Section C - 24 Divisions consist of 71 groups in manufacturing activities	<b>MSIC (2-digit)</b>	<b>Sub-sector Description</b>
	10, 11, 12	Food, beverages and tobacco
	13, 14, 15	Textiles, wearing apparel, leather and footwear
	16, 17, 18, 31	Wood product, furniture, paper products and printing
	19, 20, 21, 22	Petroleum, chemical, rubber and plastics
	23, 24, 25	Non-metallic mineral product, basic metal and fabricated metal products
	26, 27, 28	Electrical and electronic product
	29, 30, 32, 33	Transport equipment and other manufactures

## STATISTICAL FRAME

*The statistical frame of this survey is 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 works 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.*

## TYPE OF BUSINESS

Type of business activity is divided into primary and secondary. The primary activity refers to the activities which focus on its main resources and income. Secondary activities are defined as those incidental or ancillary to the primary activity. The classification of the establishment's industry is based on the primary activity based on the Malaysia Standard Industrial Classification (MSIC 2008) Version 1.0. The MSIC 2008 conforms to the International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4, United Nations, with modifications to suit local conditions.

## CONCEPT AND DEFINITION

Concepts and definitions used are in line with the manual of Recommendations for Industrial Statistics 2008, United Nations Statistics Division. The definition of manufacturing used in this survey is consistent with MSIC 2008 Ver. 1.0.

**Manufacturing** is defined as the physical or chemical transformation of materials or components into new products, whether the work is performed by power driven machines or by hand, whether it is done in a factory or in the worker's home, and whether the products are sold at wholesale or retail.

**Capacity utilisation** refers to a ratio of actual output produced to the production of output at full capacity through an optimal combination of machinery, raw materials and labour.

**Export-oriented industry** classified based on the threshold of value of exports exceeding 50 per cent of the sales value at aggregated of MSIC 3-digit and 2-digit while the industries which value of exports below the threshold are classified as Domestic-oriented industry. The determination of classification was conducted using data from the Economic Census 2011, Economic Census 2016, Annual Economic Survey 2018 and Monthly External Trade Statistics.

## SAMPLING DESIGN

Sampling design of the survey is a one-stage stratified random sampling. The establishment is classified as sampling unit while a few categories of stratum was identified.

Each stratum has been set up to three (3) substrata to ensure the distributed sample takes into account the economic characteristics of the stratum. The main substratum is heterogeneous and was fully covered, whereas other substratum that are homogeneous were sampled.

Main substratum include large establishments which have a significant total revenue in the respective industry while for the second and third substratum are based on Micro, Small and Medium Enterprise (SME) categories.

## SAMPLE SIZE

The main statistics used to estimate the sample size is the sales value. The formula used in the estimation of the sample size for a stratum is as follows;

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

Where:

$S_i^2$	variance for stratum $i$	$V$	desired variance
$N$	population size for stratum $i$	$n$	sample size

Where

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

$Z$	value of confidence level	$RSE$	relative standard error
$\hat{Y}_i$	estimated sales value for stratum $i$		

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

$$n_{hi} = \left( \frac{N_h S_h}{\sum N_h S_h} \right) n_i \quad \begin{matrix} h = 2, 3 \text{ and } 4 \\ i = 1, 2, \dots \end{matrix}$$

Where:

$n_{hi}$	sample size for substratum $h$ of stratum $i$	$N_h$	population size for substratum $h$
$S_h$	standard deviation for substratum $h$	$n_i$	sample size for stratum $i$
$h$	substratum	$i$	stratum

Establishments of the main substratum were fully covered while establishments of the second and third substratum were randomly selected using systematic random sampling.

## COMPUTATIONAL PROCEDURE

Manufacturing capacity utilisation statistics was compiled by sub-sector, Division (2-digit), Group (3-digit) and state. Calculation of Manufacturing capacity utilisation (CU) at Malaysia level (1D)

$$CU(1D) = \frac{\sum_{k=1}^{24} [CU(2D) \times WVA(2D)]_k}{WVA(1D)}$$

Where:

$WVA(2D)$	weighted of value-added by MSIC Division (2-digit)	$k$	1,2,3,...,24 which 24 division 2 - digit
$CU(2D)$	CU by MSIC Division (2-digit)	$WVA(1D)$	1

The same procedure was used to derive Manufacturing capacity utilisation at the state level.

## 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. T*

*hus, 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.*

## CONFIDENTIALITY REQUIRED

*The survey is conducted under the provisions of the Statistics Act 1965 (Revised-1989). The Act stipulates that the contents of individual returns are confidential. In conformity with the stipulations of this Act, only aggregated figures are published.*

## REVISIONS

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

## SYMBOLS AND ABBREVIATIONS

*The following symbols have been used throughout the publication:*

<b>n.e.c</b>	Not elsewhere classified	<b>Q</b>	Quarter
<b>%</b>	Percent	<b>CU</b>	Capacity Utilisation
<b>W.P.</b>	Wilayah Persekutuan		