

Nota Teknikal
Technical Notes



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OBJEKTIF

Objektif utama penerbitan ini ialah untuk menyediakan indikator tambahan kepada pengguna dalam menilai prestasi semasa sektor Pembuatan di Malaysia.

SKOP DAN LIPUTAN

Data kapasiti penggunaan Pembuatan dipungut dalam Survei Pembuatan Bulanan yang meliputi seluruh Malaysia. Penerbitan ini memaparkan statistik kapasiti penggunaan industri Pembuatan di Malaysia di peringkat Bahagian (2-digit), Kumpulan (3-digit) dan negeri mulai Januari 2015 yang diterbitkan buat kali pertama pada Mei 2023.

Statistik bagi industri yang mempunyai perwakilan kurang daripada tiga pertubuhan telah digabungkan kepada industri terhampir bagi memelihara kerahsiaan responden seperti mana yang termaktub dalam Akta Perangkaan 1965 (Disemak - 1989).

Sektor Pembuatan	MSIC (2-digit)	Keterangan Subsektor
2 5 1 Industri Seksyen C - 24 Bahagian yang terdiri daripada 71 kumpulan aktiviti pembuatan	10, 11, 12	Makanan, minuman dan tembakau
	13, 14, 15	Tekstil, pakaian, kulit dan kasut
	16, 17, 18, 31	Produk kayu, perabot, keluaran kertas dan percetakan
	19, 20, 21, 22	Petroleum, kimia, getah dan plastik
	23, 24, 25	Produk mineral bukan logam, logam asas dan produk logam yang direka
	26, 27, 28	Produk elektrik dan elektronik
	29, 30, 32, 33	Kelengkapan pengangkutan dan pembuatan lain

SUMBER STATISTIK

Rangka statistik bagi survei ini adalah daripada *Malaysia Statistical Business Register* (MSBR). MSBR adalah senarai pertubuhan/perusahaan yang beroperasi di Malaysia yang merangkumi Daftar Syarikat (ROC), Daftar Perniagaan (ROS) dan Perkongsian Liabiliti Terhad (LLP) yang berdaftar dengan Suruhanjaya Syarikat Malaysia (SSM) serta pertubuhan yang berdaftar dengan pihak berkuasa tempatan (PBT) dan badan profesional. Senarai di MSBR dikemaskini secara berkala berdasarkan survei dan banci yang dijalankan oleh Jabatan Perangkaan Malaysia (DOSM) dan sumber data pentadbiran daripada agensi lain. Sumber utama data pentadbiran adalah daripada SSM. Selain itu, DOSM juga bekerjasama untuk mendapatkan maklumat terkini daripada agensi lain seperti Kumpulan Wang Simpanan Pekerja (KWSP), Jabatan Kastam Diraja Malaysia (JKDM), Lembaga Hasil Dalam Negeri Malaysia (LHDNM) dan PBT.

Rangka dikemaskini dengan mengambil kira pertubuhan baharu dan merekodkan perubahan status yang berlaku terhadap pertubuhan tersebut seperti tutup, tidak beroperasi, perubahan jenis aktiviti dan lokasi perniagaan/ alamat pos bagi memastikan maklumat yang terdapat dalam rangka adalah yang terkini.

JENIS AKTIVITI PERNIAGAAN

Jenis aktiviti perniagaan merujuk kepada aktiviti utama dan sekunder. Aktiviti utama merujuk kepada aktiviti yang mana pertubuhan menumpukan sebahagian besar sumbernya atau memberi sumbangan besar dari segi pendapatan. Aktiviti sekunder didefinisikan sebagai aktiviti sampingan kepada aktiviti utama. Klasifikasi industri bagi pertubuhan adalah berasaskan kepada aktiviti utama berdasarkan kepada Piawaian Klasifikasi Industri Malaysia (MSIC 2008) Versi 1.0. MSIC 2008 adalah selaras dengan *International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4, United Nations* dengan pengubahsuaian mengikut keperluan tempatan.

KONSEP DAN DEFINISI

Konsep dan definisi yang digunakan selari dengan manual *International Recommendations for Industrial Statistics 2008, United Nations Statistics Division*. Takrif Pembuatan yang digunakan dalam survei ini adalah selaras dengan MSIC 2008 Versi 1.0.

Pembuatan ditakrifkan sebagai perubahan fizikal atau kimia ke atas bahan atau komponen menjadi produk baru sama ada kerja itu dilakukan oleh jentera yang dijalankan oleh kuasa atau yang dijalankan dengan tangan, sama ada dijalankan dalam kilang atau di rumah pekerja dan sama ada barang keluaran dijual secara borong atau runcit.

Kapasiti penggunaan Pembuatan merujuk kepada nisbah output sebenar yang dihasilkan berbanding pengeluaran output pada kapasiti penuh melalui gabungan optimum mesin, bahan mentah dan buruh.

Industri berorientasikan Eksport dikelaskan berdasarkan kepada treshhold nilai eksport melebihi 50 peratus daripada nilai jualan di peringkat agregat MSIC 3-digit dan 2-digit manakala industri dengan nilai eksport di bawah treshhold berkenaan dikelaskan sebagai **industri berorientasikan Domestik**. Penentuan pengelasan tersebut dibuat menggunakan data daripada Banci Ekonomi 2011, Banci Ekonomi 2016, Survei Ekonomi Tahunan 2018 dan Statistik Perdagangan Luar Negeri Bulanan.

REKA BENTUK PENSAMPELAN

Reka bentuk pensampelan bagi survei ini adalah pensampelan rawak strata satu peringkat. Pertubuhan dikelaskan sebagai unit pensampelan manakala beberapa kategori strata telah dikenalpasti.

Setiap strata telah dibentuk kepada tiga (3) substrata untuk memastikan sampel yang diagihkan mengambil kira ciri-ciri ekonomi strata tersebut. Substrata utama bersifat heterogen dan diliputi secara penuh, manakala substrata selainnya bersifat homogen disampelan.

Substrata utama meliputi pertubuhan kategori besar dan yang mempunyai jumlah hasil yang signifikan dalam industri berkaitan manakala bagi substrata kedua dan ketiga berdasarkan kategori Perusahaan Mikro, Kecil dan Sederhana (PMKS).

SAIZ SAMPEL

Statistik utama yang digunakan untuk penganggaran saiz sampel adalah nilai jualan. Formula yang digunakan dalam penganggaran saiz sampel bagi strata adalah seperti berikut:

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

di mana:

n	= saiz sampel	N_i	= saiz populasi bagi strata i
S_i^2	= varian bagi strata i	V	= varian sasaran

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

di mana:

\hat{Y}_i	= jumlah nilai jualan bagi strata i	RSE	= ralat piawai relatif
Z	= nilai aras keyakinan		

Sampel akan diagihkan kepada substrata dalam industri liputan dengan menggunakan kaedah *Neyman Allocation* seperti berikut:

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

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

$$i = 1, 2, \dots$$

di mana:

n_{hi}	= saiz sampel bagi substrata h dalam strata i	N_h	= saiz populasi bagi substrata h
S_h	= sisihan piawai bagi substrata h	n_i	= saiz sampel bagi strata i
h	= substrata	i	= strata

Pertubuhan kategori substrata utama diliputi sepenuhnya, manakala pertubuhan bagi substrata kedua dan ketiga dipilih secara rawak mengikut kaedah pensampelan bersistematik.

PROSEDUR PENGIRAAN

Statistik kapasiti penggunaan Pembuatan disusun mengikut subsektor, Bahagian (2-digit), Kumpulan (3-digit) dan negeri. Pengiraan statistik kapasiti penggunaan Pembuatan (CU) di peringkat Malaysia (1D),

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

di mana:

$$WVA(2D) = \text{wajaran nilai ditambah bagi MSIC Bahagian (2-digit)} \quad WVA(1D) = 1$$

$$CU(2D) = \text{CU bagi MSIC Bahagian (2-digit)} \quad k = 1, 2, 3, \dots, 24 \text{ iaitu 24 Bahagian (2-digit)}$$

Prosedur pengiraan yang sama digunakan untuk mendapatkan kapasiti penggunaan Pembuatan di peringkat negeri.

UNIT PELAPOR

Unit pelapor bagi survei ini ialah pertubuhan. Sesebuah pertubuhan secara ideal ditakrifkan sebagai “satu unit ekonomi yang bergiat di bawah satu hak milik atau penguasaan tunggal, iaitu di bawah satu entiti yang sah dan menjalankan satu jenis aktiviti ekonomi utama di satu lokasi fizikal”. Setiap pertubuhan diberikan klasifikasi industri berdasarkan aktiviti utamanya dan bukannya mengikut aktiviti syarikat induk. Bagi kes entiti yang mempunyai pelbagai aktiviti, unit yang terlibat dalam aktiviti yang berlainan dalam lokasi yang sama membentuk pertubuhan yang berbeza.

Oleh itu, setiap cawangan daripada organisasi yang mempunyai pelbagai cawangan di lokasi yang berbeza dari segi konsep dianggap sebagai pertubuhan yang berlainan. Pertubuhan berkenaan diminta memberikan penyata yang berasingan bagi setiap kegiatannya dari segi nilai. Walau bagaimanapun, dari segi praktis akaun biasanya disediakan secara berpusat kerana kesukaran untuk memperoleh data yang berasingan bagi setiap unit atau cawangan. Entiti atau ‘enterprise’ ini akan dianggap sebagai satu unit pelapor dan dibenarkan mengemukakan soal selidik yang menggabungkan semua unit atau cawangannya.

KEPERLUAN KERAHSIAAN

Survei ini dijalankan di bawah peruntukan Akta Perangkaan 1965 (Disemak 1989). Akta ini mensyaratkan bahawa kandungan penyata individu adalah SULIT. Selaras dengan peruntukan dalam Akta tersebut, hanya angka agregat akan diterbitkan.

PINDAAN

Pindaan akan dibuat ke atas statistik yang telah diterbitkan berdasarkan data terkini yang diperolehi.

SIMBOL DAN SINGKATAN

Simbol-simbol berikut telah digunakan dalam keseluruhan penerbitan: w

t.t.t.l. : Tidak terkelas di tempat lain

ST : Suku Tahunan

% : Peratus

CU : Kapasiti Penggunaan Pembuatan

W.P. : Wilayah Persekutuan

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).

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

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:

$$\begin{aligned} n &= \text{sample size} & N_i &= \text{population size for stratum } i \\ S_i^2 &= \text{variance for stratum } i & V &= \text{desired variance} \end{aligned}$$

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

where:

$$\begin{aligned} \hat{Y}_i &= \text{estimated sales value for stratum } i & RSE &= \text{relative standard error} \\ Z &= \text{value of confidence level} \end{aligned}$$

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

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

$h = 2, 3 \text{ and } 4$

$i = 1, 2, \dots$

where:

$$\begin{aligned} n_{hi} &= \text{sample size for substratum } h \text{ of stratum } i & N_h &= \text{population size for substratum } h \\ S_h &= \text{standard deviation for substratum } h & n_i &= \text{sample size for stratum } i \\ h &= \text{substratum} & i &= \text{stratum} \end{aligned}$$

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:

$$WVA(2D) = \text{Weighted of value-added by MSIC Division (2-digit)} \quad WVA(1D) = 1$$

$$CU(2D) = \text{CU by MSIC Division (2-digit)} \quad k = 1, 2, 3, \dots, 24 \text{ which 24 Division 2-digit}$$

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. 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.

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:

n.e.c. : Not elsewhere classified

Q : Quarter

% : Percent

CU : Manufacturing Capacity Utilisation

W.P. : Wilayah Persekutuan
