

# PERSPECTIVE

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## **COVID-19's Economic Impact on Tourism in Singapore**

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Prior to the pandemic, the tourism sector in Singapore had been steadily growing over the years. People gather along the promenade near the Merlion statue at Marina Bay in Singapore on 25 December 2020. Picture: Roslan RAHMAN, AFP.

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**EXECUTIVE SUMMARY**

- Prior to the pandemic, the tourism sector in Singapore had been steadily growing over the years. From 2007 to 2019, total international visitor arrivals and tourism receipts both grew annually at an average of 4.5% and 5.0% respectively.
- Amongst the five components of tourism receipts, the ‘Shopping’ component generates the highest total value added (VA), and so contributes the most to GDP. Individuals employed in the industries under the ‘Shopping’ component also enjoy the highest employee compensation coefficient.
- The GDP generated from all tourism receipts has remained relatively constant at around 4% over the years. However, since the pandemic, spending patterns have changed, resulting in a slight dip in the magnitude in VA captured per dollar of tourism receipt.
- Tourism from travel bubbles is not able to generate high VA such that it contributes significantly to GDP. They do however make a marked difference in industries that are highly tourist-oriented.
- To generate high VA from tourism, Singapore needs to implement travel bubbles with China, Indonesia, India, Australia, Malaysia and Japan. Unfortunately, such arrangements depend on the COVID-19 situation in both Singapore and these countries.

**INTRODUCTION**

Singapore’s tourism industry has grown over the years and has become relatively sizeable. From 2007 to 2019, total international visitor arrivals and total tourism receipts both grew annually at an average of 4.5% and 5.0%, respectively. Within Southeast Asia, Singapore has the third highest amount in international tourism receipts, behind Thailand and Malaysia, amounting to US\$20.4 billion in 2019 (World Bank, 2019). Globally, Singapore was the 25<sup>th</sup> most visited country in the world (by number of arrivals) and had the 22<sup>nd</sup> highest amount in international tourism receipts in 2019 (UNWTO, 2020).

Overall, there has been a steady growth in international arrivals and tourism receipts (Figure 1). However, the tourism industry was adversely affected in 2008-2009 due to the Great Financial Crisis; this downturn pales in comparison to the devastating impact of the COVID-19 pandemic; over the last three quarters, Singapore suffered a 43.2 - 99.5% decrease in number of visitors and 39.0 - 96.6% decrease in tourism receipts. For the sake of comparison, the largest decrease experienced during in Great Financial Crisis was for 2009 Q1 when international arrivals and tourist receipts fell by 13.6% and 18.2% year-on-year respectively. This is minuscule when compared to the recent decline.

**Figure 1: Total International Inbound Tourists and Total Tourism Receipts (2007 Q1 to 2020 Q3)**

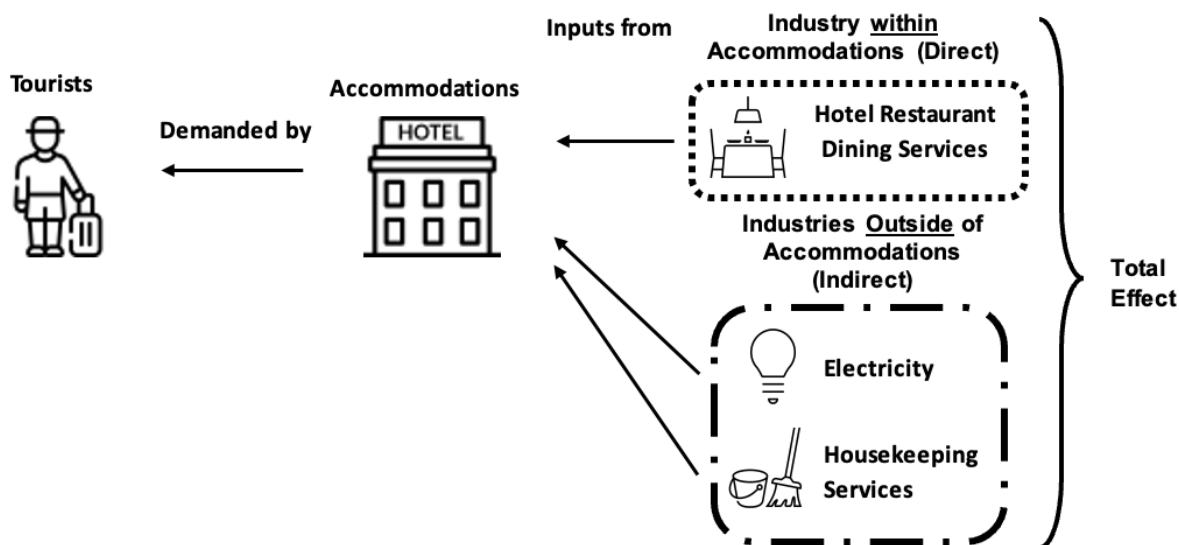


Source: (DOS, 2021a; STB, 2021)

**HOW TOURISM AFFECTS SINGAPORE’S ECONOMY**

Tourism contributes to the Singapore economy by increasing the demand for goods and services through tourist receipts. It also contributes through the demand for inputs used to produce these goods and services. For example, when tourists stay at hotels, they use the amenities provided and also dine in hotel restaurants. Thus, tourists’ demand for accommodation in turn generates demand for electricity and housekeeping services (other industries not part of the accommodations industry) and hotel restaurant dining services (within the accommodations industry) (Figure 2).

**Figure 2: Diagram illustrating the effect of tourists' demand for accommodations**



The effect of economic activity generated by tourism shown here is a sum of two sources. The first source effect is *directly* generated by the final demand industry which it is from (Accommodations industry). The second is the total value *indirectly* generated by tourism; the sum of all the effects generated by all other industries outside of the final demand industry producing inputs for the final demand industry (all other industries excluding accommodations). A sum of both the direct and indirect effect expresses the total economic effect of tourism.

Singapore's tourism receipts have been segregated into five categories: Accommodations; Food and Beverages; Shopping; Sightseeing, Entertainment and Gaming, and; Others. The first three categories correspond to the accommodations, Food and Beverages services and retail trade industries, respectively. The 'Sightseeing, Entertainment and Gaming'<sup>1</sup> component includes "entrance fees to attractions and nightspots, expenditure on day-tours, leisure events as well as entertainment in the Integrated Resorts (IRs)" (STB, 2020). This leaves the 'Others'<sup>2</sup> component, which comprises of "expenditure on airfares on Singapore-based carriers, port taxes, local transportation, business, medical, education-related items and expenditure by transit/transfer visitors" (STB, 2020).<sup>3</sup>

## EFFECT OF TOURISM RECEIPTS BY COMPONENTS

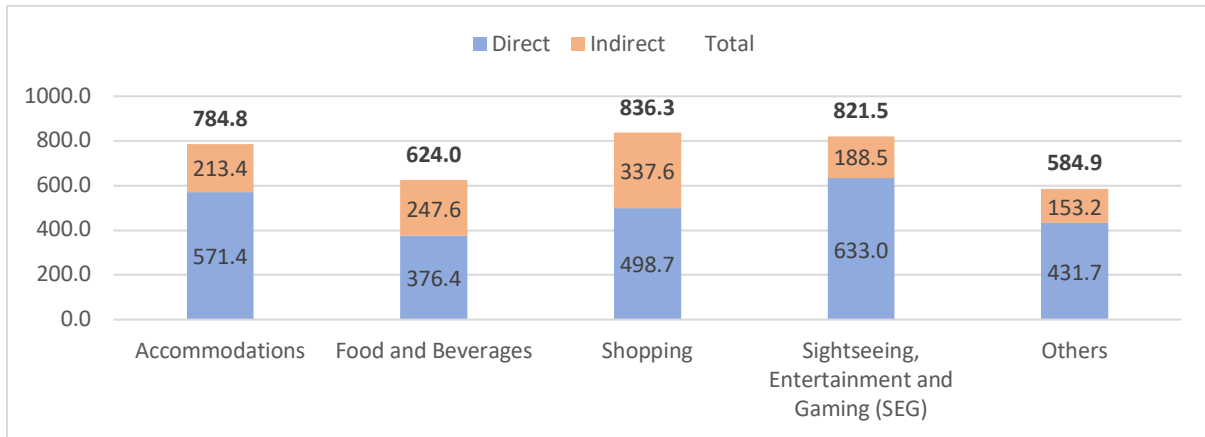
### (a) Value-Added (VA) Coefficient

Simply put, the value added (VA) generated is equivalent to the Gross Domestic Product (GDP) generated; a sum of the VA generated by all industries gives the GDP of Singapore. From a more technical perspective, value added is derived by subtracting the total cost of purchased inputs (e.g. intermediate and raw inputs from other industries) from the selling price. The VA coefficient captures the amount of VA generated for every \$1000 of final goods purchased by tourists. A higher VA translates into a higher GDP.

Based on the data, tourists generate the greatest total VA by spending on the 'Shopping' component. The 'shopping' component also generates the greatest VA in indirect effects.

On the other hand, spending on the ‘Others’ component generates the lowest total and indirect VA (Figure 3). In other words, it would be more beneficial for Singapore’s GDP if tourists were to spend more on the ‘Shopping’ component rather than on the ‘Others’ component.

**Figure 3: Direct and total value-added coefficients of major tourist receipt components (\$)**



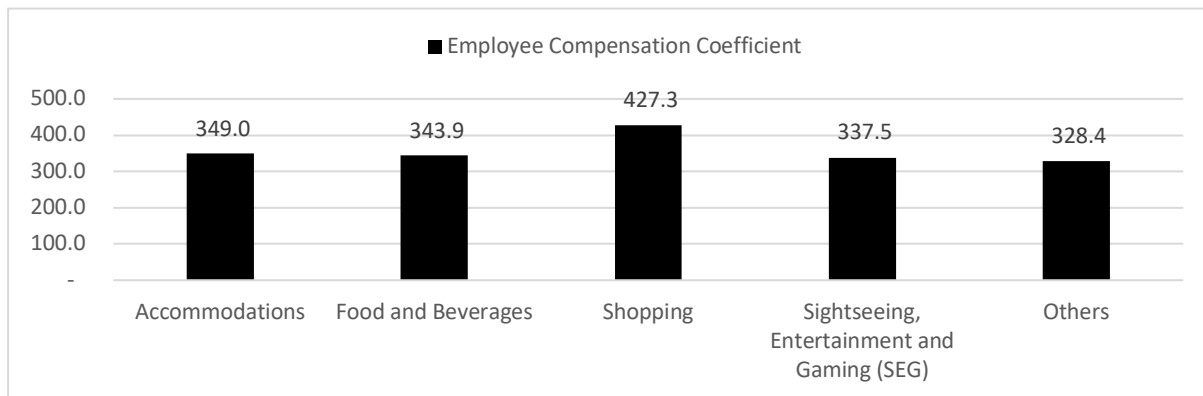
Source: Author’s calculation based on (DOS, 2021b; STB, 2021)

This is a surprising find given that the industries under the ‘Shopping’ component are likely to have a high share of imports as inputs. Thus, a large share price paid for final goods by tourists is expected to be paid to imports instead of VA. One would expect the ‘SEG’ component to generate the highest total VA given that the primary inputs for this component are infrastructure and labour; infrastructure would likely have already been paid for from past investments.

(b) Employee Compensation Coefficient

To better understand the impact tourism has on the salary of employees, we take a deeper look into the employee compensation coefficient of the primary input requirement coefficients of final demand. The employee compensation coefficient indicates the amount paid to employees for every \$1000 of final output purchased by tourists.

**Figure 4: Employee Compensation Coefficient of major tourist receipt components (\$)**

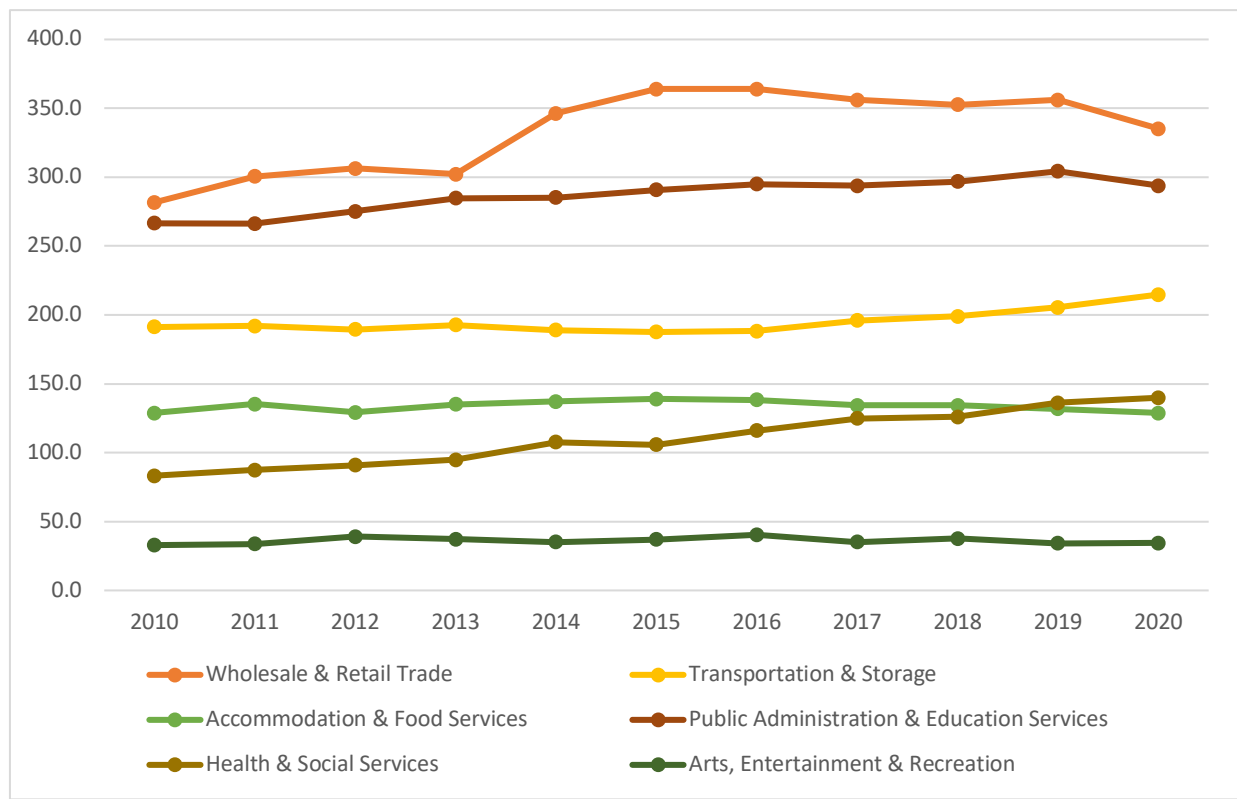


*Source: Author’s calculation based on (DOS, 2021b; STB, 2021)*

Similar to the trends in VA, the impact on employee salaries is the greatest when tourists spend on ‘Shopping’ while the lowest impact is from spending on the ‘Others’ component. (Figure 4). About \$427 of \$1000 spent by tourists on ‘shopping’ are paid as employee salaries, while only about \$328 is paid to workers employed in the ‘Others’ category.

Looking at the number of employed individuals in industries that are related to tourism spending categories,<sup>4</sup> there appears to be a slight increasing trend across all industries from 2010 to 2019. However, from 2019 to 2020, the number of employed residents in the wholesale & retail trade, public administration & education services and accommodation & food services sectors have fallen slightly. While not all changes observed can be attributed *only* to the lack of tourism in Singapore, overall, there seems to be a decrease in employment in these sectors related to tourism spending categories. Assuming that the total amount paid to employee salaries in these sectors remain the same, salary per capita would have increased. However, the total amount paid to employee salaries is likely to have decreased given the lack of demand for their services and the poorer economic outlook; employee salary per capita would have either remained the same or decreased.

**Figure 5: Number of Employed Residents aged 15 years and above by Selected Industries (Thousands)**



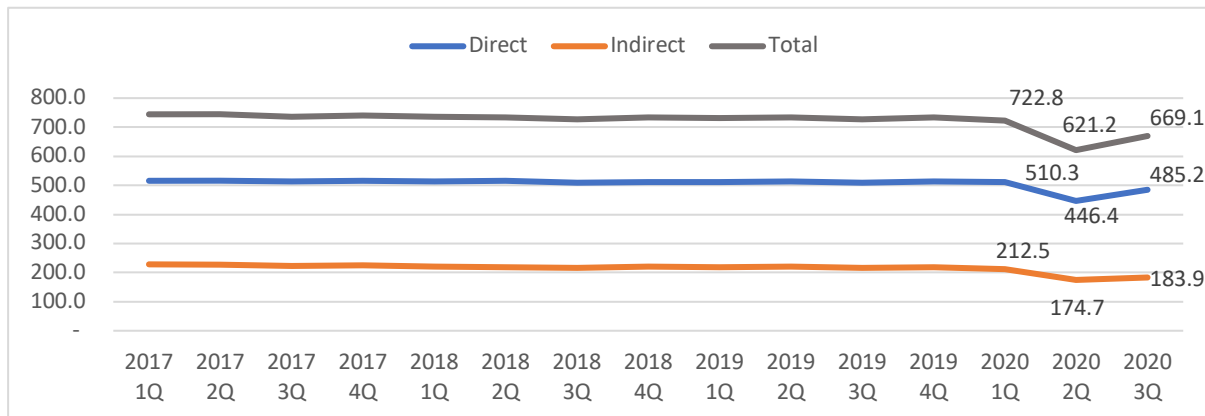
**OVERALL EFFECT OF TOURISM**

To understand the overall impact tourism has on Singapore, a tourism coefficient is calculated based on the major components of tourism receipts and corresponding industries from the 2017 input-output tables (DOS, 2021b).<sup>5</sup>

(a) Overall Value-added (VA) Coefficient

The overall VA coefficient provides an estimate of how much VA is generated for every \$1000 spent by tourists, regardless of spending category. Over the last few years, the total VA generated has remained around \$735 for every \$1000 spent by tourists (Figure 6). However, it has dipped since the start of the pandemic in Q1 2020. The indirect and direct effects follow the same trend.

**Figure 6: Value-added coefficient of tourist receipts by quarter (\$)**

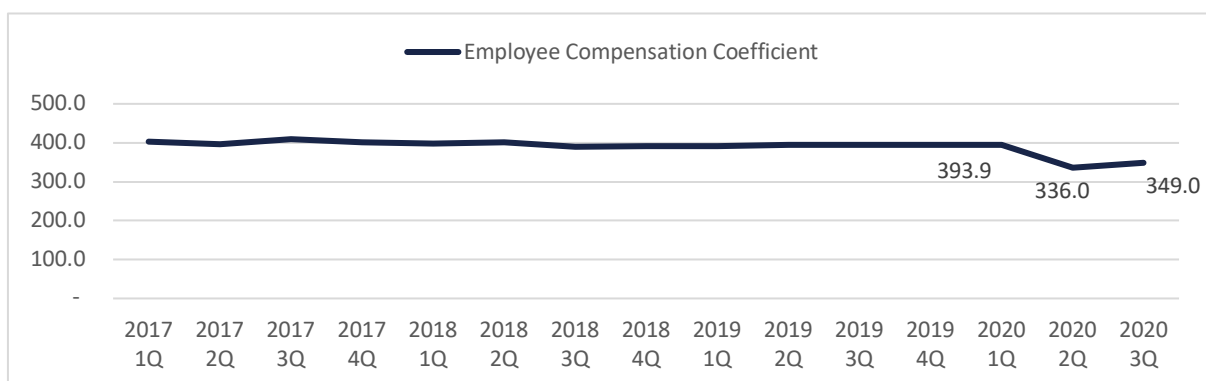


Source: Author’s calculation based on (DOS, 2021b; STB, 2021)

(b) Overall Value-Added (VA) Coefficient

Similarly, the employee compensation coefficient has been kept at around \$397 for every \$1000 spent by tourists over the last few years (Figure 7). This has dipped quite a bit since the start of the pandemic in Q1 2020.

**Figure 7: Employee Compensation Coefficient of tourist receipts by quarter (\$)**



Source: Author’s calculation based on (DOS, 2021b; STB, 2021)

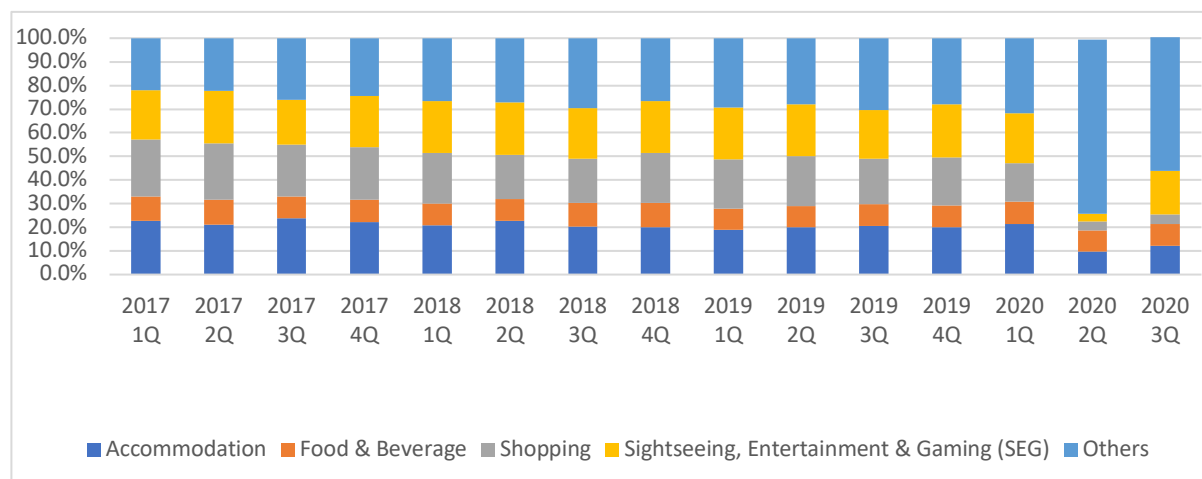
(c) Reason for Change in Coefficient Magnitude

The change in coefficient magnitudes over the last few quarters for both VA and employee compensation can be explained by the change in tourists’ consumption pattern (Figure 8). A greater share of tourism receipts was spent on the ‘Others’ component from Q2 2020 onwards (after the pandemic started), while the share of tourism receipts for ‘Shopping’ and ‘Accommodations’ fell and remained low. The ‘Others’ component has the lowest VA and employee compensation coefficient. On the other hand, both ‘Shopping’ and ‘Accommodations’ have the highest and second highest coefficients for both VA and employee compensation. With a larger share of spending on the ‘Others’ component and



lower share of spending on ‘Shopping’ and ‘Accommodations’, the magnitude of the overall coefficient is pushed downwards.

**Figure 8: Share of tourist receipts by components over time (%)**



Source: (DOS, 2021a)

There are a few possible explanations for the drastic change in the consumption pattern. For Q2 2020, the share of tourist expenditure on ‘Shopping’ and ‘SEG’ fell because all retail shops and tourist attractions were closed with the implementation of the ‘Circuit Breaker’ (CB). At the same time, the entry and transit ban implemented in late March was partially lifted in early June; foreigners were allowed to transit in Singapore and ‘Fast Lane’ arrangements were made for essential business and official travel between Singapore and six Chinese municipalities. Thus, since transit passengers’ expenditure fall under the ‘Others’ component, the relative share of expenditure spent under the ‘Others’ component rose. With only Chinese visitors, who seem to spend a relatively lower share on ‘Accommodations’ (STB,2021), on official business entering Singapore, the relative share of spending on ‘Accommodations’ fell.

From Q3 2020, ‘Reciprocal Green Lane’ and ‘Air Travel Pass’ arrangements were made with several countries.<sup>6</sup> These helped to increase the number of tourists, resulting in an increase in total amount of tourism receipts quarter-on-quarter (59%) and the ‘SEG’ and ‘Accommodations’ shares of expenditure. The ‘Others’ component was likely to have remained as a dominant expenditure component as transit passengers might have formed the bulk of Singapore’s visitors. In addition, with the increased inconvenience of travelling (e.g. multiple tests, stay-home notices), individuals are likely to only travel to Singapore for activities that cannot be delayed, such as medical treatment, education, and business-related matters; expenditure for all these also fall under the ‘Others’ component.

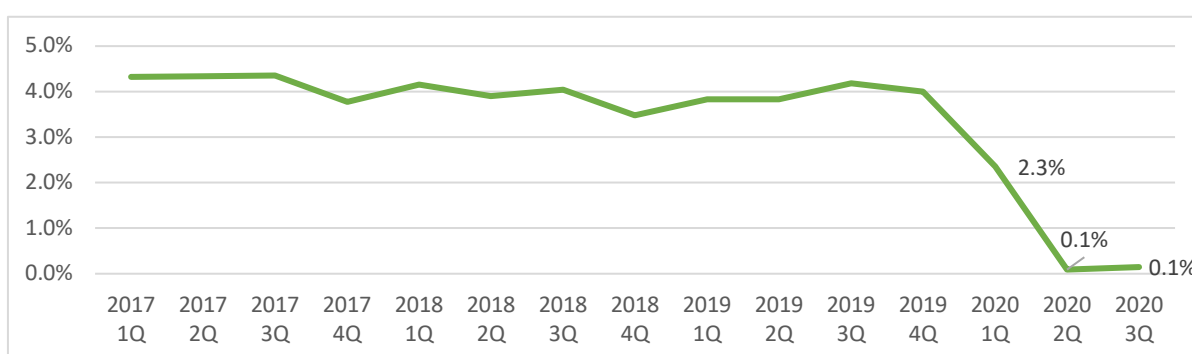
(d) Tourism’s Contribution to GDP

By multiplying the tourism receipts with their respective VA multipliers, the total VA generated by tourism can be estimated. Prior to the pandemic, tourism’s contribution to GDP had been around 4% (Figure 9). To keep things simple, only direct and indirect effects

were taken into consideration for the calculations. In reality, there are ‘induced’ effects on top of direct and indirect effects; induced effects capture the subsequent effects of purchases made by employees of the various industries increasing the impact magnitude of tourism spending. Thus, 4% is an underestimation of tourists’ contribution to the GDP. Based on past studies of the impact of tourism on Singapore’s GDP, incorporating the induced effects is likely to result in a significant jump in contribution (Khan et al., 1990).

The pandemic has resulted in the implementation of tight travel restrictions and lockdowns, resulting in a severe drop in the number of tourists visiting our shores. Naturally, the amount of tourism receipts decreased drastically, resulting in a significant drop in contribution to GDP.

**Figure 9: Tourism’s contribution to GDP (%)**



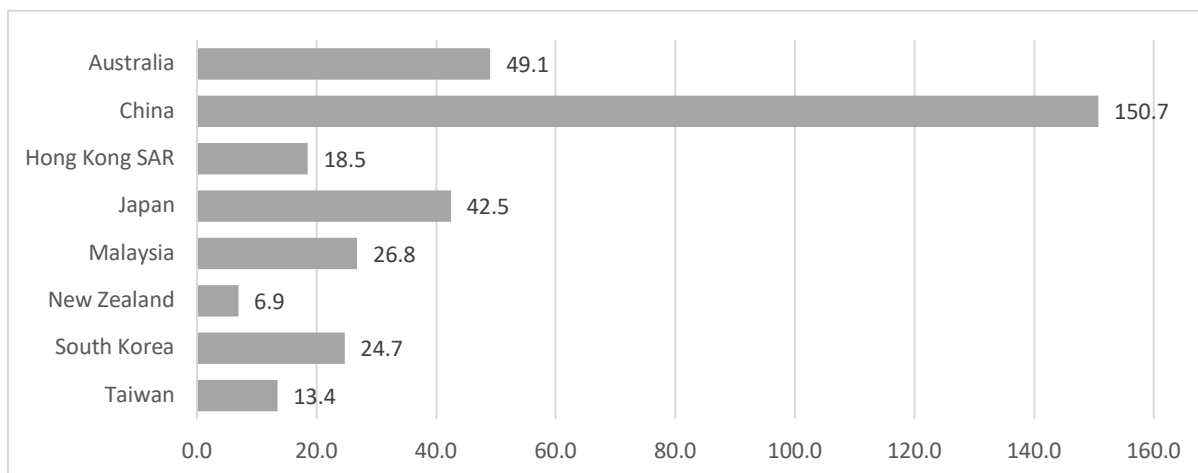
Source: Author’s calculation based on (DOS, 2021b; STB, 2021)

**THE IMPACT OF TRAVEL BUBBLES**

To help restart the tourism sector, the Singapore government has relaxed travel restrictions for tourists from certain countries and has also been in discussions to implement quarantine-free ‘travel bubbles’ with countries that have relatively low numbers of COVID-19 cases.

Considering travel bubbles with several countries<sup>7</sup> and foreigners allowed to travel to Singapore via the ‘Air Travel Pass’, the following would be the estimated value-added generated from tourism (Figure 10). The calculations assume that the tourists’ spending patterns and amounts remained the same as in 2019; and the number of arrivals is equivalent to 5% of the number tourists that visited in 2019.

**Figure 10: Estimated value-added generated from tourism from selected countries (\$ Million)**



*Source: Author's calculation based on (DOS, 2021b; STB, 2021)*

As can be assumed from the sheer volume of Chinese tourists, the estimated value-added generated from Chinese tourists is the highest amongst the selected countries. While the numbers seem relatively high, the sum of VA generated from these countries' tourists add up to only 0.06% of Singapore's 2020 GDP figures.

To generate the highest VA, the Singapore government would ideally have extended the travel bubble arrangement to China, Indonesia, India, Australia, Malaysia and Japan. These countries have historically recorded the highest number of visitors and tourism expenditures per capita.<sup>8</sup> However, such arrangements are conditional on these countries' number of COVID-19 cases.

Tourism has always contributed a relatively small share of Singapore's GDP. Implementing travel bubbles with these countries is unlikely to rejuvenate the economy significantly. However, doing so will help correct the uneven demand for output from various industries i.e., generate demand for tourist-oriented industries that do not fit locals' preferences. As shown previously, after the Singaporean government implemented the 'Air Travel Pass' and 'Reciprocal Green Lane' arrangements with several countries in Q3 2020, expenditure share of the 'SEG' component rose. Although the magnitude of impact might be low overall, the impact on individuals and businesses that rely greatly on tourism will still be significant.

## CAVEATS

There have been several assumptions made to derive the input-output tables,<sup>9</sup> one of which assumes that there is "no supply constraint" i.e. any required amount of input and labour can be provided to meet demand at the same fixed price. However, the pandemic has severely affected the availability of input and labour<sup>10</sup> for production;<sup>11</sup> supply chains have been disrupted while social distancing and travel restrictions have limited the movement and availability of labour for production. These changes are likely to have affected the price of inputs and labour, as demand and supply become imbalanced. In addition, consumption preferences and patterns were assumed to remain the same as before, an unlikely outcome

after the pandemic.<sup>12</sup> Thus, the estimates made in this article are rough calculations, as the pandemic is likely to have changed the structure of the economy.

## CONCLUSION

Amongst the five components of tourism receipts, ‘Shopping’ generates the highest VA (or GDP) per \$1000 spent by tourists. The ‘Others’ component generates the lowest VA per \$1000 spent.

For the overall tourism coefficients, the amount of VA generated per \$1000 spent by tourists have remained somewhat constant over the years. However, in the last three quarters, due to the pandemic, consumption patterns of tourists have changed significantly. The reduction and increase in the relative amount tourists spent on shopping and the ‘others’ component respectively resulted in a slight dip for both coefficients.

Individuals employed in the industries under the shopping component seem to enjoy a significantly higher employee compensation coefficient compared to the rest. Unfortunately, because of the change in tourist consumption habits, the overall tourism employee compensation coefficient has had a slight dip in magnitude over the last three quarters.

Accounting for all the industries involved, tourism has usually contributed about 4% of Singapore’s GDP annually, but its contribution share has dropped significantly due to the pandemic. While travel bubbles with selected countries appear to generate a notable amount of VA, relative to Singapore’s GDP figures, this is very minute. However, travel bubbles are still able to make a consequential positive impact on individuals and businesses belonging to industries that are tourist oriented.

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**Annex 1**

<b>Tourism Component</b>	<b>Receipt No.</b>	<b>Input-Output Industry</b>	<b>Weights</b>
Accommodations	64	Accommodations	100.0%
Food and Beverages	65	Food and Beverages Services	100.0%
Shopping	55	Retail Trade	100.0%
Sightseeing, Entertainment and Gaming	91	Travel agency, tour operator and reservation services	14.1%
	100	Arts and entertainment	5.1%
	101	Recreation and sports	80.7%
Others	56	Land transport	13.4%
	58	Air transport	59.9%
	95	Exhibitions, conventions and other events	1.4%
	97	Education	15.1%
	98	Health services	10.2%

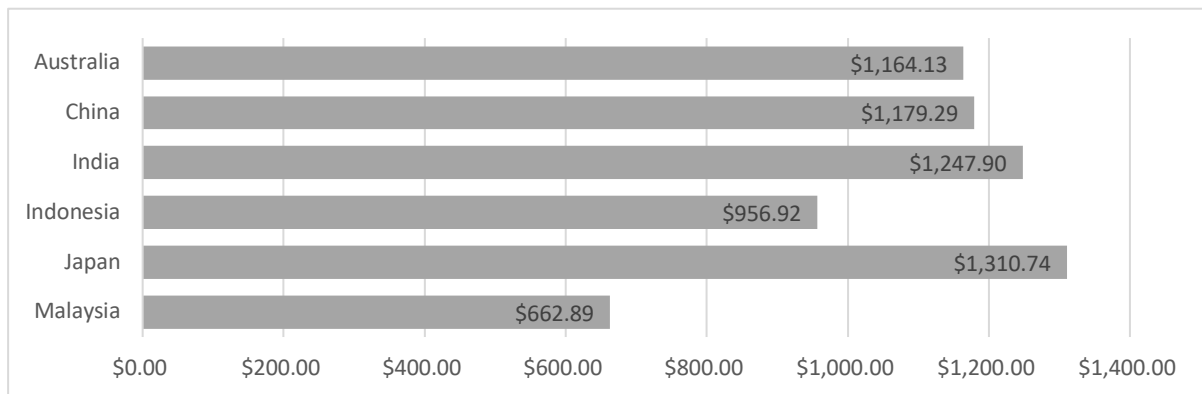
**Annex 2**

Singapore’s Visitor Profiles

Based on data for 2016-2019, most of Singapore’s visitors arrived from Southeast Asia (35.2%), followed by Greater China (18.7%), then Europe (11.0%). The top five countries that visitors arrived from were China (18.7%), Indonesia (16.5%), India (7.5%), Malaysia (6.6%) and Australia (6.1%).

Given the high volume of visitors from these countries, one would expect the tourism receipts from these countries to share the same ranks. However, other than the top *three* countries remaining the same, the fourth was Australia, followed by Japan; tourism receipts from Malaysia were ranked sixth. This is due to the varied expenditure amounts, consumption patterns and purposes of visit of tourists from different countries. Amongst the top six contributors of tourism receipts, Japanese tourists had the highest tourism receipts per capita, followed by India, China, Australia, Indonesia and Malaysia (Figure A). The low tourism receipt per capital of Malaysian tourists explains the relatively lower amount of total tourism receipts from Malaysia despite the high number of tourists visiting.

**Figure A: Average Tourism Receipts Per capita Expenditure (S\$) 2016 - 2019**



*Source: Author’s calculation based on (STB, 2021)*

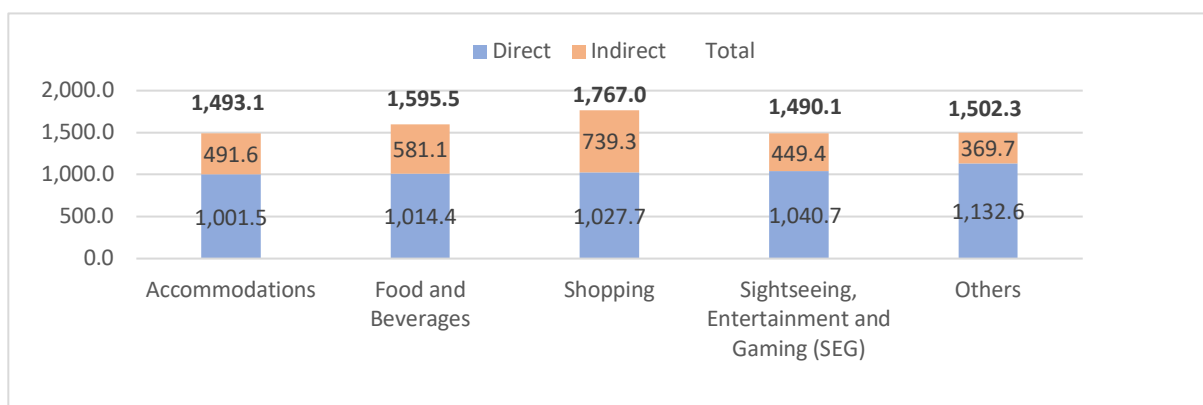
**Annex 3**

Output Coefficient

The output coefficient reflects the amount of output that is generated for an industry to produce \$1000 of final output purchased by tourists.

Shopping has the highest total output coefficient and highest indirect coefficient; the final demand generated by tourism receipts from shopping requires the highest amount of output from all other industries. It also requires the highest amount of output from all industries, inclusive of its own (total effect) (Figure B)

**Figure B: Direct and total output coefficients of major tourist receipt components (\$)**



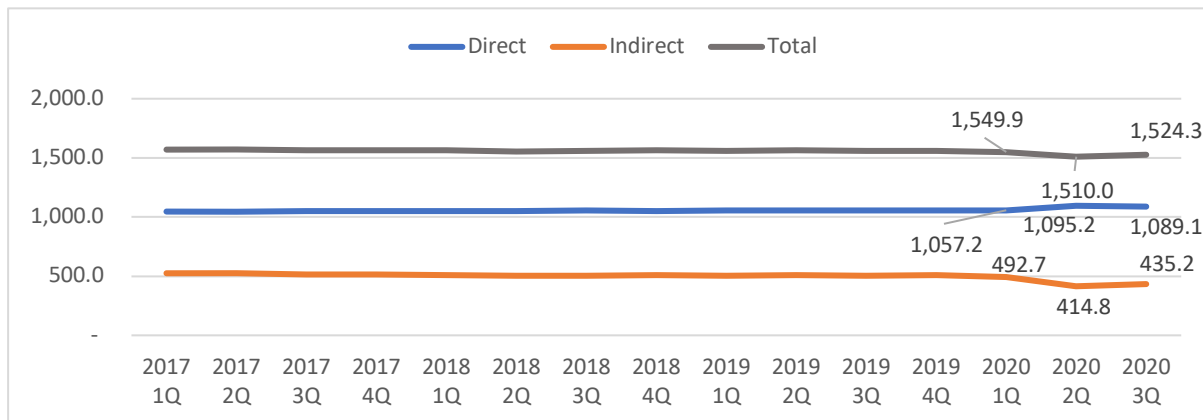
Source: Author’s calculation based on (DOS, 2021b; STB, 2021)

This is contrary to the ‘Others’ components which has the highest direct output coefficient, but lowest indirect effect. Industries involved in the ‘Others’ component of tourism receipts require the most amount of inputs from their own industries, and least amount of inputs from other industries.

However, unlike the output coefficient, the ‘shopping’ component is closely followed behind by the SEG and Accommodations components. Moreover, the Food and Beverages component, the second highest for the total output coefficient, fell to fourth for the total VA coefficient and is the last for direct VA coefficient (Figure C). It implies that despite the high total output generated, the Food and Beverages component supports upstream industries that have relatively lower value add compared to industries of the other components.



**Figure C: Output coefficient of tourist receipts by quarter (\$)**



Source: Author’s calculation based on (DOS, 2021b; STB, 2021)

<sup>1</sup> For the ‘sightseeing, entertainment and gaming’ component a weighted average of the related industries is taken. The industries are (1) travel agency, tour operator and reservation services, (2) Arts and entertainment (3) Recreation and sports. The weights are determined by the relative value of exports of goods and services of each industry to better reflect the consumption patterns of a foreigner.

<sup>2</sup> For the ‘others’ component a weighted average of the related industries is taken. The industries are (1) land transport (2) air transport (3) exhibitions, conventions, and other events (4) education and (5) health services. The weights are determined by the relative value of exports of goods and services of each industry to better reflect the consumption patterns of a foreigner.

<sup>3</sup> The correspondence table for the expenditure components and input-output industries can be found in Annex 1.

<sup>4</sup> The ‘Accommodation’ and ‘Food and Beverages’ components correspond to ‘Accommodation & Food services’. The ‘SEG’ component corresponds to ‘Arts, Entertainment & Recreation’. The ‘Shopping’ component corresponds to ‘Wholesale & Retail Trade’. The ‘Others’ component corresponds to ‘Health & Social Services’, ‘Transportation & Storage’ and ‘Public Administration & Education Services’.

<sup>5</sup> The overall coefficients were calculated by summing up the total VA/employee compensation generated for each component, then dividing it by the total tourism receipts.

<sup>6</sup> Reciprocal green lane arrangements were made with Malaysia, South Korea and Japan. Air Travel Pass arrangements were made with Brunei and New Zealand.

<sup>7</sup> Brunei has been excluded as no data on tourism receipts per capita was available.

<sup>8</sup> View Annex 3 for Singapore’s visitors’ profile based on 2016 – 2019 data.

<sup>9</sup> Other assumptions include: “(1) All establishments classified in the same industry have the same production process and input requirements, (2) All industries have fixed input requirement proportion relative to output (3) allocation of demand to users depends on the product and not the industry selling the product (4) users always demand the same mix of products from an industry.” (DOS, 2019)

<sup>10</sup> See “Developers to share soaring labour costs as COVID restrictions bite, Singapore rules” at <https://www.globalconstructionreview.com/news/developers-share-soaring-labour-costs-covid-restri/>

<sup>11</sup> See (Sharma et al., 2020)

<sup>12</sup> See (Zwanka & Buff, 2021)

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