

Rebasing and Release of More Granular Services Producer Price Indices

by Chan Zi Qi and Llewellyn Ho,
Producer Price Indices Section, Prices Division
Singapore Department of Statistics

Introduction

The Singapore Department of Statistics (DOS) compiles a suite of Services Producer Price Indices (SPPIs) to measure the changes in the average prices of services produced by establishments, for selected industries of the Singapore economy. SPPIs facilitate the analysis of macro-economic conditions and in monitoring price movements of the services sector. In the national accounts, SPPIs are used to deflate the value added and output of each service industry.

This article highlights some of the initiatives DOS has undertaken to improve data sharing with the general public, as well as key insights from the rebasing of the Accounting Services, Freight Forwarding and Sea Freight Transport price indices to base year 2022.

Public Release of More Granular SPPIs

Quarterly SPPI reports consisting of selected prices indices at the overall level were published since 2020.

Figure 1 shows an extract of the Sea Freight Transport Price Index (SFTPI) in the inaugural SPPI report.

To enable greater data sharing, DOS recently revamped the report to include more granular sub-indices of the SPPIs. This is useful for businesses to better track movements of prices in the services industries to evaluate their competitiveness. The full list of SPPIs and their sub-indices are indicated in Table 1.

Alongside the inclusion of more granular sub-indices of the SPPIs, the revamped SPPI report incorporates the use of bold colours and visuals to better engage data users and make it more reader-friendly. Figure 2 shows an extract of the SFTPI in the revamped report.

In addition to the revamped SPPI report, a new interactive dashboard was released to visualise the SPPIs clearly and concisely for quick identification of key trends, patterns and insights. Figures 3 shows a screenshot of the dashboard.

FIGURE 1 INAUGURAL QUARTERLY SPPI REPORT: EXTRACT OF THE SFTPI

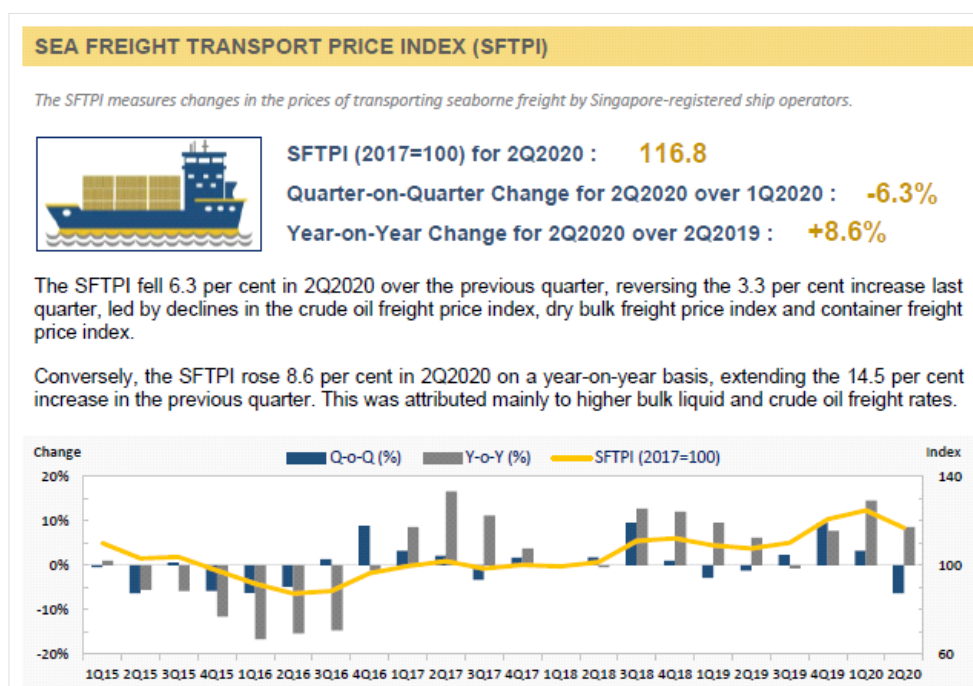


TABLE 1 LIST OF SPPIs AND THEIR SUB-INDICES

	Accounting Services Price Index (ASPI) - Accounting & Auditing - Book-keeping
	Cargo Handling Price Index (CHPI) - Container Depot Services - Crane Services - Stevedoring Services
	Computer Consultancy & Information Services Price Index (CISPI) - Computer Programming & Consultancy - Information Services & Online Marketplaces
	Freight Forwarding Price Index (FFPI) - Sea Freight - Air Freight - Land Freight
	Sea Freight Transport Price Index (SFTPI) - Containerised Freight Transport - Dry Bulk Freight Transport - Liquid Bulk & Gas Freight Transport
	Telecommunication Services Price Index (TSPI) - Wired & Wireless Services - Internet Access Providers & Others
	Warehousing & Storage Price Index (WSPI) - General & Refrigerated Warehousing - Dangerous Goods Storage

FIGURE 2 REVAMPED QUARTERLY SPPI REPORT: EXTRACT OF THE SFTPI

SEA FREIGHT TRANSPORT PRICE INDEX			
Overall Index, Percentage Change			
		Quarter-on-Quarter 1Q 2023 / 4Q 2022	Year-on-Year 1Q 2023 / 1Q 2022
	Sea Freight Transport	▼ -13.9%	▼ -15.8%
Sub-Indices, Percentage Change			
	Containerised Freight Transport	▼ -19.7%	▼ -47.5%
	Dry Bulk Freight Transport	▼ -16.0%	▼ -21.2%
	Liquid Bulk & Gas Freight Transport	▼ -7.4%	▲ 65.2%

Quarter-on-quarter

The SFTPI fell 13.9 per cent in 1Q2023, extending the 8.3 per cent decline in 4Q2022. This was caused by lower freight rates across the freight water transport industry as the Containerised Freight Transport, Dry Bulk Freight Transport, and Liquid Bulk & Gas Freight Transport Price Indices fell 19.7 per cent, 16.0 per cent and 7.4 percent respectively.

Year-on-year

On a year-on-year comparison, the SFTPI dropped 15.8 per cent in 1Q2023, continuing the 6.8 per cent decline in 4Q2022, due mainly to lower freight charges for the Containerised Freight Transport and Dry Bulk Freight Transport Price Indices which fell 47.5 per cent and 21.2 per cent respectively.

FIGURE 3 SPPI INTERACTIVE DASHBOARD



Rebasing Exercise for SPPIs

Rebasing exercises are conducted every four to five years to ensure that the weighting structure and the coverage of services products of the SPPIs are representative of the market share and the latest activities of the services industries.

In 2022, four of the SPPIs were rebased to base year 2021¹. In 2023, the Accounting Services Price Index (ASPI), Freight Forwarding Price Index (FFPI) and Sea Freight Transport Price Index (SFTPI) were rebased to base year 2022, introducing changes to weighting patterns as well as improvements to the methodology for the compilation of these indices.

The weights of the SPPIs and their sub-indices were mainly derived from Operating Revenue (OR) data collected from DOS's surveys, supplemented by administrative data where available.

Accounting Services Price Index (ASPI)

Business advisory and tax services saw notable increases in weights, as compared to accounting and auditing services. The demand for business advisory

and tax services may have been driven by changes in tax rules such as the Base Erosion and Profit Shifting (BEPS) 2.0 framework² and the demand for more family offices³.

Figure 4 shows the index structure, weights, and changes in weights in percentage-point of the ASPI from base year 2017 to 2022.

Freight Forwarding Price Index (FFPI)

The rank order of the freight forwarding transport mode remained the same across the two base years with Sea Freight Forwarding being the largest weight contributor, followed by Air Freight Forwarding and Land Freight Forwarding. In the 2022-based FFPI, the weight share for Air Freight Forwarding increased 6.1 percentage points, rising from 35.3 percent to 41.4 percent. In contrast, the Sea Freight Forwarding and Land Freight Forwarding weights share declined 5.5 percentage points and 0.6 percentage points respectively.

Figure 5 depicts the index structure, weights, and changes in weights in percentage-point of the FFPI from base year 2017 to 2022.

FIGURE 4 CHANGES IN INDEX STRUCTURE AND WEIGHTING PATTERNS OF THE ASPI

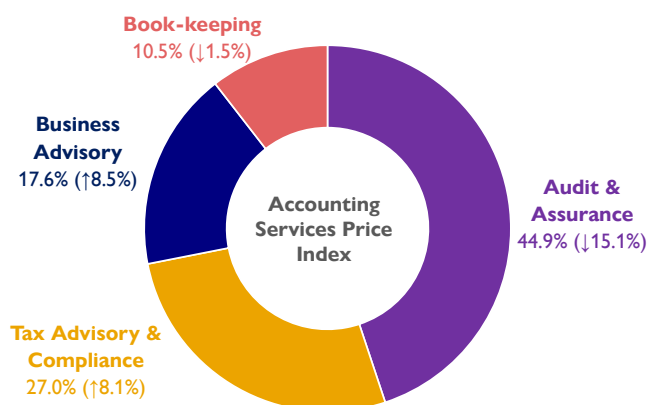
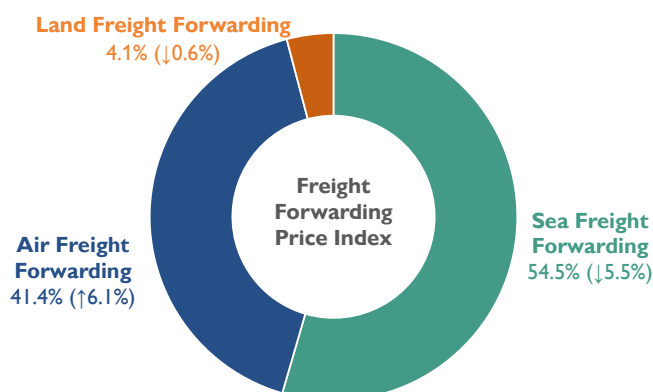


FIGURE 5 CHANGES IN INDEX STRUCTURE AND WEIGHTING PATTERNS OF THE FFPI



1 Read about this 2022 rebasing exercise from the SSN Issue 2, 2022: <https://www.singstat.gov.sg/-/media/files/publications/reference/newsletter/ssn222.ashx>

2 "Singapore businesses, don't underestimate impact of new tax rules": <https://home.kpmg.sg/en/home/media/press-contributions/2022/12/impact-of-new-global-minimum-tax-rules-on-sg-businesses.html>

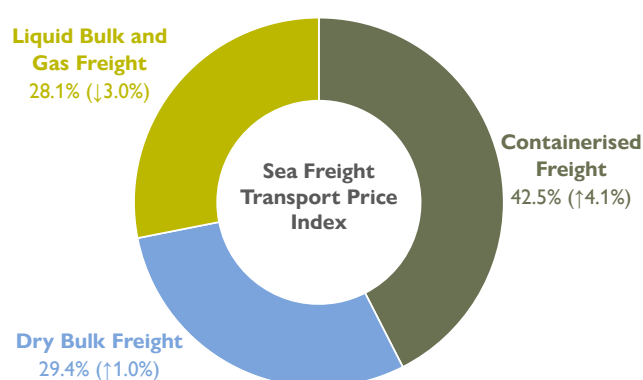
3 "More ultra-wealthy families setting up offices in Singapore, and they're not just coming from Asia ": www.channelnewsasia.com/singapore/family-offices-ultra-rich-set-singapore-financial-sector-3182131

Sea Freight Transport Price Index (SFTPI)

In the 2022-based SFTPI, the Containerised Freight Transport Price Index continued to be the largest contributor to the weights at 42.5 per cent, increasing 4.1 per cent from the 2017-based SFTPI, mainly due to a surge in demand for container shipping across key trade routes. This was followed by the Dry Bulk Freight Transport Price Index (29.4 per cent) and Liquid Bulk and Gas Freight Transport Price Index (28.1 per cent).

Figure 6 highlights the index structure, weights, and changes in weights in percentage-point of the SFTPI from base year 2017 to 2022.

FIGURE 6 CHANGES IN INDEX STRUCTURE AND WEIGHTING PATTERNS OF THE SFTPI



Key Methodological Enhancements

Improved Data Collection Processes

Data collection processes were refined to improve data quality and reduce respondent burden where possible.

Typically, a separate industry survey would be conducted before the preliminary price survey to collect the OR breakdown for weights computation. This was necessary for DOS to correctly identify services products in order to collect data from the respondents based on their revenue contribution.

For the ASPI, based on knowledge of the industry and internet research, DOS was able to send a simplified industry survey questionnaire, along with the preliminary price survey, to the respondents. This greatly reduced the amount of effort required by respondents while shortening the time required for DOS to complete the rebasing exercise.

In the case of the SFTPI, the pricing of voyage charter services was challenging due to the volatility of freight rates in the voyage charter⁴ market, especially given its importance to the industry as compared to time charter voyages⁵.

Therefore, companies providing voyage charter services were requested to provide the Time Charter Equivalent (TCE) where available. The TCE is a shipping industry measure to compare spot rates on a period-to-period basis and reflects price changes more accurately.

DOS will continue to monitor the TCE rates to ensure that it is reflective of the voyage charter market prices.

Updated Coverage of Services Products and Companies

To ensure that the coverage of services products was representative of the current activities and market share of the industry, the sample of the companies was revised for the rebased FFPI and SFTPI.

For the FFPI, more than half of the companies in the 2022-based index were newly surveyed, while the remaining companies were representative firms carried over from the 2017-based FFPI. This reduced respondent fatigue and maintained the quality of data over time.

For the SFTPI, the Lavallee-Hidioglou⁶ method for stratified sampling was adopted to reduce the overall sample size while ensuring that the coverage of the water transport industry remained sufficient and representative.

4 Voyage Charter is a type of ship chartering whereby the charterer hires out a ship for a specific voyage to transport cargo from a loading port to a discharge port.

5 Time charter is a type of ship chartering whereby the charterer hires out a ship for a specified period of time.

6 The Lavallee-Hidioglou method stratifies the population into two or more size strata. The firms in the large size stratum are selected with certainty, whereas the firms in the smaller size strata are sampled using simple random sampling without replacement.

FIGURE 7 PRICE TREND COMPARISON OF THE 2017-BASED AND 2022-BASED ASPI, FFPI AND SFTPI

Comparison of Price Trends

Figure 7 compares the price trends between the 2017 and 2022-based price indices. This evaluation of the three SPPIs spans from the first to the fourth quarter of 2022, in which the period overlaps both base years. While there were differences in the magnitude of change between the two series, the price trends of the rebased ASPI, FFPI and SFTPI generally moved in the same direction. Any deviation in price trends was attributed mainly to the changes in weightage and coverage of services products.

Future Plans

DOS constantly reviews and refines data collection methods, while maintaining the data quality of the SPPIs.

To minimise respondent burden and reduce the costs of data collection, the use of Internet prices and administrative data will be explored.

The use of administrative data increases the coverage of products to ensure that the indices are representative of current market activities.

Concurrently, survey respondents of these price surveys are encouraged to adopt e-survey as their preferred mode of survey submission for greater convenience and flexibility, thereby facilitating the data collection process.

Lastly, DOS is experimenting with the development of new SPPIs to meet the needs of data users. Keep a look out for them!