

INTERNATIONAL BENCHMARKING STUDY OF PUBLIC TRANSPORT FARES

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Introduction

1. In line with its mandate to keep fares affordable while ensuring the financial sustainability of the public transport system, the Public Transport Council (PTC) commissioned the Nanyang Technological University (NTU) to conduct an international benchmarking study to understand the latest trends in public transport fares. Under the study, Singapore's public transport fares was benchmarked against 11 other major cities in terms of concessionary fares, fare affordability, and fare revenue per passenger kilometre.

Main Findings

2. In comparing fares across the 12 cities, the study found that Singapore is one of the few major cities with a fully integrated fare structure, ie. commuters are not charged additional boarding fees when making transfers. In addition, Singapore's concessionary bus and train fares for students and seniors, adjusted to account for differences in purchasing power, were among the lowest in the study.

3. The study also found that Singapore ranked second in terms of fare affordability, which is measured as the proportion of disposable household income spent on public transport for the second quintile household group. With respect to fare revenue collection per passenger kilometre, Singapore collected the lowest across the cities compared.

Fare Structure

4. There are three basic types of fare structures. A *flat fare* is a fixed fare regardless of distance travelled (examples include New York and Toronto). A *distance-based fare* is charged based on distance travelled, which for most cities is typically a step-up fare structure where fares increase incrementally for each distance range (examples include Singapore and Seoul). A *zone-based fare* is charged based on the number of zones crossed (examples include Paris).

5. In terms of charging principles, Singapore pegged its fares to the distances travelled, and charged in a granular manner (i.e. each fare band after the initial 3.2km fare band increases in denominations of 1km). This is a fair cost structure that charges commuters according to the distances they travel. In addition, Singapore was one of the four cities in the study that had implemented a fully integrated public transport fare structure, where no additional boarding charge is levied on commuters making transfers between bus and train. The other three cities were New York, Seoul, and Toronto¹. Together, these charging principles give commuters the flexibility to choose their preferred mode and route of travel based on their lifestyle without having to worry about additional costs.

Concessionary Fares

Senior Citizen

6. The study compared the May 2018 cost of concessionary bus and train fares across the 12 selected cities, adjusted using Purchasing Power Parity (PPP) by Private Consumption in Singapore Dollar (SGD).

7. Singapore's senior citizen concessionary fares² were lower compared with most other cities studied. We note also that Singapore is more generous, in terms of age eligibility. In fact, seniors at age 60 pay adult fares on train and bus in all other cities except Singapore, London³ and Sydney. In contrast, commuters in Beijing, Hong Kong, New York, Paris, San Francisco, Seoul, Taipei and Toronto only qualify for senior citizen concessions at 65 years of age. Tokyo

¹ Toronto's integrated fare structure was recently introduced on 26 Aug 2018.

² The study takes into account only the actual concessionary fares charged.

³ With a 60+ Oyster photocard, London seniors age 60 years old and above enjoy free travel on bus, Tube, tram, DLR, London Overground, TfL Rail and most National Rail Services in London.

had the highest eligibility age of 70 years old. Figures 1 and 2 compare the concessionary train and bus fares across the selected cities for seniors aged 60 years old.

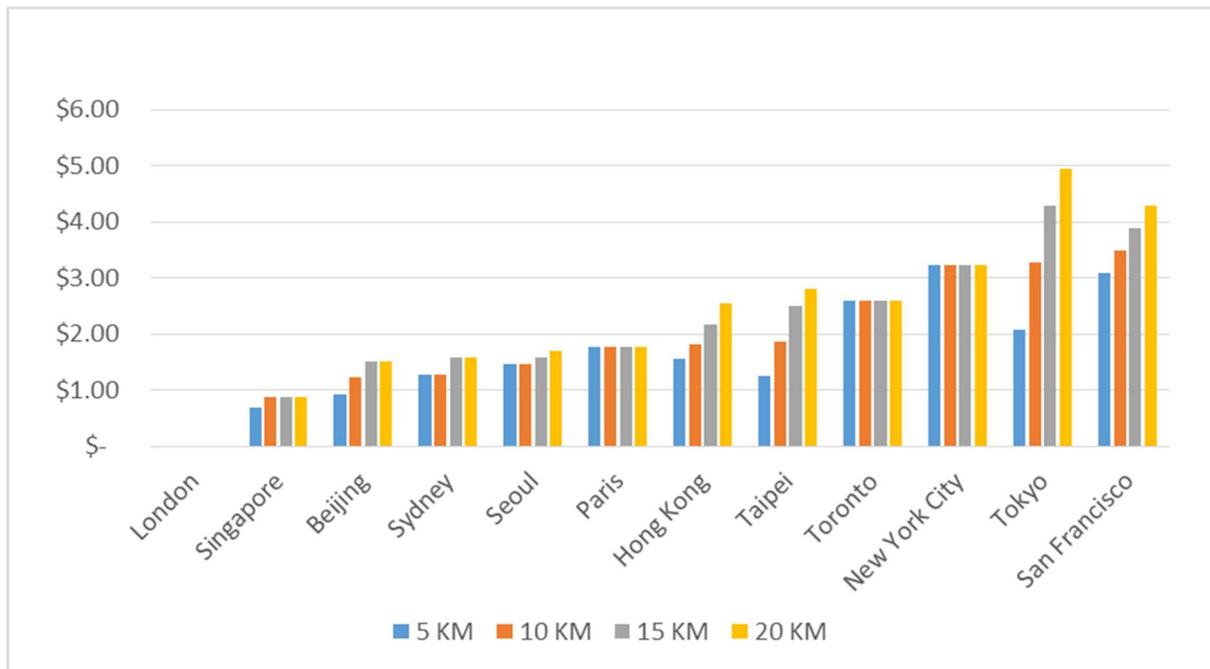


Figure 1: Fixed-Distance Direct Train Fares for Seniors aged 60 Years Old in PPP-SGD

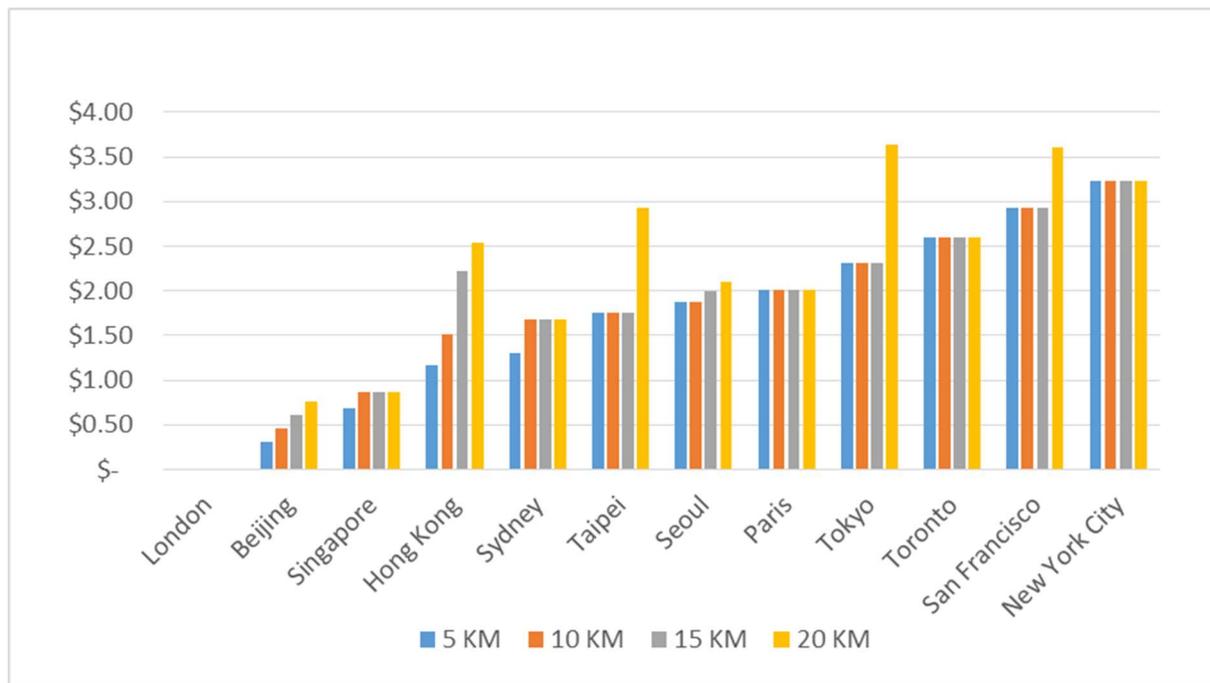


Figure 2: Fixed-Distance Direct Bus Fares for Seniors aged 60 Years Old in PPP-SGD

Students

8. The age eligibility for student concessionary fares⁴ also differs from city to city, with no distinct categorisation by education level. For the purpose of comparison, the fares were based on students at secondary level⁵.

9. Singapore's student train fares were the lowest across all the distances compared (Figure 3). Students in Beijing, New York and Tokyo pay adult fares on trains.

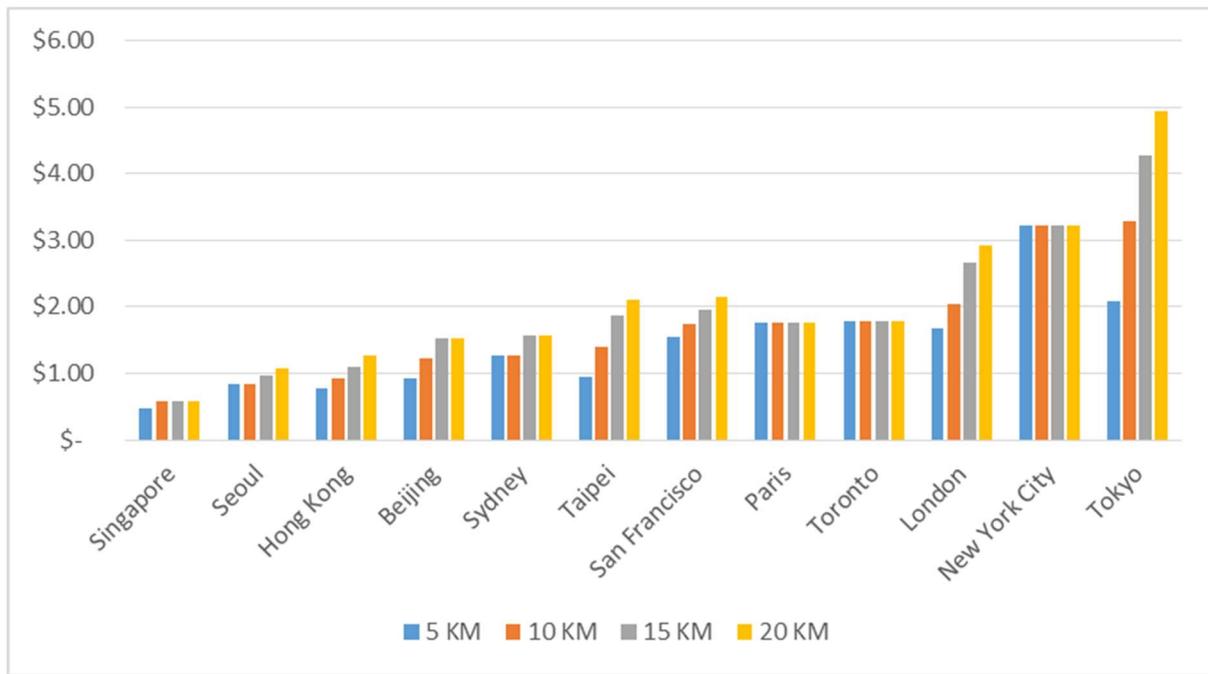


Figure 3: Fixed-Distance Direct Train Fares for Students in PPP-SGD

10. Singapore's student bus fares were the third lowest (Figure 4). While students in Beijing enjoyed concessionary fares on buses, they had to pay adult fares on trains. New York student bus fares were the highest as they had to pay full adult fares.

⁴ The study takes into account only the actual fares charged.

⁵ In the case of Singapore, they are typically of the age 13 to 16.

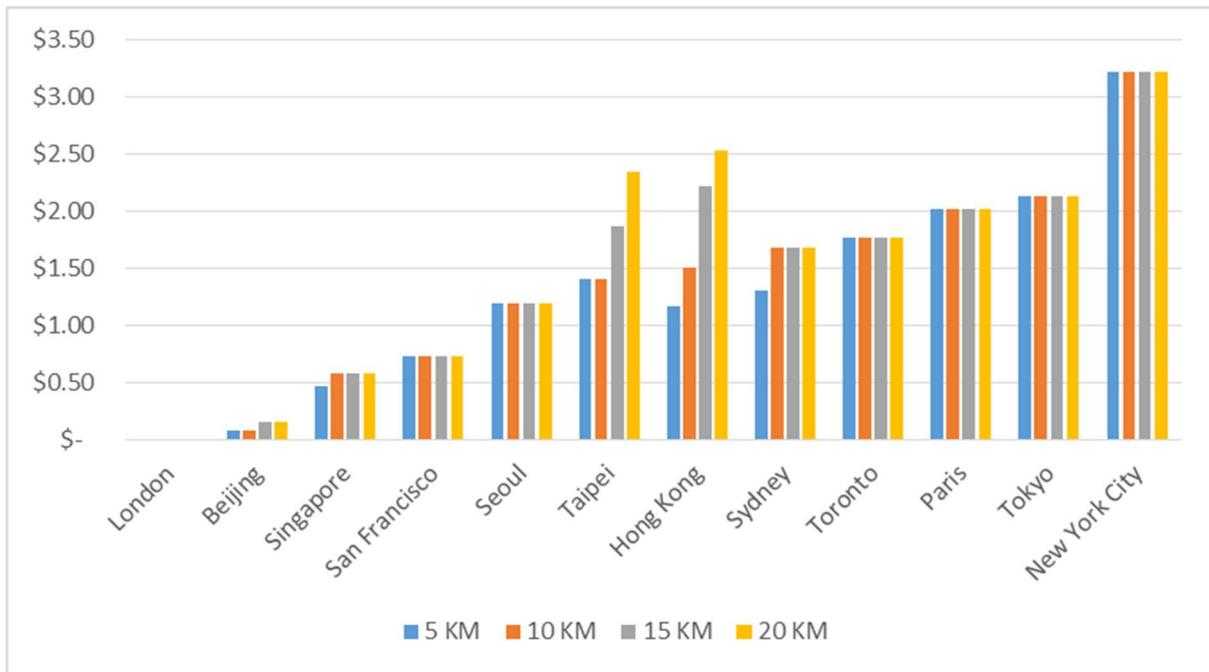


Figure 4: Fixed-Distance Direct Bus Fares for Students in PPP-SGD

Fare Affordability

11. To allow comparability of public transport affordability across the cities, an index illustrating the costs incurred by a typical family with two working adults and two school-going/school age⁶ children as a percentage of household disposable income⁷ was developed. Using an average travel distance of 10 kilometres, the family’s expenditure on public transport was calculated based on the lower of the cost of sixty 10-km trips (based on the average fare of a rail and bus trip) or a monthly travel pass. Sixty 10-km trips were used to represent the number of public transport trips that each member of the family would make assuming that each made 2 trips a day, for 30 days in a month (*Carruthers et al., 2005*). The index’s household disposable income was based on that of the second quintile household income group as this group is most likely to depend on public transport regularly. This is in line with PTC’s monitoring of fare affordability for the second quintile household income group.

⁶ One primary school student and one secondary school student.

⁷ Household disposable income is obtained from the Euromonitor database

Table 1: Public Transport Affordability for a Representative Family in the Second Quintile Group in 2016

City	PT Expenditure (PPP-SGD)	Disposable Income (PPP-SGD)	Affordability Index
San Francisco	3,519	85,507	4.1
Singapore	2,750	57,802	4.8
Taipei	4,246	72,219	5.9
Hong Kong	3,277	53,456	6.1
Beijing	2,140	34,790	6.2
New York	4,959	60,865	8.1
Paris	3,366	40,085	8.4
Sydney	5,317	56,733	9.4
Toronto	4,255	40,045	10.6
Seoul	3,640	29,272	12.4
London	5,270	36,114	14.6
Tokyo	5,913	36,559	16.2

12. In terms of fare affordability, Singapore was the second most affordable city with an index score of 4.8. This means that on average, a typical family that uses public transport on a daily basis in Singapore spends about 4.8 percent of its disposable income on public transport.

Notably, San Francisco had a better affordability index rating of 4.1. Public transport expenditure in San Francisco is 28 percent higher than in Singapore. However, the disposable income in San Francisco is also 48 percent higher. [Figure 5](#) further illustrates the affordability index for the selected cities.

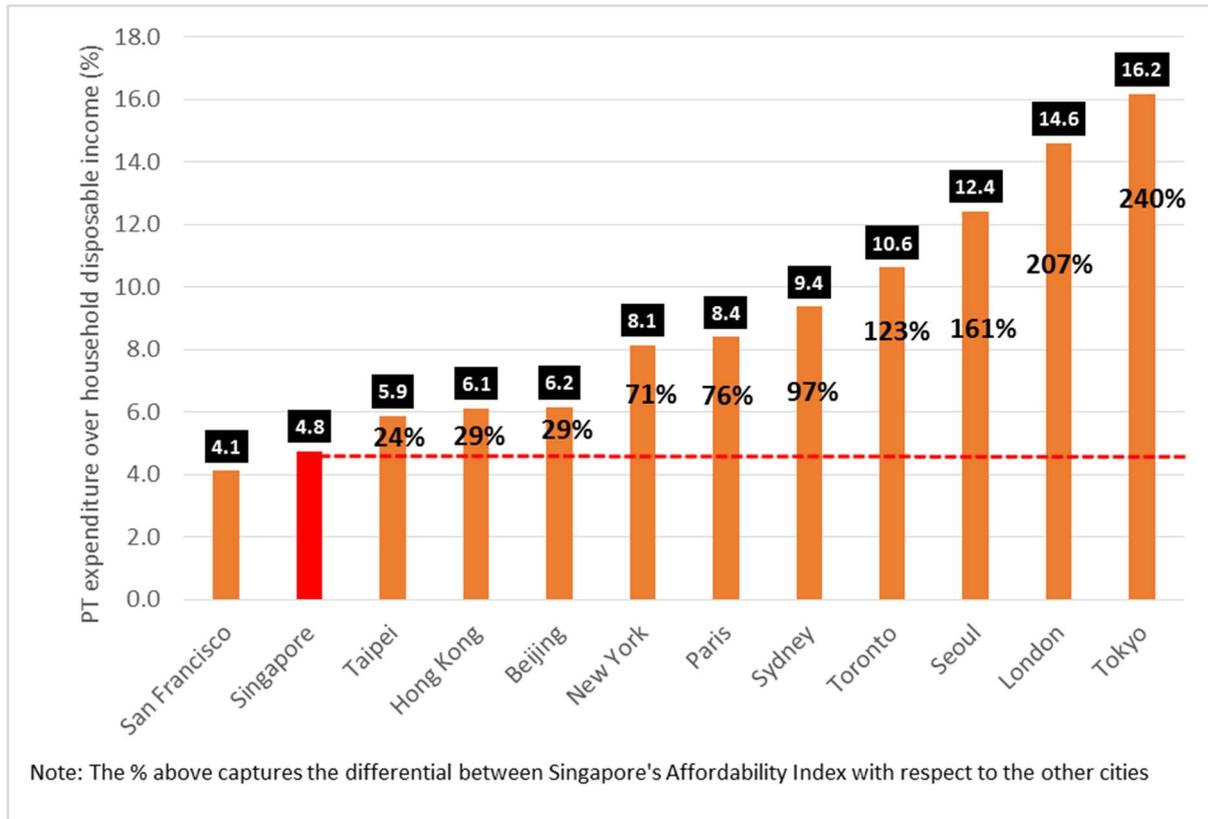


Figure 5: Affordability Index for a Representative Family in the Second Quintile Group in 2016

Fare Revenue per Passenger Kilometre

13. In terms of fare revenue collected per passenger kilometre, Singapore was the lowest among the cities compared⁸. In 2016, fare revenue per passenger kilometre in Singapore was SGD 0.11 for the entire public transport system. Hong Kong, which ranked second, was notably higher, approximately 27% more than Singapore, at SGD 0.14 ([Figure 6](#)). In the case of London, commuters are charged SGD 0.19 or SGD 0.08 higher per passenger kilometre than the Singapore commuter. This means that for an average trip of 10 kilometres, Londoners pay at least SGD 0.80 more than Singapore commuters and Hong Kong commuters pay at least SGD

⁸ Due to data limitations, only 7 cities with publicly available data were compared here.

0.30 more. In fact, charging Singapore’s fares would result in Hong Kong and London making a loss of \$713 million and \$2.16 billion in fare revenue respectively.

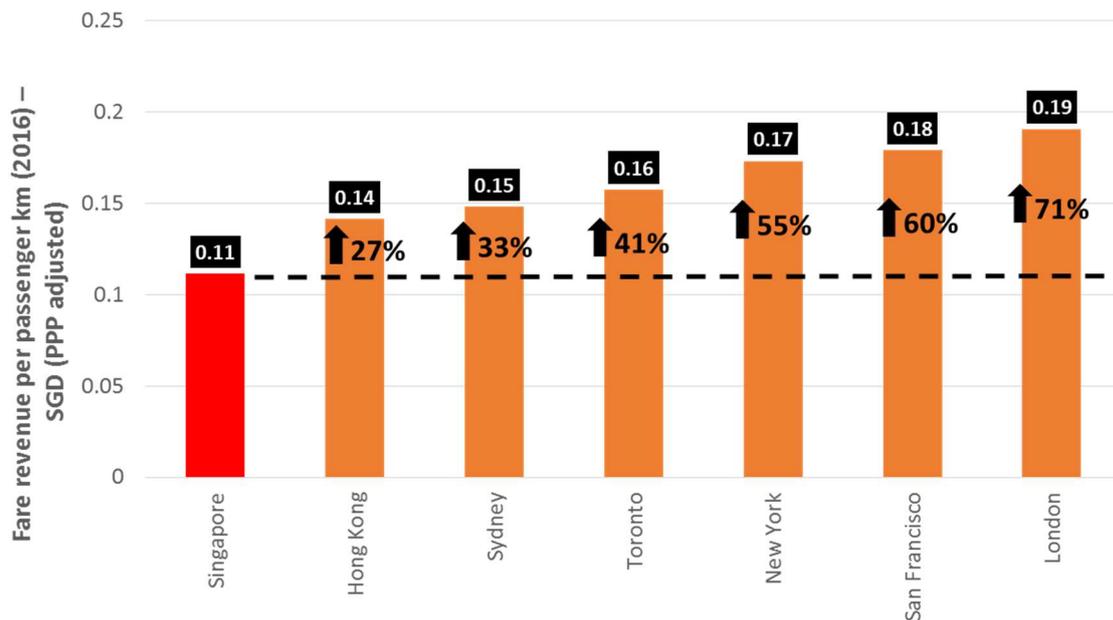


Figure 6: Fare Revenue per Passenger-km in 2016 PPP-SGD: System

Conclusion

14. Among the 12 cities, Singapore had one of the most granular distance fares structures and was one of the few, along with New York, Seoul and Toronto, to have a fully integrated public transport fare structure. The other strength in the Singapore public transport fare structure is that no additional boarding charges are levied on transfers between bus and train.

15. Singapore’s senior citizen and student concessionary fares were also among the lowest across the 12 cities compared. In fact, the eligibility age for seniors to enjoy senior citizen concessionary fares in Singapore is one of the lowest at 60 years old, allowing more commuters to benefit from the concessionary fares from an earlier age.

16. In terms of fare affordability, Singapore is the second most affordable city, after San Francisco where income levels are significantly higher.

17. Another aspect benefitting the Singapore commuter is the low fare revenue collection per passenger kilometre in Singapore. The lowest across the 12 cities compared, Singapore only yields SGD 0.11 per passenger kilometre. If we transpose Singapore's fare rates onto the Hong Kong and London public transport system, both cities would make a loss of \$713 million and \$2.16 billion in fare revenue respectively. While this may strike a chord with public commuters, this is not necessarily sustainable for public transport operators given the rising operating costs worldwide. In order for the Singapore public transport system to be more self-sufficient, the Public Transport Council should strike a better balance between fare affordability and cost recovery.

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