

# STATISTICS SINGAPORE NEWSLETTER

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## Articles:



**Household Expenditure on Gambling and Smoking in Singapore**

Page 2



**Quarterly Gross Domestic Product Growth Rates**

Page 6



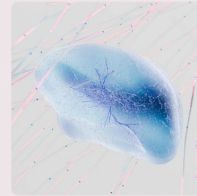
**Implementation of Singapore Standard Industrial Classification 2025 in the Statistical Business Register**

Page 9



**Rebasing of the Retail Sales and Food & Beverage Services Indices (2025 as Base Year)**

Page 12



**AI Era Challenges and Opportunities: Reaching Users of Official Data and Statistics**

Page 15

## More in this issue:

**What is Shrinkflation?**

> Page 20

**The Six Major Segments Driving Singapore's Wholesale Trade Industry**

> Page 22

**Singapore Standard Educational Classification 2026**

> Page 24

**Data Tools for Firms Providing Personal Care & Repair Services are Now Available!**

> Page 25

**Singapore's Sustainable Developmental Goals Progress Tracker**

> Page 26

**Singapore Supply, Use and Input-Output Tables 2023**

> Page 27

**The Revamped SingStat Website**

> Page 28

**Popular Data Topics Explored by Users in Singapore and Around the World in 2025**

> Page 29

**Overseas Visitors & Expertise Sharing at International Fora**

> Page 30

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# Household Expenditure on Gambling and Smoking in Singapore

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## Introduction



Household spending patterns reflect broader societal trends and individual lifestyle choices, offering insights into consumer behaviour patterns. In Singapore, expenditure on gambling and smoking activities can potentially impact household finances and public health outcomes. These activities are also subject to various regulatory measures and public awareness campaigns. Changes in household expenditure provide an indication of evolving social attitudes towards such activities.

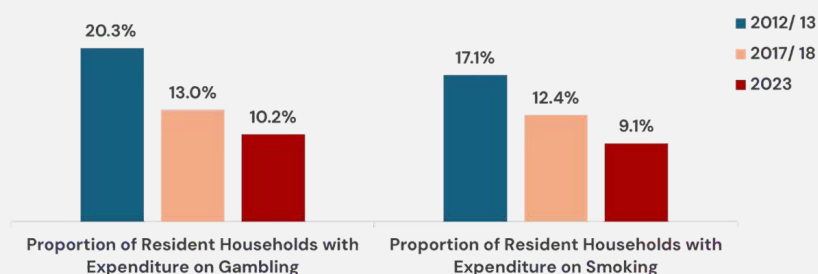
This article examines trends in household expenditure on gambling and smoking among resident households [1] in Singapore. It reveals how spending patterns for these items vary across dwelling types and income groups, and analyses the proportion of household spending allocated to such expenditures.

The data are from the Household Expenditure Survey (HES), conducted once every five years by the Singapore Department of Statistics, with the latest conducted in 2023. Expenditure on gambling [2] and smoking [3] in the HES is reported in respondents' recording of their regular expenditure and daily expenses over a two-week period. Households that did not report such expenditure during the recording period were considered as having no gambling or smoking expenses.

## Proportions of Households with Gambling and Smoking Expenditure Lower than a Decade Ago

Between 2012/13 and 2023, fewer households reported gambling and smoking expenditure (Chart 1). The proportion of households with gambling expenditure declined from 20.3% in 2012/13 to 10.2% [4] in 2023, and those with smoking expenditure dropped from 17.1% in 2012/13 to 9.1% in 2023.

**Chart 1: Proportions of Resident Households with Gambling and Smoking Expenditure, 2012/13 - 2023**



[1] Resident households refer to households where the household reference person is a Singapore citizen or permanent resident.

[2] Includes various forms of gambling, such as Singapore Pools lotteries (e.g., 4D, Toto, Singapore Sweep), sports betting, horse racing, casinos and other games of chance including mahjong and card games.

[3] Includes cigarettes, cigars and other tobacco products. E-cigarettes have been prohibited in Singapore under the Tobacco Act since 2018. As with other countries, survey respondents are unlikely to report expenditure on illegal activities in government surveys.

[4] Based on the 'Report on survey on participation in gambling activities among Singapore Residents, 2023' published by the National Council on Problem Gambling. The overall gambling participation rate among Singapore residents aged 18 and above decreased from 47% in 2011 to 40% in 2023.

## Proportions of Households with Gambling and Smoking Expenditure by Type of Dwelling

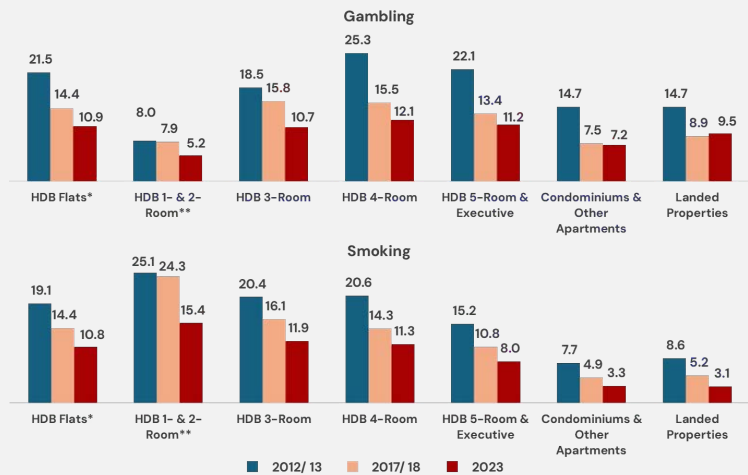
Across all dwelling types, the proportions of households with gambling and smoking expenditure were lower in 2023 compared to 2012/13 (Chart 2A).

In 2023, gambling participation was most prevalent among households living in Housing & Development Board (HDB) 4-room flats (12.1%), followed by HDB 5-room and 3-room flats. In comparison, smoking was more prevalent among households living in HDB 1- & 2-room flats (15.4%), and subsequently HDB 3-room and 4-room flats. Between 2012/13 and 2023, the prevalence of smoking among households saw the largest decline among households living in HDB 1- & 2-room flats from 25.1% to 15.4%, followed by HDB 4-room and 3-room flats.

\* Data prior to 2017/18 include non-privatised Housing and Urban Development Company (HUDC) flats. As at 2017/18, all HUDC flats had been privatised and are grouped with 'Condominiums & Other Apartments'.

\*\*Includes HDB Studio Apartments.

**Chart 2A: Proportions of Resident Households with Gambling and Smoking Expenditure by Type of Dwelling, 2012/13 – 2023 (%)**

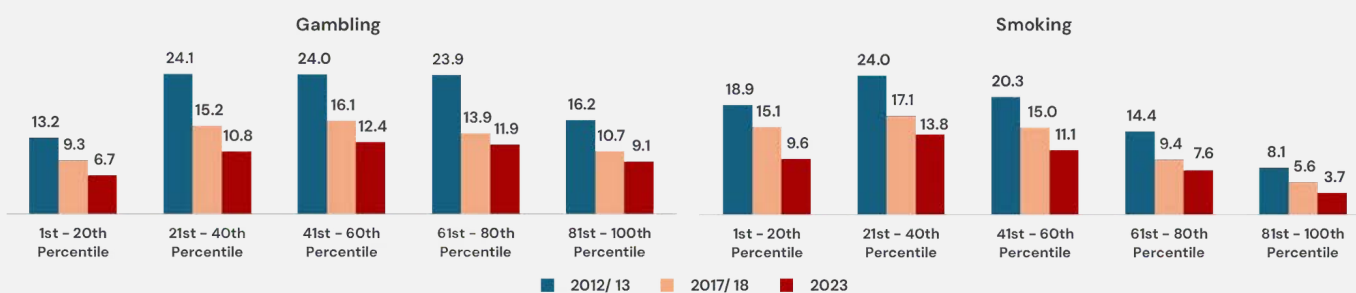


## Proportions of Households with Gambling and Smoking Expenditure by Income Group

Participation in gambling and smoking also fell across all income quintiles [5] from 2012/13 to 2023 (Chart 2B).

In 2023, gambling participation was more prevalent among households in the middle 60% income groups, with 10.8% to 12.4% of the households reporting expenditure on gambling. In comparison, smoking was more prevalent in the lowest 60% income group, with 9.6% to 13.8% reporting expenditure on smoking. Between 2012/13 and 2023, the prevalence of smoking among households recorded larger declines for households in the lowest 60% than those in the top 40%.

**Chart 2B: Proportions of Resident Households with Gambling and Smoking Expenditure by Income Quintile<sup>^</sup>, 2012/13 – 2023 (%)**



<sup>^</sup> Based on ranking of all resident households by their monthly household income from all sources per household member (including employer CPF contributions).

## Average Expenditure on Gambling and Smoking Increased Among Resident Households with Such Expenditure

While the proportions of resident households with gambling and smoking expenditure declined over the years, households with such expenses were spending more.

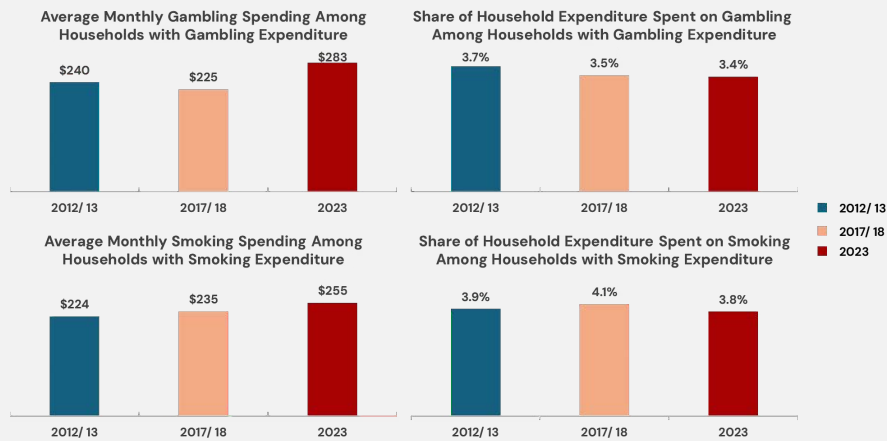
In 2023, households that gambled spent an average of \$283 per month on gambling, more than the \$240 in 2012/13 (Chart 3) [6]. Similarly, households with smokers had a higher average monthly smoking expenditure of \$255 in 2023 compared to \$224 in 2012/13.

The share of total household expenditure on gambling slipped from 3.7% in 2012/13 to 3.4% in 2023, while smoking maintained a relatively stable share at 3.8%.

[5] Based on ranking of all resident households by their monthly household income from all sources per household member (including employer Central Provident Funds (CPF) contributions).

[6] Expenditure is based on nominal value for the respective year.

**Chart 3: Average Monthly Household Expenditure on Gambling and Smoking and Share of Household Expenditure<sup>^</sup>, 2012/13 - 2023**

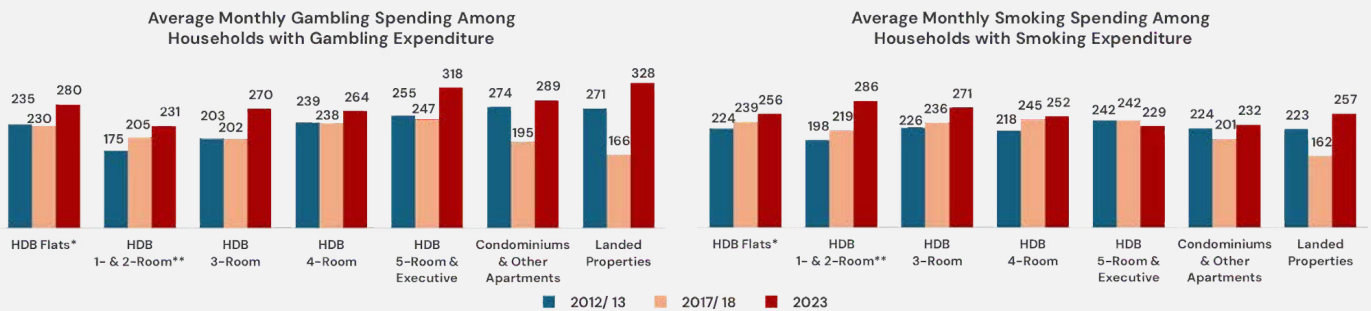


<sup>^</sup> Expenditure data include imputed rental of owner-occupied accommodation.

## Gambling and Smoking Accounted for Larger Share of Expenditure Among Households in HDB 1- & 2-Room Flats

Between 2012/13 and 2023, the average monthly spending on gambling and smoking among households with such expenditure increased for most dwelling types (Chart 4A).

**Chart 4A: Average Monthly Household Gambling and Smoking Expenditure<sup>^</sup> by Type of Dwelling, 2012/13 - 2023 (\$)**



<sup>^</sup> Expenditure data include imputed rental of owner-occupied accommodation.

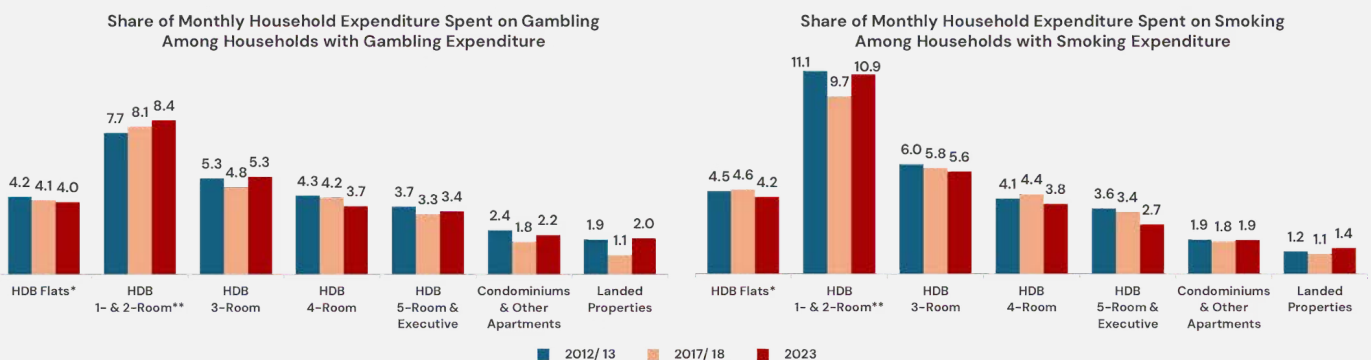
\* Data prior to 2017/18 include non-privatised Housing and Urban Development Company (HUDC) flats. As at 2017/18, all HUDC flats had been privatised and are grouped with 'Condominiums & Other Apartments'.

\*\*Includes HDB Studio Apartments.

Although gambling households living in HDB 1- & 2-room flats spent less on gambling than those in larger dwellings, they faced a higher relative burden, with gambling consuming 8.4% of their monthly household expenditure in 2023 (Chart 4B). In comparison, gambling accounted for 5.3% of the monthly household expenditure for HDB 3-room flats and was lower for larger dwelling types.

Similarly, households with smokers in HDB 1- & 2-room flats spent a larger share (10.9%) of their household expenditure on smoking compared to larger dwelling types, and had the highest average monthly spending of \$286 in 2023.

**Chart 4B: Share of Monthly Household Expenditure<sup>^</sup> on Gambling and Smoking by Type of Dwelling, 2012/13 - 2023 (%)**



<sup>^</sup> Expenditure data include imputed rental of owner-occupied accommodation.

\* Data prior to 2017/18 include non-privatised Housing and Urban Development Company (HUDC) flats. As at 2017/18, all HUDC flats had been privatised and are grouped with 'Condominiums & Other Apartments'.

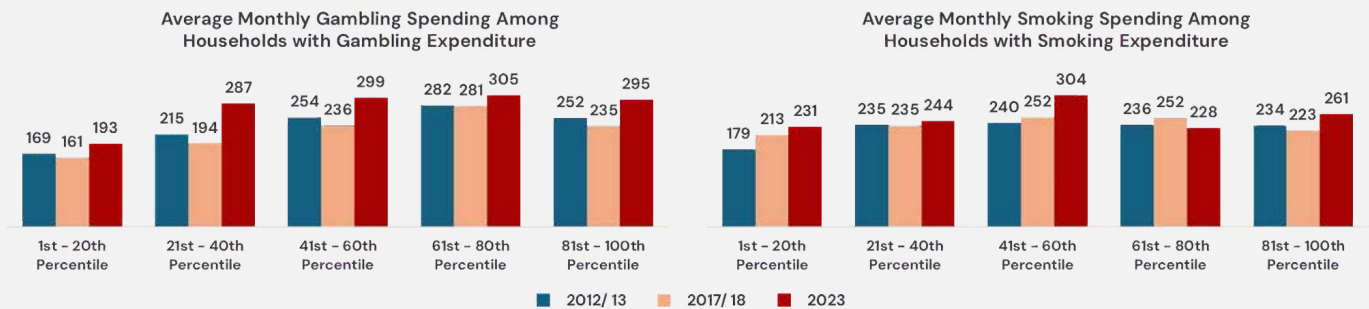
\*\*Includes HDB Studio Apartments.

# Gambling and Smoking Accounted for Larger Share of Expenditure Among Lower-Income Households

Between 2012/13 and 2023, the average spending on gambling and smoking among households with such expenditure rose across most income groups (Chart 5A).

The lowest 20% income households showed similar spending patterns for both gambling and smoking. Such expenditures recorded smaller amounts but accounted for larger shares of their household expenditure than households in higher income groups. Overall, the proportion of household expenditure spent was lower in 2023 compared to 2012/13.

**Chart 5A: Average Monthly Gambling and Smoking Expenditure by Income Quintile<sup>^</sup>, 2012/13 - 2023 (\$)**

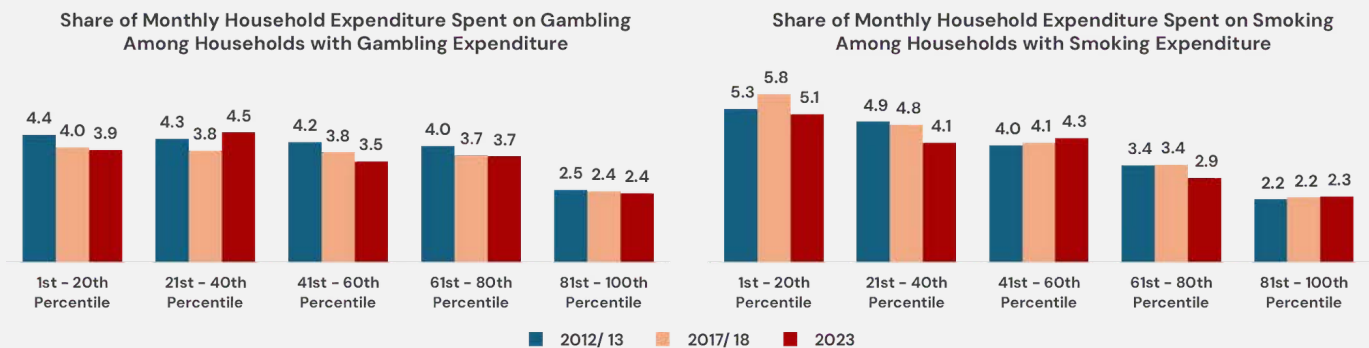


<sup>^</sup> Based on ranking of all resident households by their monthly household income from all sources per household member (including employer CPF contributions).

In 2023, gambling households in the lowest 20% income group recorded the smallest amount spent on gambling across all income groups, with an average monthly expenditure of \$193, or 3.9% of their household expenditure (Chart 5B). This proportion was lower than that of the 21st to 40th income group (4.5%), and larger than that of the top 60% income groups (2.4% to 3.7%).

Similarly, households with smokers in the lowest 20% income group spent an average of \$231 per month on smoking, or 5.1% of their household expenditure. This proportion surpassed the 2.3% to 4.3% share among higher income households.

**Chart 5B: Share of Monthly Household Expenditure<sup>^^</sup> on Gambling and Smoking by Income Quintile<sup>^^</sup>, 2012/13 - 2023 (%)**



<sup>^</sup> Expenditure data include imputed rental of owner-occupied accommodation.

<sup>^^</sup> Based on ranking of all resident households by their monthly household income from all sources per household member (including employer CPF contributions).

## Conclusion

The analysis revealed a nuanced picture of household expenditure patterns on gambling and smoking. Between 2012/13 and 2023, the proportion of households with expenditure on gambling and smoking in Singapore declined. This likely reflected the impact of public awareness campaigns and evolving social attitudes towards these activities, as well as stringent tobacco control measures. However, households that continued to spend on gambling and smoking saw an increase in their average monthly expenditure over the past decade. This suggests a divergence in consumption behaviour, where those who gamble and/ or smoke are spending more on these activities due to their addictive nature, while a growing proportion of households have given up such activities.



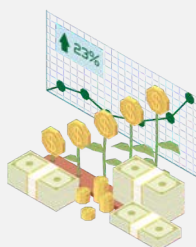
### Keen to perform deeper analyses as a Researcher?

The HES datasets are accessible to academic researchers in local Autonomous Universities via DOS's Anonymised Microdata Access Programme (AMAP), which facilitates deep-dive research using anonymised microdata in a safe environment (DOS innovation Data Lab). Currently, six projects from the National University of Singapore and Nanyang Technological University are underway, delving into topics such as population and family dynamics, housing choices and expenditure patterns. Click [here](#) to find out more about AMAP!

# Quarterly Gross Domestic Product Growth Rates

by Ho Hui Jun and Terry Fong  
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## Introduction



Real Gross Domestic Product (GDP) is a key short-term macroeconomic indicator used to monitor and assess the current state of the economy. Quarterly changes, or growth rates [1], in real GDP provide a basis for assessing economic trends, gauging momentum, and anticipating turning points in an economy.

However, comparing quarterly changes is less straightforward than comparing annual changes for two main reasons. Firstly, different quarters within a year vary in the number of working days and are subject to seasonal patterns in production and consumption. Secondly, even the same quarter can differ from year to year due to calendar effects, such as leap years or moving holidays (e.g., Hari Raya Puasa). This article examines the strengths and limitations of three methods for measuring quarterly GDP growth rates and explains Singapore's rationale for selecting its primary measure.

## Measuring Quarterly GDP Growth Rates

National statistical agencies typically use one or more of these three methods to compute and present quarterly GDP growth rates. Each method has its strengths and limitations. The choice of method depends on the objective of the analysis.

1

**Year-on-Year Growth Rate**  
Compares a quarter with the same quarter in the previous year.

2

**Quarter-on-Quarter Seasonally-Adjusted Growth Rate**  
Compares a quarter with the preceding quarter, using seasonally adjusted data.

3

**Annualised Quarter-on-Quarter Growth Rate**  
Extrapolates the quarter-on-quarter growth rate to represent an annual rate.

## Year-on-Year Growth Rate

The year-on-year (y-o-y) growth rate measures the percentage change in real GDP compared to the same quarter in the previous year. It is also known as the non-seasonally adjusted (NSA) growth rate and is widely used in most European and Asian countries, including Singapore.

### Strengths

This method allows straightforward comparison with annual growth rates and implicitly accounts for seasonal effects. For example, the seasonally stronger fourth quarter (impacted by Christmas and year-end festivities) is compared to the same quarter in the previous year. Hence, this approach reflects underlying trends while capturing unexpected changes or deviations from typical seasonal patterns.

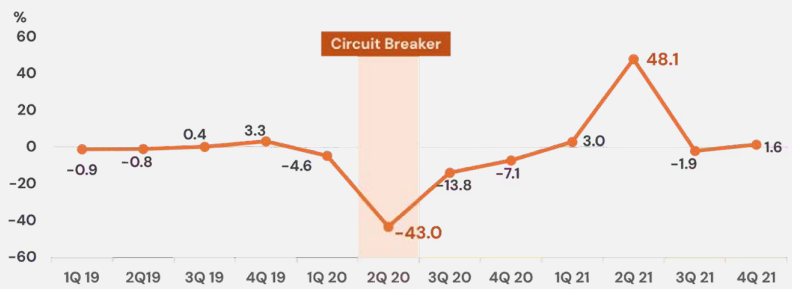
### Limitations

Y-o-y growth rates do not adjust for differences in the number of working days caused by calendar effects, such as leap years or moving holidays, as these variations can distort comparisons. For instance, growth may be stronger due to more working days, although the underlying economic trend is weakening.

[1] While this article focuses on quarterly growth rates, the principles and considerations discussed are equally applicable to other sub-annual growth measures, such as monthly growth rates.

**Chart 1: Real Value-Added of Food & Beverage Services, Year-on-Year Growth Rate**

This method is sensitive to base effects, in which a sharp contraction or expansion in a given quarter (often due to an unexpected shock) can result in a pronounced change in growth in the same quarter of the following year. This was observed in 2Q 2021, when the real value-added of Food & Beverage services surged 48.1%. The sharp increase reflected the low base in 2Q 2020, when the real value-added of the sector plunged 43.0% as dining-in was prohibited during the Circuit Breaker period to curb the spread of COVID-19 in Singapore (Chart 1).



Y-o-y growth rates tend to identify turning points in the economy more slowly than other methods. For instance, the real GDP of Singapore’s economy contracted by 3.9% on a y-o-y basis in 3Q 2020. However, the quarter-on-quarter (q-o-q) seasonally-adjusted (SA) change in real GDP was positive, indicating that growth momentum had already improved (Chart 2).

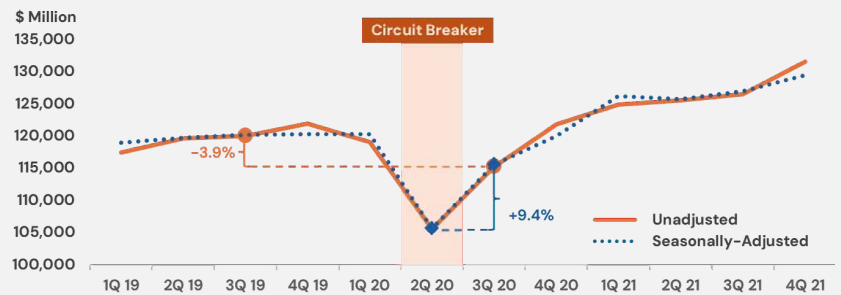
## Quarter-on-Quarter Seasonally-Adjusted Growth Rate

The q-o-q SA growth rate measures the change in real GDP compared to the preceding quarter, using SA data to remove regular seasonal effects. Without this adjustment, seasonal patterns can obscure true economic trends. This metric is computed and presented by many countries such as Australia and the United Kingdom as their primary measure. On the other hand, countries in the Asia region and Singapore present the q-o-q SA growth rate as supplementary information alongside the y-o-y growth rate.

### Strengths

Compared to the y-o-y growth rate, the q-o-q SA method has the key advantage of identifying turning points in the economic cycle earlier. For example, in 3Q 2020, real GDP expanded by 9.4% on a q-o-q basis, despite recording contraction on a y-o-y basis (Chart 2).

**Chart 2: Real GDP in Chained (2015) Dollars**



### Limitations

Q-o-q SA growth rates reflect changes over a three-month period and are therefore not directly comparable with annual growth rates. This shortcoming is addressed by the third method, which presents the q-o-q growth rate on an annualised basis.

## Quarter-on-Quarter Seasonally-Adjusted Annualised Growth Rate

The annualised q-on-q growth rate, also known as the seasonally adjusted annualised rate (SAAR), extrapolates the q-o-q growth rate over a full year. It is calculated using the formula:

This approach assumes the q-o-q growth rate in the current quarter continues at the same pace for the next three quarters. Countries such as the United States of America (USA) and Japan release annualised q-o-q growth rates.

$$a = (1 + r)^4 - 1$$

where:

- $a$  = annualised q-on-q growth rate
- $r$  = original q-on-q growth rate

### Strengths

By annualising the q-o-q growth rate, the SAAR retains the properties of the q-o-q SA growth rate while expressing growth on an annual basis. This facilitates easier comparison with the annual growth rate.

### Limitations

A key drawback of the SAAR is that it can amplify quarterly GDP changes when the q-o-q change in a given quarter is unusually large but unlikely to persist, as seen in 2Q 2020. By projecting the sharp contraction caused by the Circuit Breaker over the next three quarters, the SAAR magnified the decline based on the unrealistic assumption that such conditions would persist. As the SAAR is prone to misinterpretation, since 3Q 2020, Singapore has used the q-o-q SA growth rates instead of the q-o-q SAAR to supplement the y-o-y growth rate in GDP reporting.

## Selecting the Appropriate Method

The choice among these three quarterly growth measures depends on the analytical objective. Table 1 shows the primary measures used by various countries. Like Singapore, many countries use the y-o-y growth rates as their primary measure, supplementing information from q-o-q growth rates.

**Table 1: International Practice in GDP Reporting**

Primary Measure: Year-on-Year Growth Rates (Supplemented by Quarter-on-Quarter Seasonally-Adjusted Growth Rates)	Primary Measure: Quarter-on-Quarter Seasonally-Adjusted Growth Rates (Supplemented by Year-on-Year Growth Rates)
Hong Kong, China	Australia
Indonesia	Canada*
Malaysia	Germany
Philippines	Japan*
<b>Singapore*</b>	Korea
Thailand	Netherlands
	Switzerland
	United Kingdom
	United States of America**

Source: Websites of National Statistical Offices

\* Both SA growth rate and SAAR are published

\*\* Only SAAR is published

Economic statisticians generally agree that the y-o-y growth rate allows for objective and transparent international comparisons. In contrast, the q-o-q SA growth rate and SAAR are based on SA data, which can differ across countries depending on the methods used. These differences make direct comparisons more challenging. For example, some seasonal adjustments account for factors such as 'moving holidays' that affect the number of working days. However, without clear documentation, it is often unclear whether such adjustments have been made.

Another advantage of the y-o-y growth rate is that it tends to undergo fewer revisions than the other two methods. As more data points become available, estimates of seasonal factors may change substantially, leading to revisions in the SA series even if the underlying historical data was unchanged.

When the economy is growing steadily, the y-o-y growth rate generally provides a sufficient overview and less emphasis is placed on the q-o-q SA growth rate and SAAR. During periods of uncertainty or economic transition, the q-o-q SA growth rate and SAAR can be highly volatile, showing large fluctuations that may complicate the analysis of sequential growth. Nonetheless, these more sensitive measures can identify turning points in the economic cycle earlier, making them more relevant when the economy is at or nearing a turning point.

## Conclusion

There are three main methods for measuring quarterly growth rates. Among them, the y-o-y method is a suitable method for international comparisons due to its objectivity and transparency.

However, a key limitation of the y-o-y method is its ability to identify economic turning points more slowly. In contrast, the SA q-o-q growth rate and SAAR can identify turning points earlier, making it particularly useful when the economy is at or approaching a turning point.

Singapore uses the y-o-y growth rate as its primary measure, tapping into the q-o-q SA growth rate for supplementary information to better identify turning points in the economy.

### Check out this dashboard!



SingStat Website

#### Gross Domestic Product Dashboard

Explore data trends of Gross Domestic Product and sectoral performance.

# Implementation of Singapore Standard Industrial Classification 2025 in the Statistical Business Register

By Irmawati Khusaini and Hammadah Hassan, Business Statistics Division  
and Jeremy Lim, Research Division  
Singapore Department of Statistics

## Introduction

The Singapore Standard Industrial Classification (SSIC) is the national standard for classifying economic activities undertaken by economic units. It is widely used in the Singapore Censuses of Population, household and establishment surveys, as well as administrative and statistical databases. The SSIC is reviewed and updated regularly to reflect developments in the Singapore economy, particularly the emergence of new economic activities, and to align with changes in international standards.

The SSIC 2025 is the latest edition of the SSIC and adopts the basic framework of the latest International Standard Industrial Classification of All Economic Activities Revision 5 (ISIC Rev. 5) developed by the United Nations Statistics Division. It has a hierarchical structure with a 5-digit coding system, which progressively shows finer details from the highest numeric level of aggregation (Division) to the lowest level (Sub-class). This provides the flexibility to tabulate, analyse and publish data according to the level of detail required. An illustration of the hierarchical nature of the SSIC is shown in Table 1.

**Table 1: Example of the SSIC Classification Structure**

Classification Level	Classification Title	Classification Code
Section	Manufacturing	C
Division	Manufacture of Computer, Electronic and Optical Products	26
Group	Manufacture of Electronic Components and Boards	261
Class	Manufacture of Semiconductor Devices	2611
Sub-class	Semiconductor Wafer Fabrication	26112

This article [1] presents the implementation of SSIC 2025 in the Statistical Business Register (SBR), which serves as the foundation for compiling business and economic statistics. It discusses the strategy and approach in updating the statistical classification of economic units in the SBR and the Singapore Department of Statistics' (DOS) experience in leveraging artificial intelligence techniques to the statistical classification.

## Implementation of SSIC 2025 in the SBR

The SBR is used as the foundational statistical database for business and economic data collection and compilation. It is primarily updated using administrative data and supplemented with statistical survey returns from DOS and Research & Statistics Units (RSUs) in government ministries and statutory boards.

The SSIC is a key indicator for all statistical units in the SBR. It is primarily sourced from administrative data from the Accounting and Corporate Regulatory Authority (ACRA) and other Unique Entity Number (UEN) issuance agencies, and further supplemented by additional information received from statistical survey returns from DOS and RSUs.

In the implementation of SSIC 2025 in the SBR, all firm-level SSIC information were recoded from SSIC 2020 to SSIC 2025. Detailed two-way correspondence tables linking the SSIC 2025 and SSIC 2020 were created to facilitate this recoding process.

[1] Adapted from the paper presented at the [29th Meeting of Wiesbaden Group of Business Registers](#).

## There are four types of correspondence between SSIC 2020 and SSIC 2025:



### 1-to-1:

Direct **one-to-one** correspondence between SSIC 2020 and SSIC 2025



### Many-to-1:

**Multiple** SSIC 2020 sub-classes are recoded into **one** SSIC 2025 sub-class, due to a collapsed classification structure



### 1-to-Many:

**One** SSIC 2020 sub-class corresponds to **multiple** SSIC 2025 sub-classes to provide greater disaggregation



### Many-to-Many:

**Multiple** SSIC 2020 sub-classes correspond to **multiple** SSIC 2025 sub-classes, due to changes in classification structure

Recoding of SSIC sub-classes in the 1-to-1 and Many-to-1 correspondence types is straightforward and can be performed with certainty. However, recoding of SSIC sub-classes in the 1-to-Many and Many-to-Many correspondence types is more complex as firms can be recoded to more than one SSIC 2025 sub-class. Hence, more effort was required to assign the most suitable SSIC 2025 sub-class during the recoding of these firms. Table 2 presents the SSIC sub-classes and share of enterprises affected by the type of correspondence.

**Table 2: Number of SSIC Sub-classes and Share of Enterprises Affected, by Type of Correspondence**

Type of SSIC Correspondence	Number of SSIC 2020 Sub-classes Affected	Proportion of Enterprises Affected
1-to-1	865	83.6%
Many-to-1	50	1.1%
1-to-Many	3	0.3%
Many-to-Many	96	15.0%
<b>Total</b>	<b>1,014</b>	<b>100%</b>

## Implementation Strategy

A multi-approach implementation strategy was developed for the SSIC recoding in the SBR:



Adopt a mixture of automated and manual recoding to account for the complexity and data impact



Leverage readily available administrative data (e.g., licensing information) and survey returns



Develop Machine Learning (ML)-based classification tool, the SSIC Remapper

Firms in the SBR are categorised into four groups in the SSIC recoding process, factoring in the coding logic, data availability, economic significance, and complexity of the firms (Figure 1).

### Group 1: Automated recoding

Applied to 84.7% of the firms in the SBR whose SSIC 2020 sub-classes fell in the 1-to-1 or Many-to-1 correspondence types as the recoding is clear-cut. These sub-classes were automatically recoded to their corresponding SSIC 2025 sub-classes based on the correspondence table.

### Group 2: Manual recoding

Among firms that could not be automatically recoded, large and complex enterprises were identified and manually recoded given the complexity in classification and significant impact on data. A suitable SSIC 2025 sub-class will be assigned after a comprehensive review. About 1.6% of firms fall into this category.

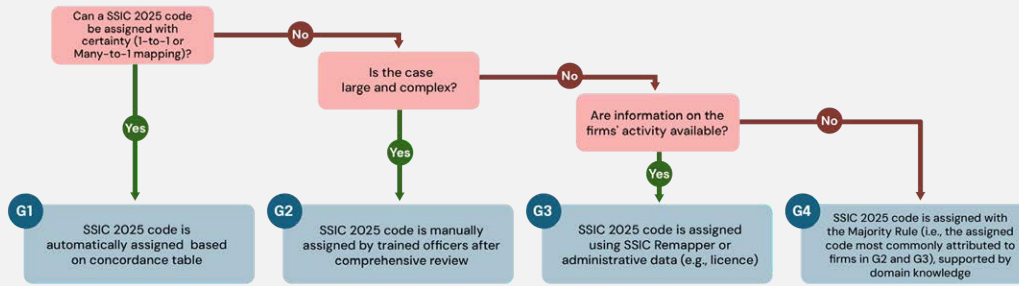
### Group 3: Administrative data and ML-based recoding

In the 1-to-Many and Many-to-Many correspondence types, non-large and non-complex firms with available economic activity data were recoded with the SSIC Remapper and supplemented by administrative data. About 0.6% of firms fall into this category.

### Group 4: Majority-rule based recoding

The remaining firms were mainly those that could not be recoded with certainty and had insufficient information about their economic activities. These firms were recoded with the majority rule approach, assigning the most frequently attributed SSIC 2025 sub-class to the SSIC 2020 sub-class. This approach was determined with the SSIC recoding outcomes in Groups 2 and 3, supported by domain knowledge. About 13.1% of firms fall into this category.

**Figure 1: Process Flow for SSIC 2025 Recoding**

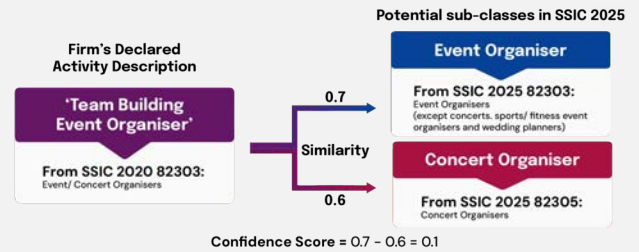


## ML-Based Recoding

Mapping codes from different SSIC editions is a complex and time-consuming task, especially for those in 1-to-Many or Many-to-Many correspondence types. DOS developed the 'SSIC Remapper' to automate and streamline this process with ML techniques. The SSIC Remapper narrows down the most suitable SSIC sub-class that are closest to the firms' declared activity descriptions.

Figure 2 illustrates how the SSIC Remapper works. It first converts the firms' activity descriptions and definitions of potential SSIC 2025 sub-classes into sentence embeddings [2], representing the semantic meaning of texts into numerical form. Next, the semantic similarities between the firm's activity description and corresponding definitions of the potential SSIC 2025 sub-classes are calculated. The sub-class with the highest semantic similarity becomes the SSIC Remapper's top recommendation. Finally, a confidence score is computed by comparing the semantic similarity of the top and second-best recommendation. If the semantic similarity between both recommendations is small, a low confidence score will be produced, flagging for human review and further assessment.

**Figure 2: How the ML-Based SSIC Remapper is Used for SSIC 2025 Recoding**



## Double-Coding and Stakeholder Engagement

Changes in statistical classifications may impact data coherence across the years. Best practice requires data compilers to backcast historical data compiled under the previous classification and recompile it based on the new classification. This enables data users to compare data across different time periods in their analyses.

Double-coding [3] is an important prerequisite for backcasting economic statistics when statistical classifications change. DOS implemented SSIC double-coding to provide both SSIC 2020 and SSIC 2025 sub-classes for all firms in the SBR from reference year 2009 onwards. This allows data compilers to conduct detailed data analysis and apply the appropriate methodology in statistical backcasting.

In addition, DOS has been proactively engaging stakeholders to support efforts in the SSIC 2025 implementation. Related publications and resources on SSIC 2025, such as detailed definitions, alphabetical index, and correspondence tables, are readily available on the [SingStat Website](#). DOS has conducted various knowledge-sharing and training sessions on SSIC 2025 and backcasting methodology for government agencies. Furthermore, DOS provided customised data advisory services when requested.

## Conclusion

DOS has successfully implemented the SSIC 2025 recoding for all firms in the SBR through a multi-approach implementation strategy. The experience demonstrates the benefits of adopting a hybrid approach, combining technological capabilities with specialist insights to maintain high standards whilst improving efficiency. Particularly, the ML-based classification tool has enhanced both operating efficiency and data accuracy in statistical classification. Human expertise and domain knowledge continue to play a crucial role in developing statistical algorithms and automation tools, as well as improving data quality through contextual validation.

[2] The large language model *bge-base-en-v1.5* is used in sentence embeddings.

[3] Double coding is a transitional methodology where firms are simultaneously classified under both the previous and updated industrial classification systems during the conversion period.

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# Rebasing of the Retail Sales and Food & Beverage Services Indices (2025 as Base Year)

by Jason Tan, Kenric Foo, and Joshua Gan  
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Singapore Department of Statistics

## Introduction



The Singapore Department of Statistics (DOS) has rebased the Retail Sales Index (RSI) and Food & Beverage Services Index (FSI) to reference year 2025.

The RSI and FSI are rebased at periodic intervals to reflect changes in the structure of Retail Trade and Food & Beverage (F&B) services industries. During the rebasing exercise, the methodology, coverage and weights were reviewed and updated.

This article provides an overview of the rebasing exercise, highlighting changes in industry groupings and weighting patterns, along with a comparison of trends in the 2025-based and 2017-based series.

## What do the RSI and FSI Measure?

The RSI and FSI measure the performance of the Retail Trade and F&B services industries in Singapore respectively, based on the monthly sales of businesses in these industries. Retail Trade establishments sell merchandise directly to consumers, while F&B [1] services establishments sell prepared food and drinks for consumption on-premises or takeaway.

Both indices are presented at current prices and in chained volume terms.

### Indices at Current Prices

Measure changes in sales values arising from changes in both price and quantity.

### Indices in Chained Volume Terms

Measure changes in the volume of economic activity by removing the price effect.

## Data Sources

The data used for the compilation of the RSI and FSI are primarily obtained from the Monthly Retail Sales Survey (RSS) and Monthly Food & Beverage Services Survey (FSS) conducted by DOS.

The RSS and FSS use a stratified random sampling design. The sampling frame is obtained from the Statistical Business Register maintained by DOS, which contains basic information of enterprises registered in Singapore. The sampling frame was first stratified by industry group. Each industry group was then further stratified by the size of operating revenue into three strata (large, medium, and small).

All enterprises in the large size stratum were selected with certainty, whereas the enterprises in the medium and small size strata were selected by random sampling. Within each industry group, the Lavallée-Hidiroglou (1988) algorithm was used to determine the size stratum boundaries and the optimal sample size for a required level of precision.

- The Lavallée-Hidiroglou (1988) algorithm was applied to improve the sampling efficiency for the Annual Industry Survey. Read the article on ['Improving Sampling Efficiency for the Annual Survey of Services'](#) for details on the improvement.

[1] Individual stalls in hawker centres, food courts, coffee shops, or canteens are not covered.

The RSS and FSS surveyed about 460 Retail Trade enterprises and 270 F&B services enterprises, supplemented with aggregated value of merchandise sales and food orders from third party online marketplaces and food delivery platforms. Administrative records from the Land Transport Authority are also utilised in the estimation of the retail sales of motor vehicles, motorcycles, and scooters.

## Updated Industry Groupings

The RSI and FSI are presented at the aggregated and industry levels in accordance with the [Singapore Standard Industrial Classification \(SSIC\)](#), the national standard for classifying economic activities by economic units.

Firms' SSIC codes are sourced primarily from administrative data from the Accounting and Corporate Regulatory Authority and other Unique Entity Number issuance agencies, supplemented by additional information received from statistical survey returns from DOS and Research & Statistics Units in government ministries and statutory boards.

As part of the rebasing exercise, Retail Trade and F&B industry groupings were refined to incorporate key user feedback and aligned with updates from SSIC 2025. The main changes for each index are highlighted below.



### Retail Sales Index

The 'Motor Vehicle' (SSIC 47311) group was updated to 'Motor Vehicles, Parts & Accessories' where related SSICs in retail sale of motor vehicles, parts and accessories were consolidated.



### Food & Beverage Services Index

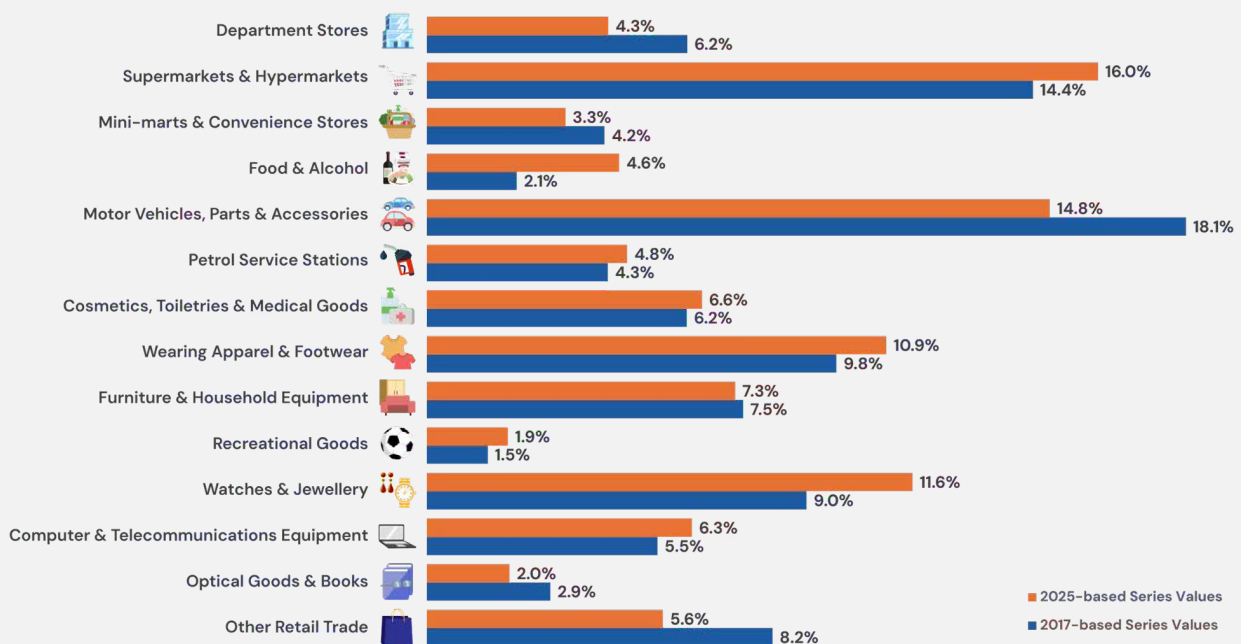
The 'Cafes, Food Courts & Other Eating Places' industry group was split into 'Cafes' (SSIC 56112) and 'Food Courts & Other Eating Places' (SSIC 56122, 56123 and 56130).

## Comparison of Weighting Patterns in 2017-Based and 2025-Based Series

The weight for each industry reflects its relative importance in the overall Retail Trade or F&B services sector. The weights are computed based on the retail or F&B sales of the respective industries obtained from the Annual Industry Survey for reference year 2024.

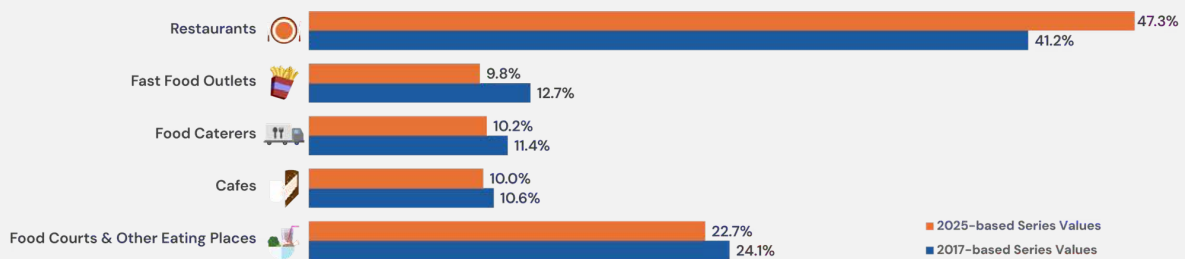
Comparing the 2017-based and 2025-based RSI weights, the 'Motor Vehicles, Parts & Accessories' category recorded the largest drop from 18.1% to 14.8% (Chart 1). While the weighting patterns of most categories remained stable, some notable shifts include 'Other Retail Trade' (down 2.6 percentage points), 'Watches & Jewellery' (up 2.6 percentage points), and 'Food & Alcohol' (up 2.5 percentage points).

**Chart 1: Weighting Pattern of RSI in 2017-Based and 2025-Based Series**



In the 2025-based FSI, weights for the 'Restaurants' category rose substantially from 41.2% to 47.3%, while all other categories saw declines in their relative shares (Chart 2).

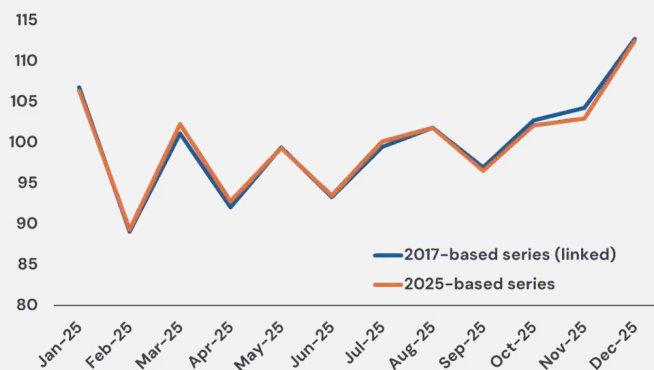
**Chart 2: Weighting Pattern of FSI in 2017-Based and 2025-Based Series**



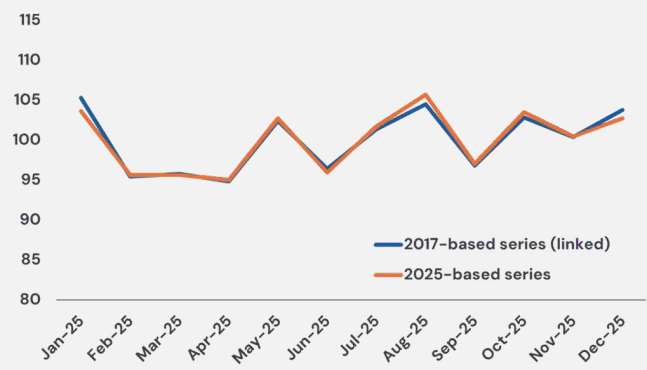
## Comparison of Trends in 2017-Based and 2025-Based Series

Charts 3 and 4 compare the overall RSI and FSI at current prices of the 2017-based and 2025-based series from January to December 2025. Both series generally exhibit a similar trend.

**Chart 3: RSI at Current Prices (2025=100)**



**Chart 4: FSI at Current Prices (2025=100)**



## Conclusion

The RSI and FSI are periodically rebased to reflect structural changes in the Retail Trade and F&B services industries. This ensures the continued relevance of the indices for government agencies and businesses in policy formulation, market analysis, and strategic planning. The rebased indices were released with effect from the January 2026 Monthly Retail Sales and Food & Beverage Services Indices report that was released on 5 March 2026. For more information on the rebasing, refer to the Information Paper ['Rebasing of the Retail Sales and Food & Beverage Services Indices \(2025 = 100\)'](#).

**i** This latest series will continue to be released via a press release on the 5th of every month, or on the following working day if the 5th falls on a weekend or a public holiday. The monthly press release, information paper, and index series are available on the [SingStat Website](#) and in the [SingStat Table Builder](#).

# AI Era Challenges and Opportunities: Reaching Users of Official Data and Statistics

57th Session of the United Nations Statistical Commission  
Friday Seminar on Emerging Issues: AI-Readiness for Official Data and Statistics  
Keynote Address Delivered by **Dr. Koh Eng Chuan, Chief Statistician**, Singapore Department of Statistics  
Acknowledgements due to Andy Chiang, Malcolm Cai, Priyadarshini N, Tess Tan, Tay Jun Wen, and Tow Joon Han for their valuable inputs

## Introduction

Government statisticians today operate in the midst of a rapidly evolving Artificial Intelligence (AI) landscape. They are already using AI in their data work, in the way they process and code, how they scrape data and generate new insights.

The public is turning to AI systems to search for information. Increasingly, AI influences how policy debates are framed and how decisions are made. Many no longer visit official statistical websites as they look for easy access to answers to their queries. Answers are increasingly intermediated through third-party platforms aided by algorithms — search engines, chatbots, dashboards, and automated policy tools. AI engines and applications continue to evolve and progress to become more powerful, faster, and sophisticated.

This AI development raises a central question:

***How do government statistical offices remain the authoritative source of official statistics if they are no longer the primary interface through which users encounter them?***

Exploring this question requires examining how users now access statistics, the risks this creates, and the opportunities it opens for rethinking the role and approaches of a statistical office.

## Today's Users and Access Methods

Understanding who uses official statistics today and how they access them provide a good context for these challenges.

Traditionally, users of official statistics were well defined. They included government officials and policymakers, researchers and analysts, the media, businesses, and members of the public. These users ranged from sophisticated analysts to those looking at headlines. Much of the dissemination model was built around these users — structured publications, tables for standard and customised requests, press releases, and official government websites.

Today, however, there is a rapid rise of **new and indirect users**. AI systems — large language models, search engines, and automated decision tools — are now major consumers of official statistics. People increasingly receive statistical information not as raw data, but as AI summaries, explanations, or answers to questions.

Consider how many people now search for information. Instead of navigating to a statistical office's website, they type a question into Google, ChatGPT, Claude or Microsoft Copilot:

*What is inflation this year?*

*Is unemployment rising?*

*How much do statisticians earn compared to data scientists?*

Google used to surface the link to the website of the statistical office, but now they may provide an AI answer as their first response. Google and other AI platforms provide different responses to data search depending on prompts and timing. The key shift being witnessed is:

***From direct consumption of official statistics to machine-mediated interpretation of them.***

This shift has profound implications for the visibility, authority, and relevance of a government statistical office.

# Core Challenges from AI-Mediated Data

Government statistical offices face four interrelated challenges from AI-mediated data access.

## Diminished Visibility and Authority



AI responses often omit sources altogether. Google's AI search has recently introduced links citing where its results were referenced, but other AI search engines may not provide such information.

Even when sources are mentioned, official and unofficial data are frequently blended without distinction. From the user's perspective, authority shifts away from the statistical office and towards the platform providing the answer.

The risk is subtle: official statistics disappear into background infrastructure. Trust accrues to the interface – the search engine or AI assistant – rather than the institution that produced the data with care, independence, and public accountability.

Over time, this erodes recognition of the unique role of official statistics and weakens the social contract that underpins the work of government statisticians.

## AI Hallucination and Misinterpretation



AI systems are very fluent, but they do not 'understand' statistics in the way trained statisticians do. As a result, common and recurring errors occur, such as:

- Using any available data, outdated data, or from non-official sources
- Ignoring revisions, rebasing or seasonal adjustment
- Overlooking methodological breaks or changes in definitions
- Comparing data from different sources with varying scope and coverage

The AI responses often sound technically plausible but are statistically incorrect.

These subtle errors are particularly dangerous. They can mislead policymakers, journalists, and the public without triggering immediate scepticism.

## Accessibility and Usability



The third challenge concerns the relative ease of access and usability of AI-mediated answers compared to official statistics.

Expert users can leverage their domain knowledge to effectively interpret official statistics – understanding the terminology, classifications, and metadata. However, those who do not have such expertise face substantial accessibility challenges. They have to invest significant time and effort to learn technical concepts and methodological nuances to make sense of statistical outputs.

By contrast, AI systems provide information in plain language, framed as direct answers with confident explanations. Accuracy largely depends on the prompts entered.

This creates a real tension between methodological rigor and accessibility. If official statistics are technically correct but difficult to understand, whilst AI summaries are easy to consume but imperfect, many users are likely to choose convenience over precision.

## Timeliness Versus Statistical Quality



The age-old issue of timeliness versus quality presents another challenge.

Users expect answers immediately rather than waiting weeks or months. AI-driven environments create expectations of instant, latest figures. They may pull data from any available sources to provide users with the timeliest information, ignoring statistical quality.

Official statistics, however, operate within necessary constraints – validation and accuracy, confidentiality protection, governance processes, and professional review.

The risk is that users turn to faster, lower-quality sources – over which statistical offices have little or no control – leading to poor analysis and weak evidence for decision-making. When users become indifferent to data sources, the relevance of official statistics may be threatened.

## Case Study: When AI Gets Official Statistics Wrong

These challenges are illustrated through an example involving AI responses on the youth unemployment rate for Singapore. It cited figures that appear credible.

However, closer inspection revealed significant problems. The responses used different definitions or scope on labour force, cited sources that are not official, and the responses change within just five days (Table 1). Some responses are partially correct, whilst some are entirely wrong. Yet they all appear genuine, usually providing more information and explanation than requested, giving them an expert appearance. For non-expert or convenience-seeking users, these results would likely be accepted without question.

**Table 1: Comparison of Responses from Various AI Platforms on Different Days**

Question: What is the youth unemployment rate of Singapore?				
Platform	15 Jan 2026		20 Jan 2026	
	Response	Source Cited	Response	Source Cited
ChatGPT	6.8% Y2024	Ministry of Manpower Singapore	7.8% Y2024 (Prioritised) 6.8% Y2024	Trading Economics, World Bank data (Prioritised) Ministry of Manpower Singapore
Google AI	7.8% Y2024	Statista.com	7.8% Y2024	Statista.com (Source hidden to non-logged in users)
Claude	5.7% 2Q2025	The Online Citizen article*	6.8% Y2024 (Prioritised) 5.7% Y2024	Vulcan Post (indirectly quoting the Ministry of Manpower Singapore) The Online Citizen article
perplexity	6.8% Y2024	Ministry of Manpower Singapore	7.8% Y2024 (Prioritised) 6.8% Y2024	Various websites all pointing to World Bank data; Trading Economics, the global economy, YCharts (Prioritised) Ministry of Manpower Singapore
deepseek	4.4% Y2023	Not indicated	5.7% Y2023	Not indicated
Gemini	6.8% Y2024	Not indicated	6.8% Y2024	Mothership, indirectly quoting the Singapore Department of Statistics

● Wrong Responses    
 ● Partially Correct Responses    
 ● Correct Responses

\* Data provided by Claude on 15 Jan 2026 was correct, but it refers to youths under 30 years. The definition of youths used by the Ministry of Manpower Singapore and the International Labour Organisation for unemployment refers to those aged 15-24.

This case study highlights key lessons for government statisticians:

**AI errors are often subtle, not absurd**

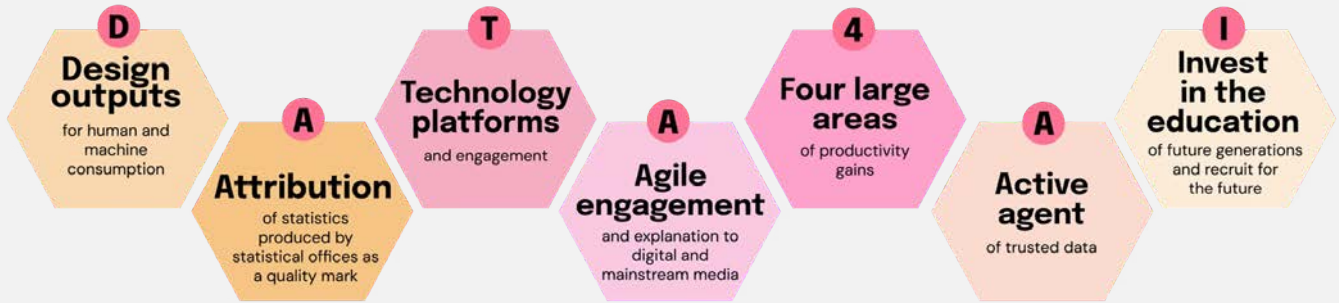
**AI errors propagate quickly and at scale**

**Silence from official sources allows misinterpretation and misinformation to become the dominant narrative, particularly since investigating how errors occur requires considerable effort**

# Opportunities and Strategic Responses for Government Statisticians

The challenges outlined present real opportunities for government statisticians to respond strategically and quickly. These opportunities can be organised around a **DATA4AI strategic framework** (Figure 1).

Figure 1: DATA4AI Strategic Framework



**D** **Design Outputs for Human and Machine Consumption**

Government statistical offices must design outputs for both machines and humans. Search engine optimisation (SEO) is no longer optional. If AI systems cannot easily find official statistics, they effectively do not exist in the digital information ecosystem.

Statistical offices should evaluate if their data are truly AI-ready. AI systems require specific data formats, structural frameworks, and technical interfaces to accurately access and utilise official statistics. This calls for investment in rich metadata, accessible APIs and interoperability, clear standards and classifications, and version controls and timestamps.

Can agentic AI bots talk to generative AI bots or find data through standardised data formats such as statistical data and metadata exchange (SDMX), open APIs, or model context protocols (MCP)? The Singapore Department of Statistics (DOS) exemplifies this approach by promoting the use of APIs and developing AI-ready websites by working on SEO. DOS's AI chatbot Statistics AND Data Retrieval A.I. assistant (SANDRA), currently in beta, uses semantic search capabilities to understand the context of users' data enquiries and uses large language model to retrieve data via APIs from an e-Service, the SingStat Table Builder. DOS is also in the process of including API documentation in OpenAPI specifications to enable search engines and AI chatbots to discover DOS's data and information. A future consideration is MCP, which provides a standardised mechanism to facilitate integration and interoperability with other AI applications.

Statistical offices have to recognise that machines are among their primary users and design accordingly.

**A** **Attribution of Statistics Produced by Statistical Offices as a Quality Mark**

Strong attribution mechanisms are essential to protect and clearly signal official statistics.

This includes clear guidance on citation, persistent identifiers for key indicators, digital markers of authenticity, and ensuring official website links appear in AI responses. Metadata has to be clear with websites open to all, so that the AI systems can identify and link to official sources. In Singapore, DOS is working on improving metadata with clear meta titles and concise meta descriptions to improve discoverability. Structured data and sitemap.xml files are included to help search engines better understand the information offered on DOS's platforms and for crawlers to discover webpages and datasets. Additionally, DOS plans to improve core web vitals on how quickly and smoothly users interact with the webpages – a factor that search engines, such as Google, consider when ranking search results.

Users and AI systems must be able to recognise what is official, current, and authoritative.

**T** **Technology Platforms and Engagement**

Proactive Engagement with technology platforms and the AI ecosystem is crucial.

This includes dialogue with search engines and AI developers, with potential coordination through international bodies such as the United Nations Statistics Division or the World Bank, to engage major platforms in a systematic way for their AI bots to use official data as first responses.

However, security and trust remain paramount. Systems containing large amounts of data need to stay secured. AI bots that reach into official websites will have to be carefully scrutinised or managed to prevent data breaches.

Participation in data and AI governance standards is therefore critical.

### Agile Engagement and Explanation to Digital and Mainstream Media

Statistical offices must shift from pure publishing to agile engagement and explanation.

Traditional tables and PDF reports alone are no longer sufficient. This requires working nimbly with mainstream and social media to ensure official statistics continue to be referenced.

A

Agility means producing plain-language explanations that anticipate common questions and likely AI misinterpretations. Statistical offices may consider publishing accessible information nuggets and analysis that can be easily reproduced by both mainstream media and social media users. Visualisations have to evolve beyond traditional bar charts to include tree maps, box and whiskers plot, Sankey diagrams, network and nodes graphs, and heatmaps. Many visualisation tools are now available for such uses, such as Power BI, Tableau, and Qlik.

The role of a statistical office increasingly includes interpretation, not just dissemination, requiring innovative approaches to attract and engage users.

### Four Large Areas of Productivity Gains

AI offers substantial opportunities and internal productivity improvements across four large areas of the data value chain:

1. Data collection using web AI tools
2. AI/ ML tools for processing, quality checks, drafting, and analysis
3. AI systems for data dissemination by statistical offices and data retrieval by users
4. AI-generated and curated new analytical insights

4

Singapore's experience includes SANDRA and the DOS Intelligent Classification Engine (DICE). SANDRA helps users with data queries – on a simple prompt, it charts data and provides metadata and other related links. DICE, used in data processing, is a machine learning (ML)-powered tool that recommends the most appropriate Singapore Standard Classification codes based on textual descriptions.

Using web scrapers and other AI/ ML tools, the potential for creating new knowledge is great. Aside from price captures, DOS has created experimental indicators such as e-commerce, green economy, innovative companies, and enterprise characteristics.

These tools enable statisticians to focus on higher-value work – analysis, stewardship, engagement, and keep in pace with AI developments.

### Active Agent of Trusted Data

Government statisticians must accept their **evolving role**:

- From data producer to **data steward** – step up to set data governance standards and usage across government agencies and the administrative data they generate.
- From publisher to **interpreter and consultant** – work with agencies and the larger public to discuss and educate on statistical interpretation and usage for analysis to answer hypothesis and provide key insights and understanding to the economy and society.
- From neutral passive provider to **active agent of trusted data** – transform statistical offices to become the go-to organisation of quality data for all, to be the trusted data intermediary for administrative data, constantly engaging and reviewing our data scope to ensure fit-for-purpose data across the government, academia, businesses, and members of the public.

A

This evolution strengthens rather than compromises independence, positioning statistical offices as the official source for quality, objective statistics amid AI-mediated information.

### Invest in the Education of Future Generations and Recruit for the Future

Investment in statistical literacy for the AI age is essential. Collaboration with educational institutions enables the younger generations of data consumers to understand the importance of quality official statistics.

I

Users need to be equipped with skills to question AI-mediated statistics, understand uncertainty, and recognise the importance of methodology, definitions and context. New statisticians should be AI-trained, proficient in programming languages such as Python and R, and understand AI operations for effective engagement.

This is not just a technical task – it is a public education and recruitment mission.

## Conclusion: A Public-Sector Call to Action

Official statistics cannot compete with the speed of AI, but statistical offices should understand and leverage AI effectively. Official statistics remain essential for unbiased and open understanding of the society, and for evidence-based policies. The task is ensuring that official statistics are easily discoverable by AI systems, engaged beyond official portals, and explained in clear language. This approach protects the public value of official statistics in the age of AI.

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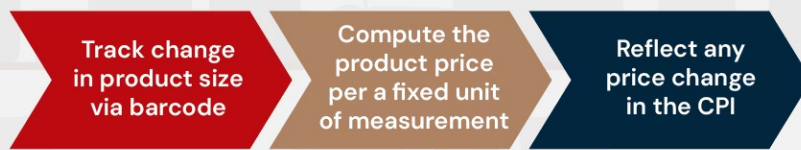
World Bank (2026) – AI-Readiness and (Re)Distribution of Official Statistics, Opportunities, Challenges, and Recommendations, prepared by the World Bank with input from CCSA members, 57th UNSC Agenda item 5(h) – E/CN.3/2026/31, New York, 3–6 March 2026. [BG-5h-CCSA AI Readiness Official Statistics v2-E](#)

# WHAT IS SHRINKFLATION?

When a **smaller quantity of a product is sold for the same or higher price**, consumers are effectively paying more per unit. This is known as 'Shrinkflation'.

In compiling the Consumer Price Index (CPI), changes in product size are systematically tracked and adjusted when feasible, by computing the prices per a fixed unit of measurement, e.g., price per kilogram.

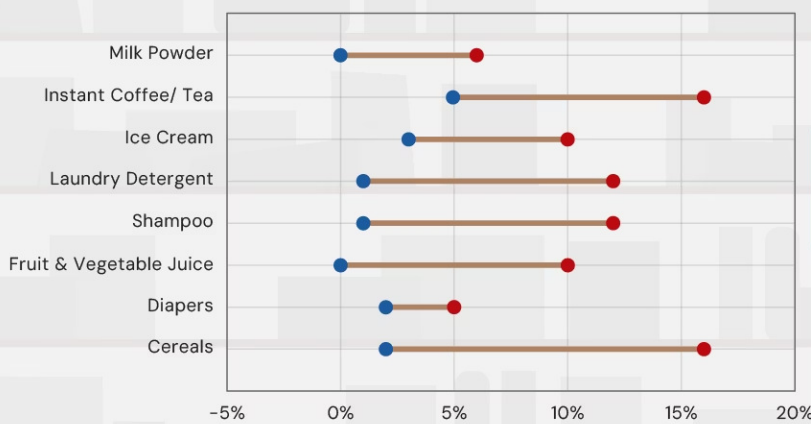
The main data source is retail price data from supermarkets and barcode-level data such as price, weight/ volume and packaging. Data are then processed to reflect price changes in the CPI.



## Products Most Affected by Shrinkflation

Based on frequency of size reductions observed across supermarkets in Singapore.

**Actual vs Apparent Price Changes (Month-on-Month) When Product Sizes Shrink, 2024-2025 (%)**



Price increases are higher when product size changes are taken into account

- Apparent Price Change (Ignoring Size Changes)
- Actual Price Change (Including Size Changes)

### The Hidden Cost of Smaller Products



While the bottle of shampoo costs \$2 more, consumers pay 56% more per litre because less product is being bought for the same amount of money.

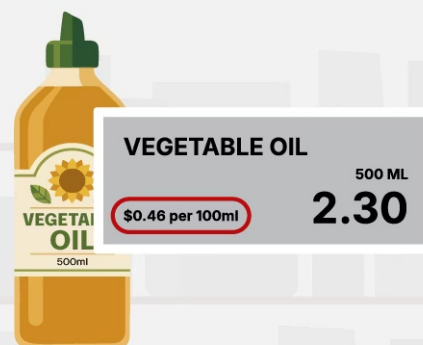
### When 'More' Still Means Higher Prices



While consumers get 5% more cereal, they pay 14% more per kg.

### Unit Pricing to Enhance Price Transparency

For easy comparison of products prices across different brands and package sizes, the Consumers Association of Singapore and the Competition and Consumer Commission of Singapore have partnered with major supermarket chains to pilot the display of unit prices for selected items. Unit pricing is adopted in countries such as Australia, the European Union and the United Kingdom.



[Download the infographic](#)

**DO YOU KNOW:**

**The Six Major Segments Driving Singapore's Wholesale Trade Industry**

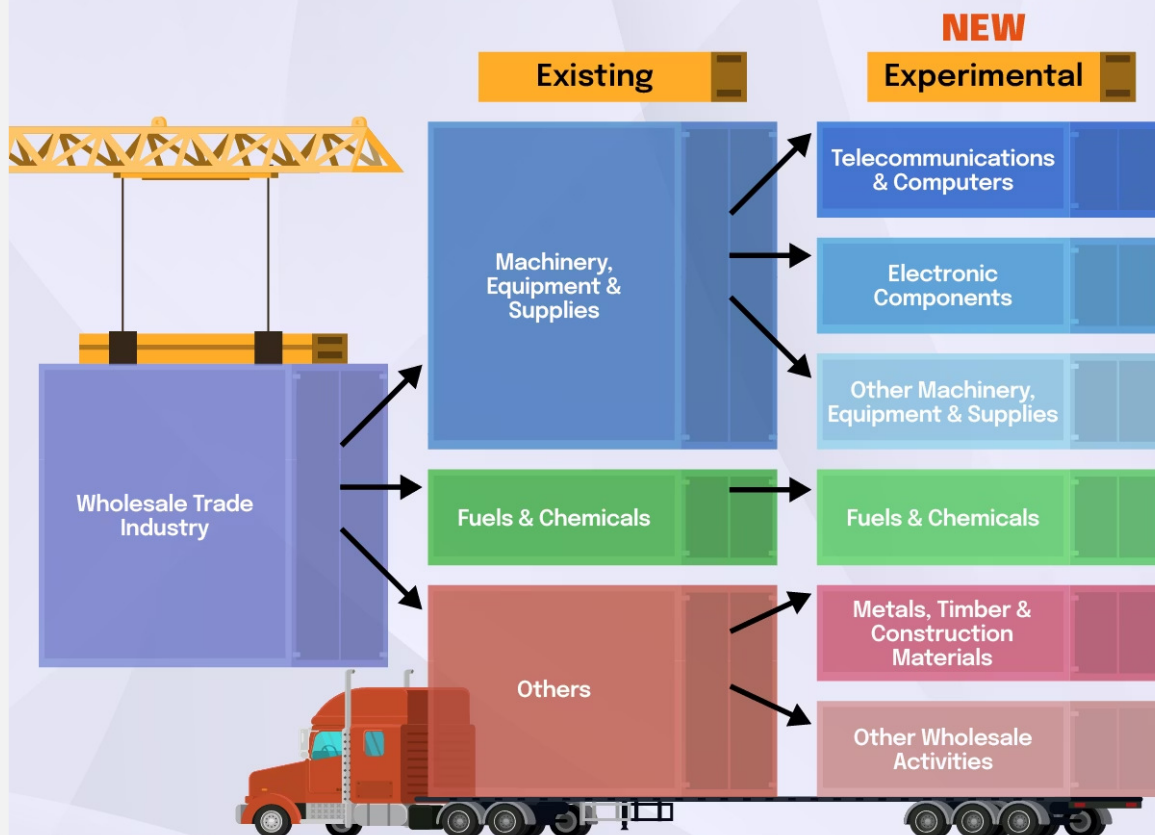
Firms in the Wholesale Trade Industry engage in the bulk sale of goods to manufacturers, retailers and businesses, who then use these goods as inputs for production or resell them to consumers.

The wholesalers serve as intermediaries by procuring goods from producers and suppliers for distribution to various buyers.



The Singapore Department of Statistics has developed a new experimental Value-Added series<sup>1</sup>, disaggregating the Wholesale Trade industry into six segments (Figure 1). This granular disaggregation provides a more nuanced analysis, enabling a deeper understanding of industry trends and segment performance.

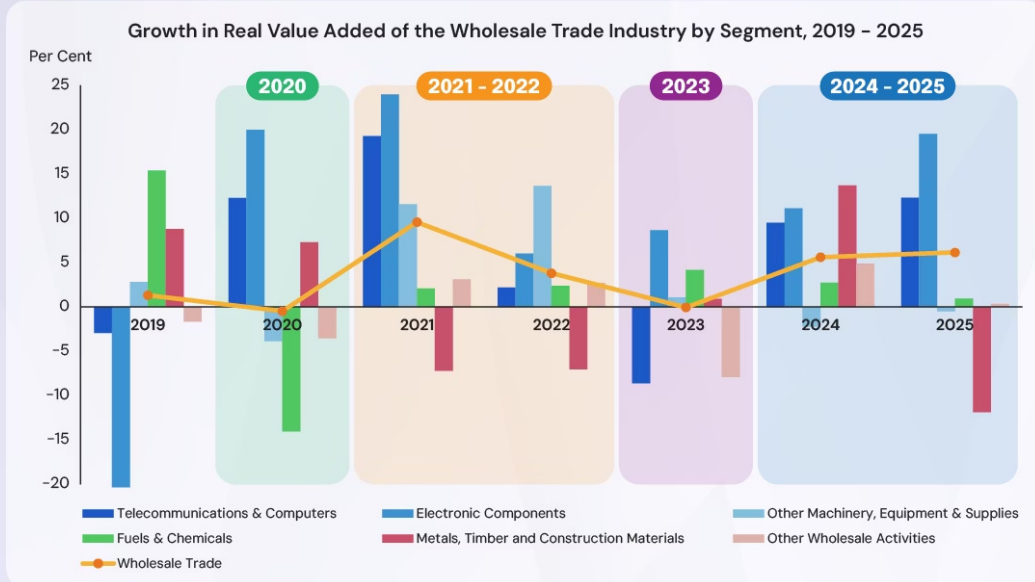
**Figure 1:**  
**Disaggregated Segments of the Wholesale Trade Industry**



<sup>1</sup> Data are based on estimates from the annual Economic Survey of Singapore 2025.

## Key Findings

### Strong Demand for Telecommunications & Computers, and Electronic Components Supported Wholesale Trade Growth



2020

The Wholesale Trade industry contracted, mainly attributed to the Fuels & Chemicals segment.

During the COVID-19 pandemic, lockdowns and travel restrictions resulted in a sharp drop in demand for fuels like gasoline and jet fuel, leading to a decline in the wholesale volume of petroleum and petroleum products.

2021 to 2022

Driven by global economic recovery, eased pandemic restrictions, and renewed consumption demand for goods, the Wholesale Trade industry rebounded in 2021 and 2022. In particular, the wholesale trade of Electronic Components and Telecommunications & Computers recorded significant growths, fueled by rapid advancements in artificial intelligence (AI) technology and the shift to remote work.

The Other Machinery, Equipment & Supplies segment also saw a robust recovery, partly driven by the wholesale trade of industrial and construction machinery as construction activities resumed. Within the segment, the wholesale trade of transport equipment also surged, due to fleet upgrades and a growing demand for electric and hybrid vehicles.

2023

The growth of Wholesale Trade industry moderated, as the Telecommunications & Computers and Other Wholesale Activities segments declined under the weight of softening global demand and shifts in consumer spending patterns.

2024 to 2025

The accelerated industry growths in 2024 and 2025 were primarily led by the Telecommunications & Computers and Electronic Components segments on account of sustained AI-driven demand.

However, growth in 2025 was partially offset by the decline in the wholesale trade of the Metals, Timber & Construction Materials segment, as weaker global demand and subdued economic growth in key markets weighed down on the segment's performance.

[Download the infographic](#)

# SINGAPORE STANDARD EDUCATIONAL CLASSIFICATION 2026



## What is SSEC?

- SSEC is the national standard for classifying educational programmes and qualifications and is used for censuses of population, household surveys and administrative databases.
- Consists of three sub-classifications.
- Adopts the basic framework and principles of the **International Standard Classification of Education (ISCED) 2011** and the **ISCED Fields of Education & Training (ISCED-F) 2013** developed by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) Institute for Statistics (UIS). The classification is adapted to fit local context.

Classification  
of Level of  
Education  
Attending  
(LEA)

Classification  
of Educational  
Qualification  
Attained  
(EQA)

Classification  
of Field of  
Study (FOS)



5th edition of the SSEC.

Reviewed by a multi-agency working group led by DOS.

Reflected changes in Singapore's educational landscape, particularly the implementation of Full Subject-Based Banding and the introduction of Singapore-Cambridge Secondary Education Certificate (SEC) as the national secondary examination for graduating students with effect from 2027.

Included 57 new entries to the FOS alphabetical index at the narrow field levels.

## Key Changes for SSEC 2026

- New 2-digit EQA code created for SEC and students from Specialised Schools who have completed at least Year 2
- Improved code titles for EQA N to provide clarity on the scope for non-full qualifications (including micro-credentials and modular certificates)
- Shifting of obsolete qualifications under residual codes
- Removal of FOS detailed field (4-digit) level – coding to be performed up to FOS narrow field (3-digit) level
- Introduction of an EQA Alphabetical Index to facilitate accurate coding of both current and defunct educational qualifications

[Learn more about the SSEC 2026](#)

# DATA TOOLS FOR FIRMS PROVIDING PERSONAL CARE & REPAIR SERVICES ARE NOW AVAILABLE!

## KNOW MY INDUSTRY

Use the **'Know My Industry'** data tool to understand industry trends, business outlook, business/ rental costs and labour market situations.

## KNOW MY CUSTOMERS

Use the **'Know My Customers'** data tool to understand customer demographics and find out what households are spending on.

## BENCHMARK MY FIRM'S PERFORMANCE

Use the **'Benchmark My Performance'** data tool to compare financial ratios, efficiency ratios, profit margin, profit per worker and revenue per worker.

# Singapore's SDG Progress Tracker

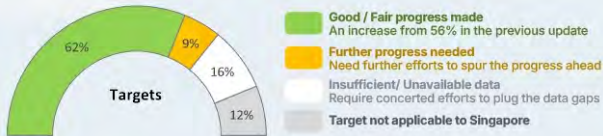


The Sustainable Development Goals (SDGs) are a set of goals under the 2030 Agenda for Sustainable Development (2030 Agenda), comprising 17 SDGs with 169 targets. There are currently 251 indicators used to measure progress towards reaching the targets, with indicators covering different aspects under each Goal.

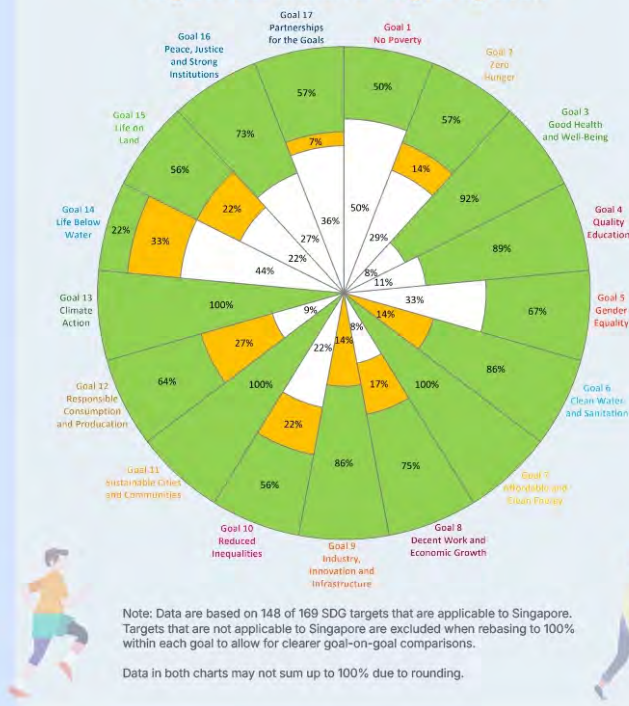


Singapore's SDG progress is updated based on the United Nations SDG Global Indicators Framework.

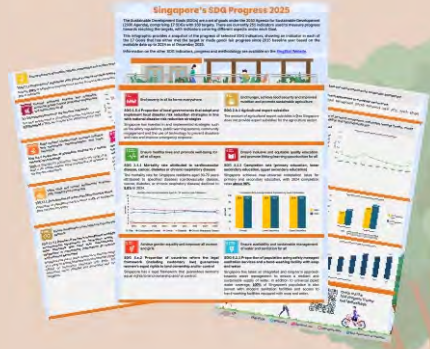
## Overall Progress Distribution of Targets



## Progress Distribution of Targets by Goals



Check out the infographic for a snapshot of the progress of selected SDG indicators, showing an indicator in each of the 17 Goals that has either met the target or made good/ fair progress since 2015 baseline year based on the available data up to 2024 (as at December 2025).



[Singapore's SDG Webpage](#)

[Singapore's SDG Progress Infographic](#)

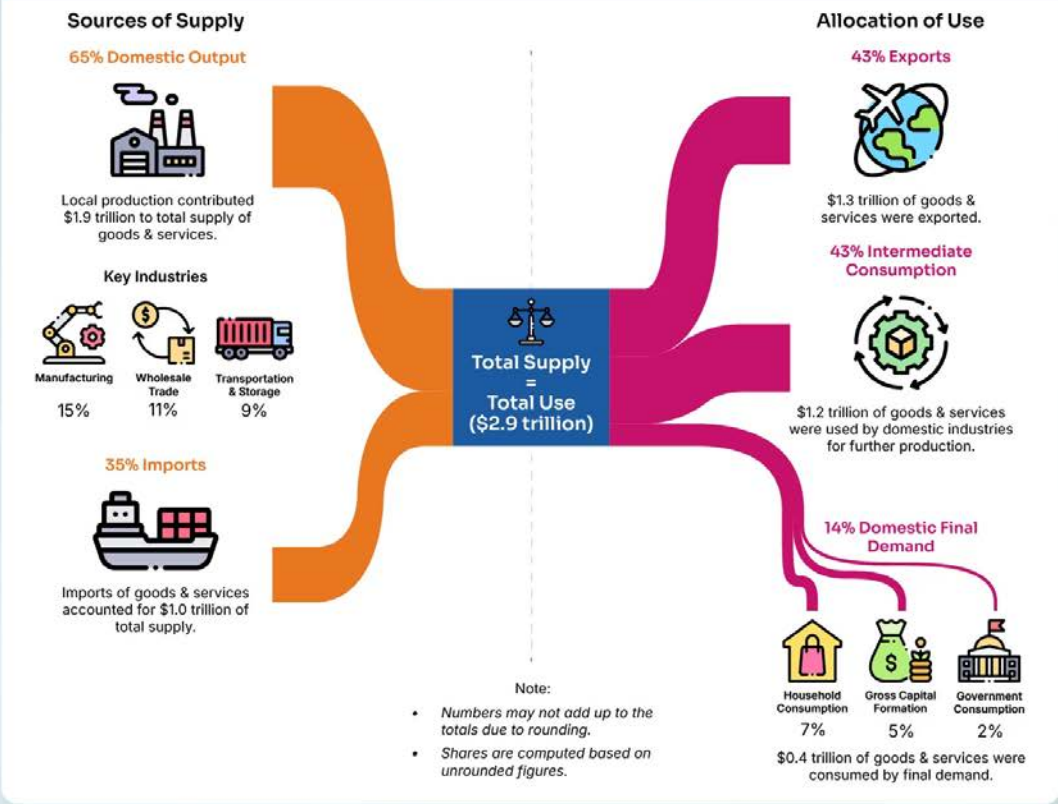
[SDG Progress Tracker and Methodology](#)

# Singapore Supply, Use & Input-Output Tables 2023



The **Singapore Supply, Use and Input-Output Tables (SU-IOTs)** are made up of the Supply and Use Tables (SUTs) and the Input-Output Tables (IOTs). The SUTs provide **detailed information on production activities of an economy** by recording transactions between producers and consumers. Derived from the SUTs, the IOTs are used for **economic studies such as impact analysis from demand shocks and industry interdependence**.

In 2023, the total supply of goods and services in the Singapore economy, which comprises domestic output and imports, amounted to **\$2.9 trillion**. These are then used to meet different uses in the economy, such as intermediate consumption, domestic final demand and exports.



## Output Multiplier

### Output Multipliers of Key Industries

Transportation & Storage	1.61	
Wholesale Trade	1.37	
Manufacturing	1.34	

One commonly used IOT application is the **output multiplier** for measuring spillover effects on the output of the economy.

The **output multiplier** represents the total output produced by all industries in response to a dollar increase in the final demand for an industry's output.

### The Multiplier Effect Explained:

An output multiplier of 1.34 for the Manufacturing industry means that for every \$1 increase in demand for manufactured goods, such as for exports, **the total economic output will increase \$1.34**.

This breaks down into \$1 of direct effect from increased output by the Manufacturing industry to meet this demand, and \$0.34 of indirect effect from increased output by industries that provide inputs to the Manufacturing industry. This could include logistics services provided by the Transportation & Storage industry and electricity and water provided by the Utilities industry.

[Singapore's SU-IOTs 2023 Infographic](#)

[Latest SU-IOTs](#)

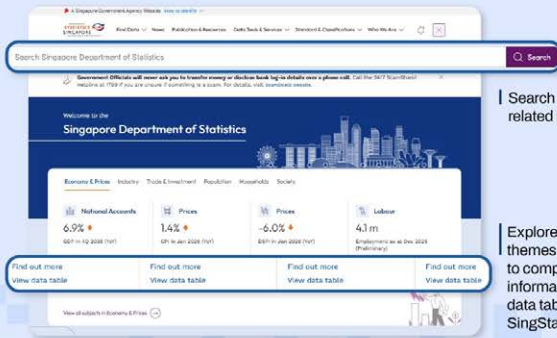
[Multipliers and Linkages 2023 infographics](#)

[SUTs Dashboard](#)

# The Revamped SingStat Website

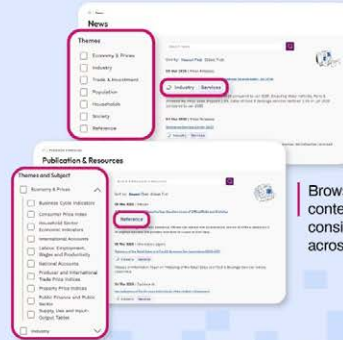
## What's New and Improved!

### Search *Easier*, Discover *More*



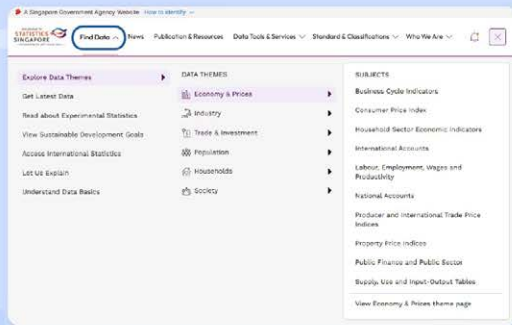
Search data and related information easily

Explore key statistics by themes, with direct links to comprehensive information and detailed data tables in the SingStat Table Builder



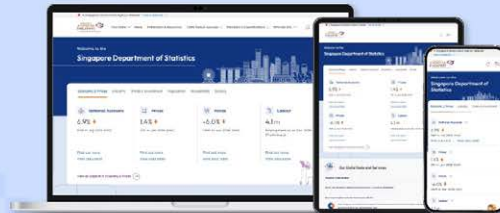
Browse and filter content easily with consistent labels across the site

### Navigate *Effortlessly*, Access *Quickly*

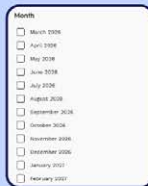


Navigate with main menu dropdowns that display information at a glance

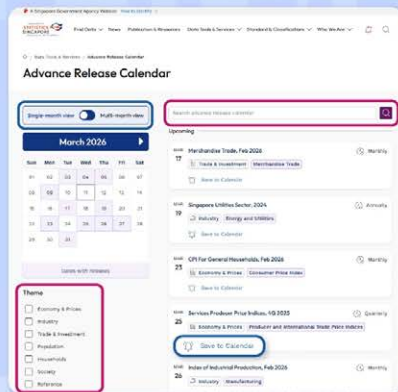
Enjoy a seamless experience across desktop and mobile devices



Toggle to multi-month view to see releases 12 months ahead



Search and filter for specific themes that interest you



Plan Ahead, Stay Informed

Save release dates to your personal calendar



Understand Better, Data Explained

Get clear explanations of trends, concepts, and frequently asked questions

#### Let Us Explain



##### Changes to the Key Household Income Trends 2025

Find out more about the changes to the income and household coverage in the Key Household Income Trends report.



##### Growing Beyond Borders

How does internationalisation contribute to Singapore?



##### Consumption Expenditures Explained

What are the differences between the Private Consumption Expenditure and Household Consumption Expenditure?



##### Understanding Wholesale Trade

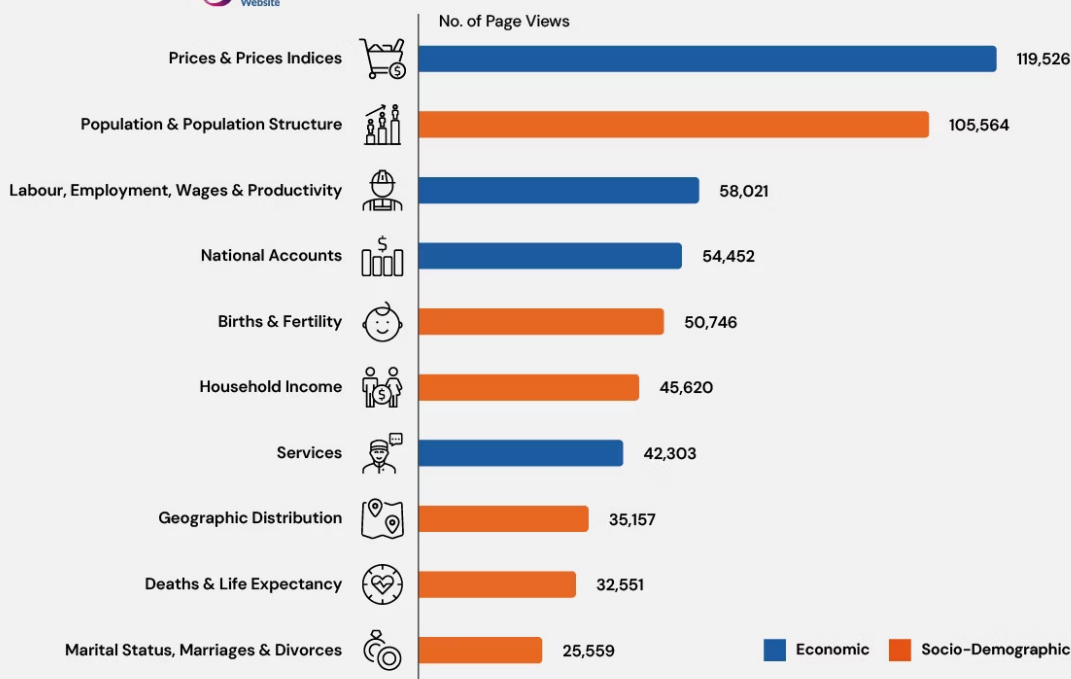
A sectoral analysis of the Wholesale Trade Industry.

Explore the Revamped SingStat Website!

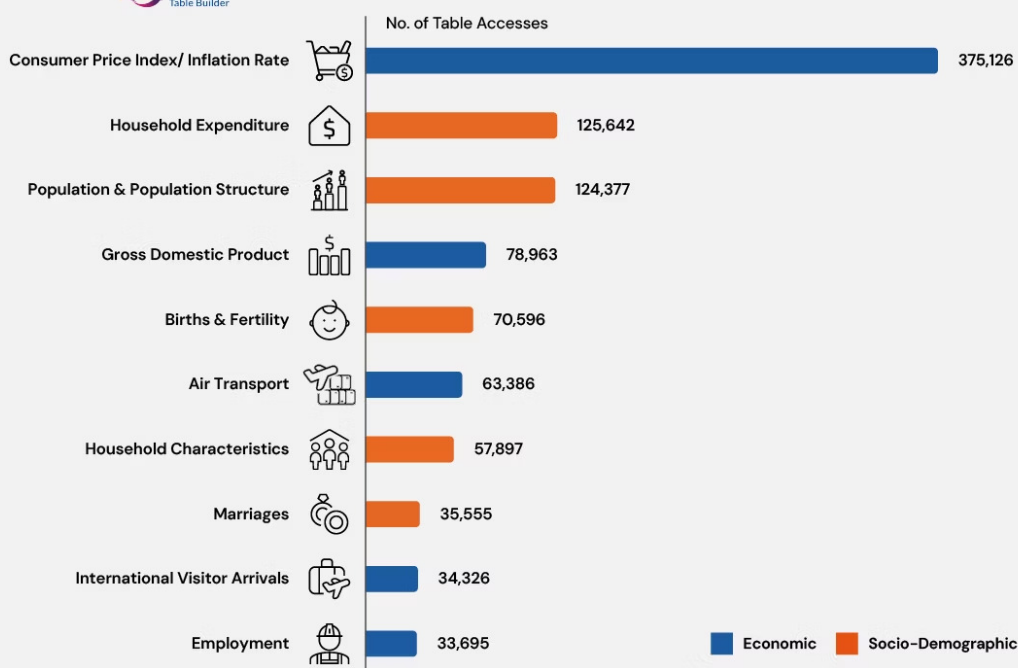
# Popular Data Topics Explored by Users in Singapore and Around the World in 2025



## SingStat Website Top 10 Subjects of Interest



## SingStat Table Builder Top 10 Topics of Interest



Explore data with:

SingStat Website

SingStat Table Builder

# Overseas Visitors

From October 2025 to March 2026, the Singapore Department of Statistics (DOS) hosted online sharing sessions with teams from New Zealand and Germany.



## Statistics New Zealand

Team led by **Ms. Kathy Connolly**, General Manager for Customer Services and Support



## German Federal Institute for Employment Research

Team led by **Prof. Jörg Drechsler**, Head of Statistical Methods Centre

## Expertise Sharing at International and Regional Fora

DOS shared our expertise at the following international and regional fora from October 2025 to March 2026:

### International Fora

#### ▼ 57th Session of the United Nations Statistical Commission (UNSC)

Represented by **Dr. Koh Eng Chuan** (DOS's Chief Statistician) as the keynote speaker at the seminar on *AI-readiness for Official Data and Statistics* and as a panel member at the side event on *Strengthening Data Governance for Official Statistics: Charting the Way Forward*, jointly organised by the General Authority for Statistics of Saudi Arabia, Statistics Finland, and the United Nations Statistics Division

#### ▼ 47th Session of the Advisory Committee on Post Adjustment Questions (Subsidiary Body of the International Civil Service Commission)

Represented by **Suzanne Wong** (Deputy Director, Business Statistics Division) and discussed on *guidance on the United Nations Cost of Living Surveys and related statistical matters*

#### ▼ United Nations (UN) World Statistics Day on Driving Change with Quality Statistics and Data for Everyone

Represented by **Dr. Koh Eng Chuan** (DOS's Chief Statistician) as a panel member for the discussion on *Innovations in Official Statistics to Leave No One Behind*

#### ▼ UN High-Level Group for Partnership, Coordination, and Capacity-Building Meeting

Represented by **Tang Hsiu Chin** (Director, Policy Planning Division) as a panel member for the discussion on *Utilising Advanced Technologies and Methodologies to Enhance Statistical Systems and Enable Sustainable Development*

#### ▼ 28th Meeting of the UN Advisory Expert Group on National Accounts

Represented by **Suzanne Wong** (Deputy Director, Business Statistics Division) and discussed on *issues pertaining to the implementation of the 2025 System of National Accounts as well as the ongoing research and development of emerging issues*

#### ▼ UN Committee of Experts on Business and Trade Statistics (UNCEBTS) Bureau Meeting

Represented by **Cui Hui Min** (Deputy Director, Business Statistics Division) as a Bureau member and discussed on *preparation for the UNCEBTS reports and supporting documents to be submitted to the UNSC meeting and progress update of UNCEBTS work programmes*

#### ▼ UNCEBTS Task Team on Statistical Business Register (TT-SBR)

Chaired by **Cui Hui Min** (Deputy Director, Business Statistics Division) and presented on *Progress Updates on the TT-SBR 2026 Research Agenda* on the polling results for the 2026 research agenda and proposed the approach for TT-SBR members to collaborate in the research and knowledge sharing

#### ▼ UN Trade and Development (UNCTAD) Task Group on Measuring E-commerce Value

Presented by **Ang Teng How** (Senior Assistant Director, Business Statistics Division) and **Mohammad Hazzely** (Senior Assistant Director, Business Statistics Division) on *Singapore's E-commerce Statistics: Analysis and Dissemination Strategies*

#### ▼ 29th Meeting of the Wiesbaden Group on Business Registers

Presented by **Aldric Han** (Assistant Director, Business Statistics Division) on the *Implementation of Singapore Standard Industry Classification (2025) in the SBR*

#### ▼ Organisation for Economic Co-operation and Development (OECD) Meetings of the Working Party on Financial Statistics, Working Party on National Accounts, and the Conference on National Economic and Financial Accounts

Presented by **Jackson Neo** (Senior Manager, Input-Output Tables Division) on *Singapore's Experimental Environmental Goods and Services Sector Accounts*

#### ▼ OECD Working Group on International Investment Statistics

Presented by **Sng Zhizhong** (Deputy Director, International Accounts Division) on *The Use of Artificial Intelligence (AI) in Foreign Direct Investment Compilation*

## Regional Fora

### ▼ 15th Session of the ASEAN Community Statistical System Committee (ACSS)

Represented by **Priyadharshini Navaratnam** (Director, Communications & Engagement Division) and presented on *DOS's Role in Empowering ASEAN with Disaggregated and Open Data: SingStat Table Builder and Statistics AND Data Retrieval A.I. Assistant (SANDRA), DOS's A.I. Chatbot*

### ▼ 31st Meeting of ACSS Sub-Committee on Planning and Coordination

Co-chaired by **Priyadharshini Navaratnam** (Director, Communications & Engagement Division) and represented by **Cheng Ze Ying** (Senior Assistant Director, Communications & Engagement Division) with discussions on *the Implementation of the ACSS Action Plan 2026–2030 and Key Deliverables for 2026*

### ▼ China–ASEAN Statistical Cooperation & Development Forum 2025

Presented by **Malcolm Cai** (Director, Research Division) on the *Application of AI/ Machine Learning in Data Creation, Processing, and Dissemination*

### ▼ 2024 International Comparison Programme for Asia and the Pacific Regional Data Validation Workshops

Presented by **Yap Wei Ni** (Deputy Director, Prices Division) on *Domestic Supply Price Index – Machinery & Transport Equipment Sub Index*

### ▼ Asia–Pacific Economic Cooperation Secretariat Virtual Workshop on Estimating and Measuring Digital Trade

Represented by **James Teo** (Deputy Director, International Accounts Division) and presented by **Andrew Goh** (Assistant Director, International Accounts Division) on *Singapore's Experience in Developing Digital Trade Estimates*

### ▼ UN Statistical Institute for Asia and the Pacific and the Statistics Bureau of Japan Collaboration Seminar

Presented by **Edmond Lee** (Group Director, Social and Prices) on *Singapore's Administrative and Big Data First Strategy and User-Centric Data Dissemination*

### ▼ UN Economic and Social Commission for Asia and the Pacific (UNESCAP) Asia–Pacific Stats Café Series: Chatbots for Statistics Portals

Presented by **Priyadharshini Navaratnam** (Director, Communications & Engagement Division) on *Singapore DOS's AI Chatbot SANDRA*

### ▼ UNESCAP Asia–Pacific Stats Cafés Series: AI

Presented by **Tay Jun Wen** (Deputy Director, Data Products and Innovation Division) on *Lessons learned from AI Pilot Initiatives: What Worked, What didn't Work, and Why*

### ▼ Digital Transformation of Official Statistics organised by the Republic of Kazakhstan

Presented by **Lim Yi Ding** (Director, Trusted Centre for Individual and Business Data) on *Strengthening Partnerships with Key Stakeholders and Providing User-centric Statistical Services and Data Products in DOS*

📌 For updates on DOS's participation in International and Regional Fora, follow DOS on LinkedIn!



 LinkedIn

#### DOS profiles participation in overseas and regional fora

The Singapore Department of Statistics (DOS) develops and maintains a national statistical service of quality, integrity and expertise. As the National Statistical Offic...



## Hear from Our Officers on Their International Statistical Involvement

Aldric Han  
Business Statistics Division

The Statistical Business Register (SBR) plays a critical role in supporting the production of economic and business statistics across National Statistical Offices (NSOs) globally. As a cornerstone of modern statistical systems, the SBR provides a comprehensive coverage of the economic units for survey frame production used in sample selections for business surveys, facilitates the compilation of economic and business indicators, and supports in-depth analysis for policy insights.

The Wiesbaden Group on Business Registers is an international expert group under the umbrella of the United Nations Statistical Commission (UNSC). The Wiesbaden Group brings together leading statistical practitioners and researchers globally to facilitate knowledge exchange on the development, maintenance and use of statistical business registers[1]. Convening biennially, the 29th Wiesbaden Group meeting took place from 27 to 31 October 2025 in South Africa, with active participation from the Singapore Department of Statistics (DOS). This meeting brought together statistical experts to discuss technical innovations, exchange implementation experiences, and explore solutions for emerging data demands in statistical business register management.

DOS contributed to the discussions by sharing experience on the implementation of the Singapore Standard Industrial Classification (SSIC) 2025 in the SBR. SSIC 2025 is the latest edition and adopts the basic framework of the latest International Standard Industrial Classification of All Economic Activities Revision 5 (ISIC Rev. 5) developed by the United Nations Statistics Division. The SSIC 2025 covers over 980 economic activities with systematic recoding of all firms in the SBR from the previous SSIC 2020.

### Panel on the 29th Wiesbaden Group meeting featuring DOS representative (centre) and international experts from the United Arab Emirates, Eurostat, and Mexico



The presentation showcased DOS's multi-pronged strategy, which combined automated processes with human expertise based on the complexity of correspondence between the SSIC 2020 and SSIC 2025. Key innovations included the development of a machine learning-based SSIC Remapper tool which used sentence embeddings to assist with complex classification scenarios, and the implementation of double-coding in both SSIC 2020 and 2025 to support historical data backcasting. The implementation focused on ensuring comprehensiveness, coherence, and timeliness through quality assurance processes and stakeholder engagement. Additionally, DOS implements the SBR 'spine' approach where it serves as an infrastructure for microdata linkage and has the flexibility to integrate additional datasets for tracking emerging economic activities.

DOS's sharing of practical methodologies resonated with the international audience. As one of the early adopters of ISIC Rev. 5, this experience serves as a useful reference for other NSOs in developing their strategies and work plans for implementing ISIC in their SBRs.

DOS gained insights from international experts on innovative approaches to the development and maintenance of SBR. These knowledge exchanges could provide guidance to DOS's ongoing efforts in enhancing the SBR and developing new data products and analytical capabilities. DOS will continue to participate actively in international platforms to stay informed about the latest international developments in SBR, while contributing to the broader advancement of the global statistical community.

[1] More details are available at [Wiesbaden Group on Business Registers](#).

[2] The SSIC is the national standard for classifying economic activities undertaken by economic units in Singapore. It is widely used in censuses of population, household and establishment surveys, as well as in administrative and statistical databases. The SSIC is reviewed and updated regularly to reflect developments in the Singapore economy, particularly the emergence of new economic activities as well as to align with changes in international standards.