INFORMATION FOLDER (3)

“Modal Competition”

& the Case Study on Passenger Trips between

Hong Kong and Guangzhou
Transport modes:

“Transport modes” refer to the transport means being used to achieve the mobility of people and/or goods.¹ In general, transport modes of the world can be classified into 5 major types: 1) Road transport, 2) Rail transport, 3) Water / maritime transport, 4) Air transport and 5) pipelines.

Modal choice and modal competition:

The number of transport modes available for choice is usually associated with the levels of economic development of countries / areas. Usually, more developed areas have a wider range of transport modes available for choosing while people of the less developed areas have limited / less modal choices.

In reality, different transport modes may complement or compete with one another for a range of reasons, including their differences or similarities in terms of geographical markets (e.g. local, national or international markets), transport markets (e.g. for transporting passengers or goods), transport costs (including the linehaul cost² and the terminal cost³), speeds (transport time), accessibility, and levels of services (e.g. frequency, reliability, safety and levels of comfort). When there is overlapping in terms of factors like geographical markets, transport markets and / or levels of services, modal competition may arise.

² “Linehaul cost” is the cost of transporting passengers and/or goods and is calculated as a function of factors like distance and weight of goods.
³ “Terminal cost” is the cost of loading, transshipment and unloading at the origin, intermediate point(s) and destination respectively. Unlike linehaul cost, terminal cost will not vary with distance.
Take freight transport as an example, maritime (water) transport usually provide transport services with the lowest cost but for transporting a small quantity of goods over a short distance, road transport is usually preferred. For transporting high value and/or time sensitive goods over a long distance, air transport is usually more competitive.

For passenger trips, a chain of factors will affect the modal choice of passengers. In many cases, “distance” and “transport cost” are the most significant factors to many people in modal choices. However, factors like “levels of transport services” and “speeds” will become more important when the income levels of the passengers are rising. In the latter case, passengers are willing to pay for higher transport cost for transport modes with faster speeds, and more reliable and comfortable services.

In analyzing modal choices and modal competition, don’t miss the role played by the government. It is crystal clear that public policy can affect modal competition and shape modal preferences. Examples of this include government funding on some transport infrastructure and government’s role in transport planning and traffic management.

**Modal shift:**

![Modal shift diagram](image)
The modal choices of passengers on trips may not keep constant forever. Their modal preferences will change with time, income levels, as well as technological evolution / innovation in transport (i.e. transition in modal choices). For example, with an introduction of a transport innovation on a route, it may become more advantageous than other transport modes in terms of speeds, reliability and levels of comfort. Modal shift from one transport mode to the transport innovation will occur. In a modal shift, there is a growing demand for a transport mode at the expense of another, or there is absolute growth in all transport modes involved.
In this section, the case of passenger trips between Hong Kong and Guangzhou will be used to illustrate more about modal choice competition. As the two most important cities in the Zhujiang Delta Region (Figure 1), there are high demand on public passenger transport services between Hong Kong and Guangzhou. As such, there are well-developed transport networks between the two cities and a number of transport modes are available for passengers to choose for trips between them. In Figure 2, 7 possible routes with suggested transport modes are available for passengers to choose for trips from Hong Kong to Guangzhou in October 2018 (Note: Walking is excluded in Figure 2 for simplification of the case but it may be included in all trips). Obviously, there is intense competition on transport modes for trips from Hong Kong to Guangzhou. Based on different factors (e.g. transport costs, time, accessibility of stations and levels of comfort of the transport vehicles), different
passengers will then have different modal choices on trips from Hong Kong to Guangzhou.

![Diagram showing modal choice competition for passenger trips from Hong Kong to Guangzhou](image)

**Figure 2** Modal choice competition for passenger trips from Hong Kong to Guangzhou (with data as at October 2018)

<table>
<thead>
<tr>
<th>Transport mode</th>
<th>Terminals and stops</th>
<th>Estimated transport time</th>
<th>Frequency (approximate)</th>
<th>Estimated transport cost (for adult)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>① Coach / limousine (by various operators) [See Figures 3-4]</td>
<td>Various stops and terminals for coach: Hong Kong (e.g. Hong Kong International Airport [HKIA] &amp; Kowloon Tong) Guangzhou (various hotels, e.g. China Hotel &amp;</td>
<td>About 3.5-4 hours (under the condition of no traffic congestion or accident)</td>
<td>For coach: Various depending on operators (about 30 minutes [peak hours in the morning] – 2 hours per coach)</td>
<td>For coach: About HK$110 (from Kowloon Tong); about HK$250 (from HKIA)</td>
<td>• Limousine can provide door-to-door services from the HKIA to different locations in the Zhujiang Delta Region</td>
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<tr>
<td><strong>② Ferry</strong> (by Chu Kong Passenger Transport Company Ltd.)</td>
<td>Garden Hotel) For limousine: Terminal at HKIA</td>
<td><strong>About 1 hour 50 minutes</strong></td>
<td><strong>4 per day</strong> (e.g. at 07:45, 11:30, 13:30 &amp; 18:20)</td>
<td>HK$220 (Economy class); HK$270 (1st class); HK$320 (VIP)</td>
<td></td>
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<tr>
<td><strong>③ Guangzhou -Kowloon Through Train</strong> (by MTR)</td>
<td><strong>Hong Kong: China Ferry Terminal, Tsim Sha Tsui</strong> <strong>Guangzhou: Lian Hua Shan</strong></td>
<td><strong>About 2 hours</strong></td>
<td><strong>12 per day</strong> (about one through train from HK to Guangzhou every 1-2 hours from 07:25-20:01)</td>
<td>HK$210</td>
<td>Guangzhou East Railway Station is close to the city centre of Guangzhou.</td>
</tr>
<tr>
<td><strong>④ Guangzhou -Shenzhen-Hong Kong High Speed Rail (Hong Kong Section)</strong> (by MTR)</td>
<td><strong>Hong Kong: West Kowloon</strong> <strong>Guangzhou: Guangzhou South (Guangzhounan)</strong></td>
<td><strong>About 47 minutes</strong></td>
<td><strong>About one high speed rail every 10-30 minutes</strong></td>
<td>RMB¥215 (i.e. HK$247) (Second Class); RMB¥323 (i.e. HK$371) (First Class); RMB¥368 (i.e. HK$422) (Premium Class); RMB¥452 (i.e. HK$519) (Business Class)</td>
<td>The high speed rail of Hong Kong has begun operation in September 2018. The high speed rail station in Guangzhou-nan is currently far away from the city.</td>
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<tr>
<td><strong>Plane</strong> (e.g. by Cathay Dragon)</td>
<td>Hong Kong International Airport and Guangzhou Baiyun International Airport</td>
<td><strong>About 1 hour</strong></td>
<td><strong>About 2 direct flights per day</strong> (e.g. 07:55 &amp; 20:15)</td>
<td>About HK$1,200</td>
<td>More terminal time (e.g. check-in and security check processes) is required. Passengers should arrive at the airport about 2-2.5 hours before the departure time.</td>
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</tbody>
</table>
| **2 transport modes:** MTR / coach to Shenzhen + High speed rail from Shenzhen (Futian / Shenzhen) | • Various MTR stations (point of transfer: Lok Ma Chau) and stops for coach  
• High speed rail (the Mainland) stations at | • MTR / coach to Shenzhen high speed rail station: **1-2 hours**  
• High speed rail from Shenzhen to Guangzhou | • MTR of Hong Kong / Shenzhen: a train every few minutes  
• High speed | • MTR: About HK$44 (Kowloon Tong to Lok Ma Chau)  
[MTR standard class] & Futian | This is an example of multimodal transport solution. |
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<td>North) [Refer to Figures 6-7]</td>
<td>Futian / Shenzhenbei (Shenzhen North) to Guangzhou-Nan (may have several intermediate stations)</td>
<td>(From Futian station: about 39-50 minutes) (From Shenzhen North station: about 29-44 minutes)</td>
<td>- Rail from Futian / Shenzhenbei: a train every 10-30 minutes</td>
<td>- Check-point to Futian [Shenzhen Metro]</td>
<td>- High speed rail from Futian, Shenzhen to Guangzhou: 2nd class-¥82 (=about HK$94); 1st class-¥108 (=about HK$123); Business class-¥215 (=about HK$245)</td>
</tr>
</tbody>
</table>

2 transport modes: MTR to Shenzhen + Guangzhou-Shenzhen (CRH) train from

- MTR to Shenzhen (Lo Wu)
- Guangzhou-Shenzhen (CRH) trains from Shenzhen
- MTR to Shenzhen (Lo Wu): About 10-60 minutes
- Guangzhou-Shenzhen (CRH) trains from Shenzhen
- MTR of Hong Kong: a train every few minutes
- Guangzhou-Shenzhen (CRH) trains from Shenzhen
- MTR: About HK$41.5 (Kowloon Tong to Lo Wu)

- The Guangzhou-Shenzhen (CRH) trains usually operate at much lower speeds (below 200 km/h)
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<td>Shenzhen</td>
<td>Railway Station to Guangzhou-dong Station (may have several inter-mediate stations)</td>
<td>(CRH) train: About 1 hour 20 minutes</td>
<td>Shenzhen (CRH) train: a train every 10-30 minutes</td>
<td>2nd class- ¥79.5 (=about HK$91); 1st class- ¥99.5 (=about $114)</td>
<td>km/h) than high speed railway in China (about 300 km/h). • Congestion for trains at Shenzhen railway station is observed (as there are only a few platforms). • This is an example of multimodal transport solution.</td>
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For cases ①-⑤ in Figure 2, only one transport mode is adopted in each case in the modal competition process but in cases ⑥-⑦, at least 2 transport modes are adopted in the process (with a point of transfer at Shenzhen). For the latter case (e.g. ⑥), **multimodal transport** solution is shown.
Figure 3  Cross-border coach services from Kowloon Tong to Guangzhou

Figure 4  Mainland coach and limousine services at the Hong Kong International Airport
Figure 5  A double-deck Guangzhou-Kowloon Through Train to Guangzhoudong (at Hung Hom station)

Figure 6  High speed railway at Futian Railway Station

Figure 7  High speed railway at Guangzhounan Railway Station
Figure 8  A Guangzhou-Shenzhen (CRH) train at Guangzhoudong Railway Station

Figure 9  The Shenzhen Railway Station for the Guangzhou-Shenzhen (CRH) trains to Guangzhoudong
References:

  Web version: https://transportgeography.org/

✧ Chu Kong Passenger Transport Company Limited

✧ MTR

✧ MTR—High Speed Rail