# REPORT ON THE PERFORMANCE OF HONG KONG'S TELECOMMUNICATIONS MARKET

**Office of the Telecommunications Authority**
**12 October 2008**

## 1 EXECUTIVE SUMMARY

1.1 The Office of the Telecommunications Authority ("OFTA") has completed a study about the performance of Hong Kong's telecommunications market. The purpose was to review Hong Kong's relative performance across four telecommunications sectors (viz. local fixed voice services, mobile services, broadband services and data services). Studies with a similar objective were undertaken in 2003 and 2005.

1.2 Effective competition has developed in all sectors of the telecommunications market in Hong Kong. The current study has therefore shifted from a supply-side focus on levels of competition to a focus on the availability of quality telecommunications services at affordable prices from the perspective of users.

1.3 The result of the current study shows that Hong Kong continues to be in the forefront amongst telecommunications markets worldwide. In particular the take up of fixed voice services, mobile services, broadband services and data services is in the top tier of advanced economies. At the same time, prices for telecommunications services in Hong Kong are across the board significantly lower than those in most advanced economies.

## 2 PURPOSE OF STUDY

2.1 In June 2003 and December 2005, OFTA commissioned consultants to undertake a study to examine the competitiveness of Hong Kong's telecommunications industry. The studies addressed the structure of different markets and the level of competition in terms of such indicators as new entrant numbers, changes in the market shares of the major market players as well as consumer benefits. Both studies showed that Hong Kong was one of the most competitive amongst the reviewed markets.

2.2 Now that the application of "market driven" policy for the telecommunications sector in Hong Kong is over a decade old, and deregulation substantially completed, it is apparent that in structural terms, there is effective competition in all telecommunications service sectors in Hong Kong. Accordingly comparison with the market structure and competition level in other economies is of less relevance for Hong Kong. Instead, because the immediate objective of market driven policy for the sector is the enhancement of consumer welfare, it is time to consider comparative performance in terms of the availability of a variety of quality telecommunications services at affordable prices. Four major market segments, namely, fixed-line, mobile, broadband and data services, have been considered.

## 3 METHODOLOGY

3.1 As stated in the 2001 Government Policy Objective for Telecommunications, the goal of ensuring Hong Kong's high performance in telecommunications is to be benchmarked against the Organisation for Economic Co-operation and Development (OECD) economies.[1] The OECD regularly collects statistics from its 30 member economies about communications technologies and publishes the results and analysis in a series of biennial reports entitled "OECD Communications Outlooks"

3.2 OECD has adopted an internationally recognised method to develop a number of indicators for comparing the telecommunications services of its member economies. In the current study, OFTA has followed the same approach in compiling data for Hong Kong for the comparative

[1] See Policy Objectives stated in "Chief Executive Policy Address 2001". Document can be downloaded from http://www.policyaddress.gov.hk/pa01/pdf/telecome.pdf

study, except in relation to data services.

3.3 For data services the OECD groups services in price baskets with different weightings for the distance covered by the access lines. Access lines of less than 2 km, are classified as local circuits, and those over 2 km as regional or long distance circuits. Hong Kong's territory is however relatively small[2] such that the concepts of regional or long distance access lines do not appear to be particularly relevant to the local environment. To make the comparison more meaningful, OFTA has used data about Hong Kong data access lines compiled by Teligen for a study conducted on behalf of the Asia Pacific Carriers' Coalition ("APCC")[3].

3.4 OFTA aimed for the most up-to-date comparison. However, because the latest data published by the OECD is the "OECD Communications Outlook 2007", which covers 2005 and 2006, OFTA's study is limited to the same period.

3.5 The individual economies selected for comparison with Hong Kong were the same as those in the two previous studies i.e. Australia, Japan, Singapore[4], South Korea, Sweden, UK and the USA.

3.6 The prices in the OECD data are quoted in local currencies. Because the living standards vary across these economies, a high price in a local currency does not necessarily mean that that price is unreasonable or unaffordable locally. For meaningful comparison, it is necessary to convert prices to a common standard. In this connection, OFTA has adopted the same method as the OECD to convert prices in the different economies into USD Purchasing Power Parities (PPPs). PPPs are currency conversion rates that both convert to a common currency and equalise the purchasing power of different currencies. In other words,

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2 The total area of Hong Kong is 1,104 sq. km.

3 Teligen was commissioned by the Asia Pacific Carriers' Coalition ("APCC") to benchmark the prices of domestic leased line access circuits in the Asia Pacific region. The report "Access Price Benchmarking Report" was published in December 2006 and can be downloaded from APCC's website at http://www.asiapacificcarriers.org/sp/user/attach/2007-08-15_Access Price Benchmarking Report_Final_061215.pdf. In fact, Teligen is also the consultant commissioned by OECD to conduct annual pricing comparison for its member economies.

4 Although Singapore is not an OECD member economy, Singapore has been included in the study for comparison purpose. Singapore was also one of the reviewed markets in the two previous studies.

they eliminate the differences in price levels between economies in the process of conversion[5].

## 4 PERFORMANCE ASSESSMENT

### 4.1 Fixed telephone network services

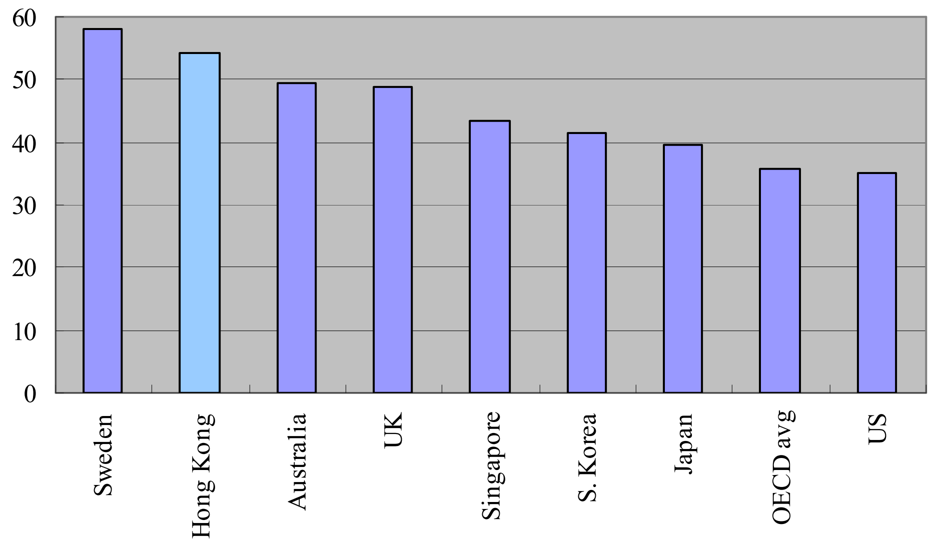
4.1.1 Deregulation of local fixed network services in Hong Kong commenced in 1995. Currently, there are 5 active wireline-based fixed network operators and one wireless network operator[6].

4.1.2 As in most advanced economies, customer growth in Hong Kong voice services is now largely mobile and broadband network based. Nevertheless our community continues to regard the traditional fixed service as essential service and fixed phone subscription level has remained rather steady over the past years. In comparison with the reference economies, Hong Kong ranked second in overall fixed line penetration with 54 lines per 100 inhabitants, just behind Sweden but higher than the other major economies. The figure for Hong Kong was also 50% higher than the average of the 30 OECD member economies, as shown in Chart 1 below:

5 See OECD's explanation at http://www.oecd.org/department/0,3355,en_2649_34357_1_1_1_1_1,00.html

6 The 5 active wireline-based fixed network operators are Hong Kong Broadband Network Ltd, Hutchison Global Communications Ltd, New World Telecommunications Ltd., PCCW-HKT Telephone Ltd and Wharf T&T Ltd. The wireless network operator is SmarTone Communications Ltd.

Chart 1: Standard fixed lines per 100 inhabitants, 2005




4.1.3 Internationally the impact of cross-platform competition and new mobile technologies on traditional fixed line services can be seen in the trend of falling prices for telephone voice services in many economies. The OECD observed that the adoption of flat-rate calling plans is an increasing trend in OECD member economies. In contrast, flat-rate plans for fixed phone subscriptions have been a feature in Hong Kong for more than 50 years, well before the deregulation of the local fixed market.

4.1.4 The OECD compared the levels of fixed-line service prices of its member economies in five baskets, including:

(a) low-usage residential users
(b) medium-usage residential users
(c) high-usage residential users
(d) small office/home office business users, and
(e) small to medium enterprise users.

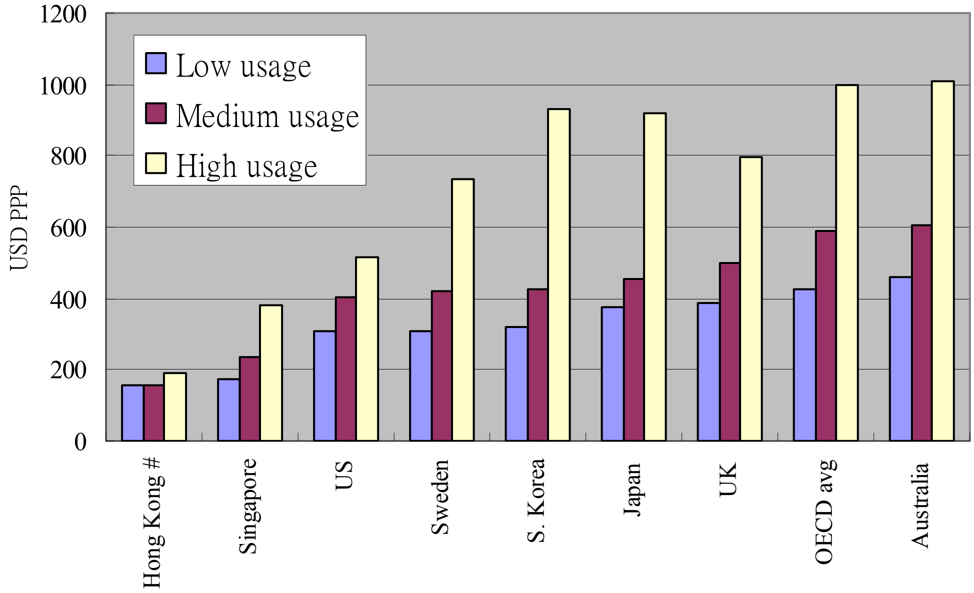
Each basket contains both the subscription (fixed) charge and consumption (usage) charge for using fixed-line service in OECD member economies[7]. For the purpose of comparing the level of

[7] According to OECD, only the charges of incumbent operator are covered in each member economy. The detailed structure of pricing baskets can be found in the OECD Telecoms Price Benchmarking Baskets 2006.

fixed-line service prices in Hong Kong with those in OECD member economies, OFTA has compiled similar data for Hong Kong.

4.1.5 The result of the comparison in Chart 2 below shows that Hong Kong as the least expensive economy in all three residential line user categories[8]. Low-usage residential users in Hong Kong enjoy a price discount of 63% to OECD average prices. Moreover because local calls are offered at a flat rate in Hong Kong, high-usage residential users in Hong Kong enjoy a deep discount of 81% against the OECD average.

**Chart 2: Residential fixed-line pricing baskets, August 2006***




* Include monthly subscription fee and usage charges (after-discount) for local, mobile and international calls.

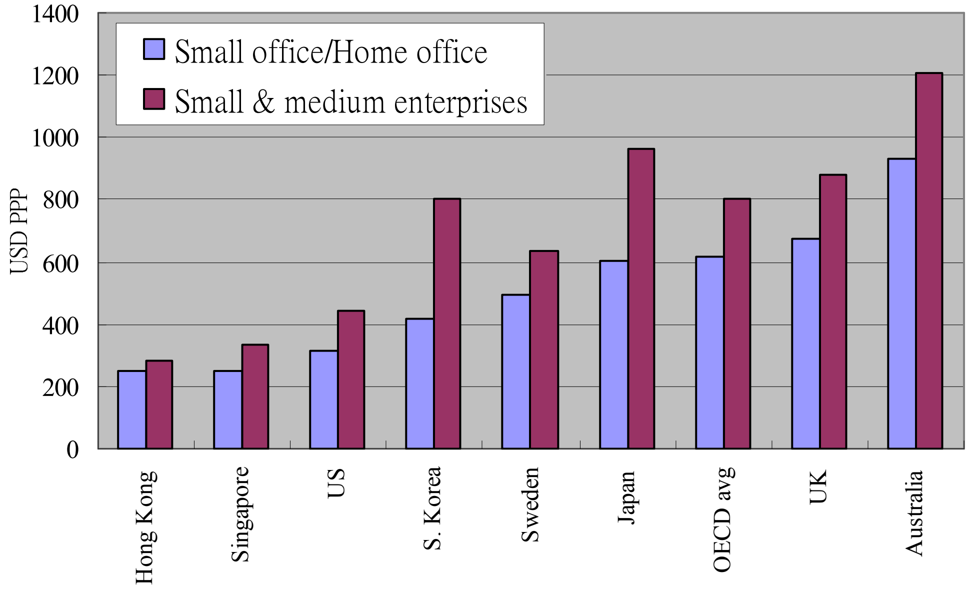
\# Flat-rate local calls are offered in Hong Kong. The price differences between different usage baskets in Hong Kong are attributable to different usage of international calls (charged on a usage basis) included in each basket in accordance with OECD's methodology.

4.1.6 For business fixed-line services, Hong Kong prices in both business fixed-line pricing baskets are the lowest. Chart 3 below shows prices for small offices/home offices (SOHOs) and small and medium-sized

[8] The three residential fixed-line pricing baskets reflect the prices for the consumption of 600 calls (low-usage), 1,200 calls (medium-usage) and 2,400 calls (high-usage) over a one-year period. Calls are broken down according to distance, destination (fixed, mobile and international), and time of day. The detailed distribution of calls for individual pricing baskets can be found in the OECD Telecoms Price Benchmarking Baskets 2006. All prices are given in USD purchasing power parity (PPP) after converting to a common currency to eliminate the differences in price levels between economies.

enterprises (SMEs) were USD PPP 248 and USD PPP 285 respectively[9]. This represents a price discount of 63% and 72% to the OECD averages.

**Chart 3: Business fixed-line pricing basket, August 2006**




* Include monthly subscription fee and usage charges (after-discount) for local, mobile and international calls.

## 4.2 Mobile telephone services

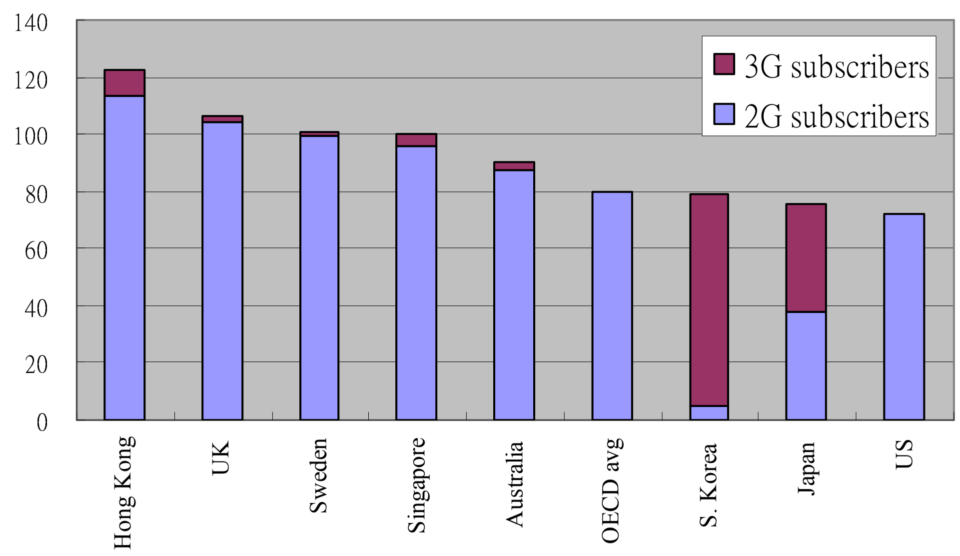
4.2.1 Worldwide, mobile services have grown impressively over the last decade. With the emergence of improved handset functionality and new offerings of high-speed and multi-media services over mobile phones, growth in the use of mobile services is set to continue in the foreseeable future.

4.2.2 The use of mobile phones and handsets is especially prominent in Hong Kong. At the end of 2005, the number of mobile services in use in Hong Kong was 8.5 million, representing a population penetration rate of 120%. Chart 4 below shows that at the material time, compared with the reference economies, Hong Kong had the highest mobile penetration

[9] The two business fixed-line pricing baskets reflect the prices for fixed accesses plus the consumption of 1,800 calls (SOHO), 84,000 calls (SME) over a one-year period. Calls are broken down according to distance, destination (fixed, mobile and international), and time of day. The detailed distribution of calls for individual pricing baskets can be found in the OECD Telecoms Price Benchmarking Baskets 2006. All prices are given in USD purchasing power parity (PPP) for international comparison.

rate. Since 2005 the penetration rate in Hong Kong has continued to increase. In May 2008, the rate was 156%. Growth in 3G usage has also picked up. As of May 2008, 3G customers constitute 21% of all mobile customers, whereas the rate was 8% in 2005.

**Chart 4: Mobile phone subscribers per 100 inhabitants, 2005**




4.2.3 The OECD compares mobile service prices in three pricing baskets:

(a) low-usage
(b) medium-usage, and
(c) high-usage.

Each basket captures the charges for voice calls, SMS messages and MMS.[10] Chart 5 below shows that the prices for mobile service in Hong Kong were the lowest in all three categories. The difference in high-usage mobile prices is particularly significant, with the prices in Hong Kong only about one-third of the OECD average.

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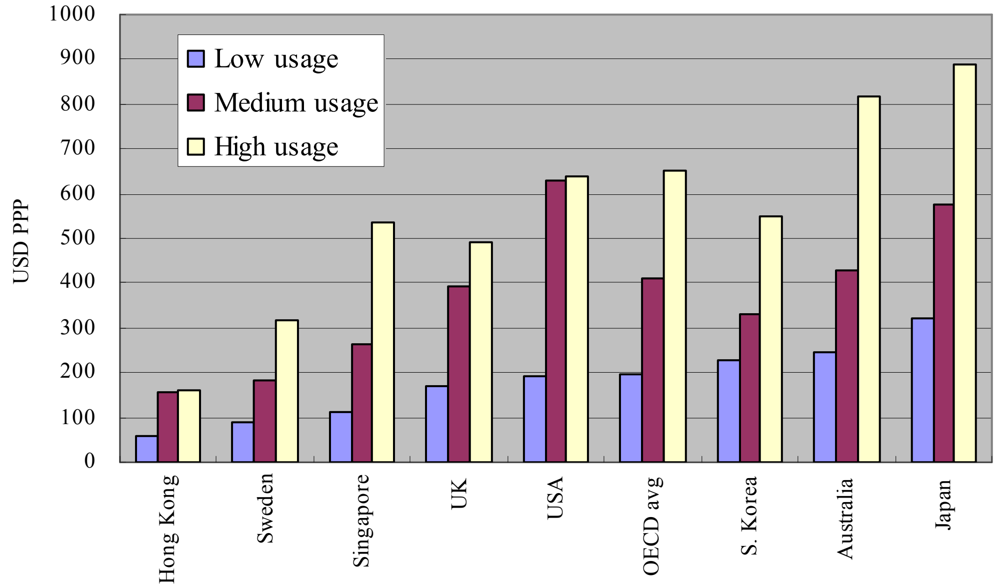
10 According to OECD, the charges of the largest operator are covered in each member economy. The low-usage basket reflects the charges for 360 voice calls, 396 SMS messages and 8 MMS per year. The medium-usage basket reflects the charges for 780 calls, 600 SMS messages and 8 MMS. The high-usage basket reflects the charges for 1,680 voice calls, 660 SMS messages and 12 MMS messages. In each of the baskets, voice calls and messages were distributed between peak and off-peak hours and with average call duration in accordance with OECD pricing baskets. The detailed structure of pricing baskets can be found in the OECD Telecoms Price Benchmarking Baskets 2006. All prices are given in USD purchasing power parity (PPP) after converting to a common currency to eliminate the differences in price levels between economies.

**Chart 5: Mobile pricing baskets, August 2006**




* Include monthly subscription fee, usage charge for voice and messages.

4.2.4 Competition in the mobile market of Hong Kong is especially intense. Table 1 below shows the market share distribution among mobile operators in Hong Kong and the reference markets. It is noted that market share distribution in Hong Kong is the most even. Each of the three largest operators in Hong Kong has a relatively modest market share, reflecting that the mobile market of Hong Kong is relatively the least concentrated.

**Table 1 Mobile competition**
**Market share in terms of subscribers, 2005 (%)**

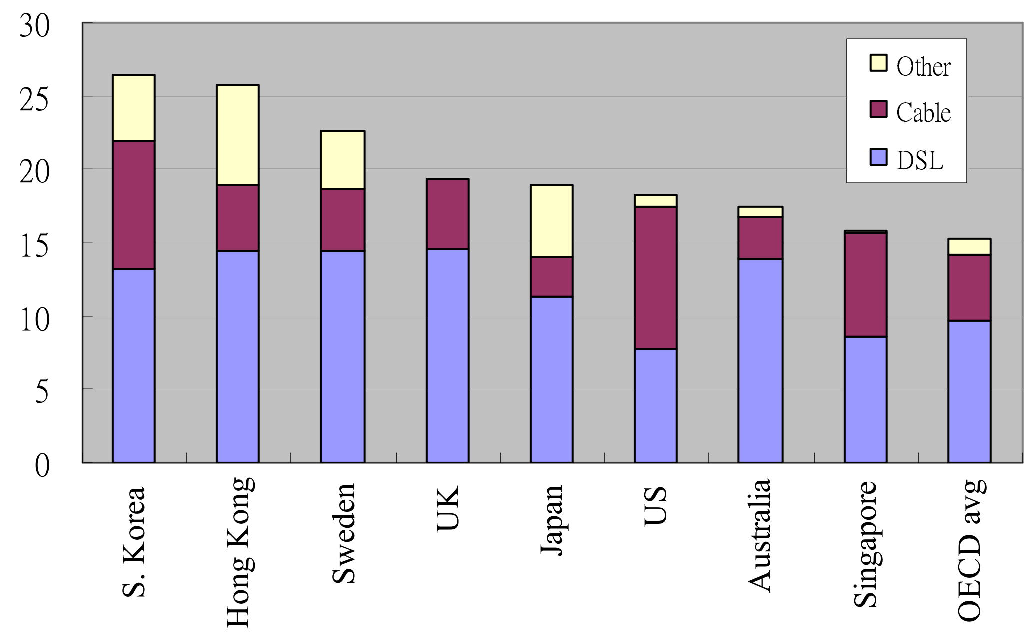
| | Operator with the largest market share | | | |
|---|---|---|---|---|
| Economies | 1st | 2nd | 3rd | Others |
| Australia | 45 | 33 | 17 | 5 |
| Hong Kong | 24 | 17 | 16 | 43 |
| Japan | 53 | 24 | 16 | 8 |
| S. Korea | 51 | 32 | 17 | -- |
| Singapore | 38 | 33 | 29 | -- |
| Sweden | 52 | 28 | 17 | 3 |
| UK | 26 | 23 | 23 | 28 |
| US | 25 | 24 | 21 | 30 |

## 4.3 Broadband access service

4.3.1 The most recent of the OECD reports noted that broadband networks were expanding rapidly in member economies. Although services were mainly being delivered through Digital Subscriber Line (DSL) technologies, in both Singapore and the US there were a high proportion of services being provided through cable TV networks.

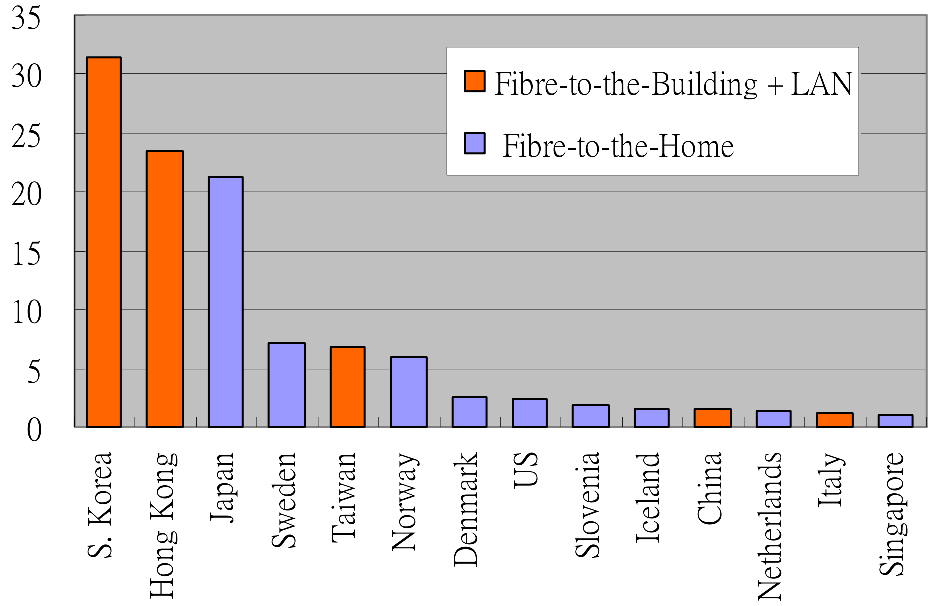
4.3.2 Chart 6 below shows that by mid-2006, the population penetration rate for broadband service in Hong Kong was around 26%, which ranked the second among the reference economies. As at June 2006, 56% of broadband connections in Hong Kong were provided by DSL technology, 18% by cable modem technology and 26% by other technologies. The "other technologies" are mainly optic fibre technologies.

**Chart 6: Broadband access per 100 inhabitants, June 2006**




4.3.3 The OECD has observed that the roll-out of fibre networks is expanding in member economies. In Hong Kong, the coverage of fibre networks has expanded very quickly in the last four years. According to the latest ranking provided by the Fibre-to-the-Home Council in February2008[11], South Korea has the highest penetration of fibre-to-the-home (FTTH)/ fibre-to-the-building (FTTB) plus local area networks at 31.4%. Hong Kong is ranked second at 23.4%, followed by Japan at 21.3%. More details are shown in Chart 7 below:

**Chart 7: Economies with the Highest Penetration of Fibre-to-the-Home / Building + LAN, End-2007**




Source : Fibre-to-the-Home Council, February 2008

4.3.4 Broadband services are typically offered with different options of transmission speeds. To evaluate the prices for broadband service, OECD compares the broadband service price range of its member economies based on "the price per Mbps that users pay" across different service providers in each OECD economy.[12] OFTA followed the same methodology and compiled similar figures for Hong Kong and Singapore.

4.3.5 Chart 8 below shows that consumers in Japan, Sweden, Hong Kong and South Korea are able to enjoy comparatively low broadband service

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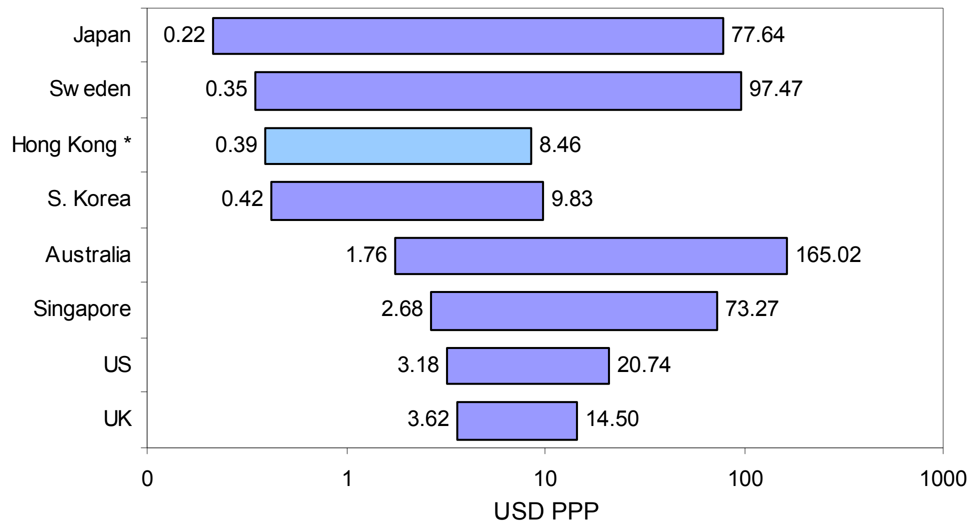
11 See Fibre-to-the-Home Council Press Release entitled "Fiber to the Home Deployment Spreads Globally As More Economies Show Market Growth" dated 27 February 2008. The document can be downloaded from http://www.ftthcouncil.org/?t=282.

12 According to OECD, the price range reflects the lowest and highest monthly subscription charges per Mbps of all broadband offerings from different service providers in each member economy.

prices in term of per Mbps charge. Although broadband services are typically offered with different bandwidth, the price range for broadband service in Hong Kong only falls between the range of USD PPP 0.39 to 8.46 per Mbps. For the high bandwidth segment, the price of USD PPP 0.39 per Mbps is very competitive as compared with other economies. The price for low bandwidth segment is also the lowest among the reviewed economies.

**Chart 8: Range of broadband prices (USD PPP per Mbps) for monthly subscription October 2006**




* Exclude the service plan of 1,000 Mbps due to limited subscribers

## 4.4 Data Services

4.4.1 In Hong Kong, data services are typically employed by users in the commercial sector for point-to-point communications.

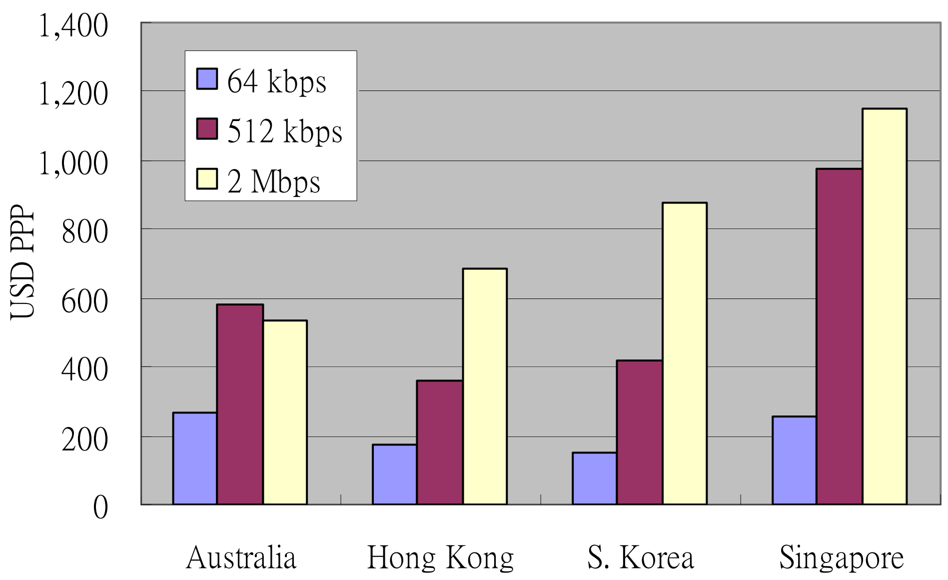
4.4.2 With reference to the study conducted by Teligen for the Asia Pacific Carriers' Coalition ("APCC")[13], it is noted that prices of data service in Hong Kong are low when compared with other major economies in the Asia Pacific Region including Australia, South Korea and Singapore.

[13] The report "Access Price Benchmarking Report" was published in December 2006 and can be downloaded from APCC's website at http://www.asiapacificcarriers.org/sp/user/attach/2007-08-15_Access Price Benchmarking Report_Final_061215.pdf.

For the monthly rental charges (with installation) for a typical 2km circuit with speed of 512 kbps, prices in Hong Kong are the lowest when compared with those of Australia, South Korea and Singapore. For monthly rental charges (with installation) for a typical 2km circuit with speeds of 64 kbps and 2Mbps, prices in Hong Kong are the second lowest among the four economies.

4.4.3 Detailed comparisons are provided in Chart 10 below. All prices are given in USD PPP[14]:

**Chart 10: Monthly rental charges for 2 km circuit with installation, 2006**



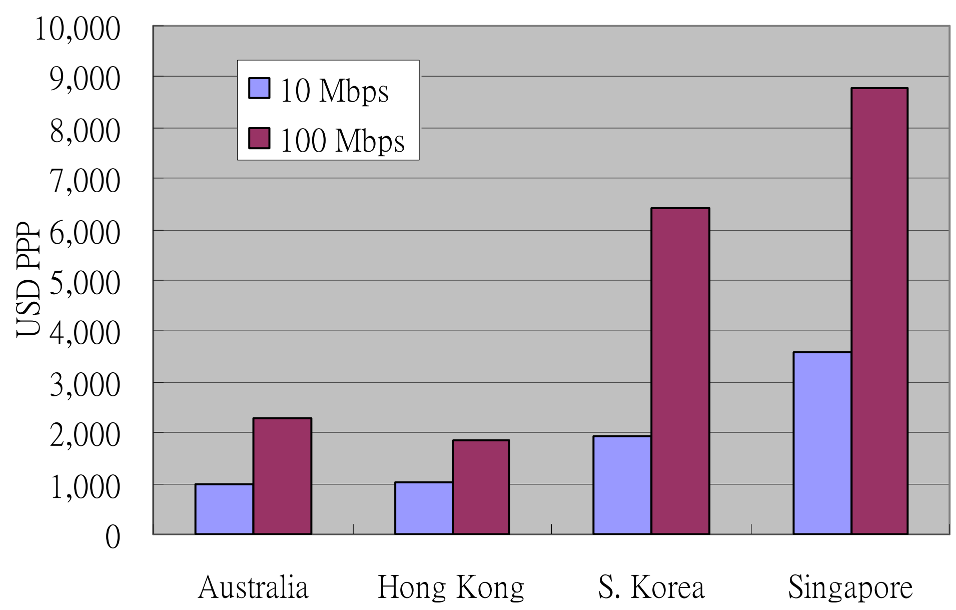

4.4.4 OFTA notes that as customer application requirements are becoming more and more sophisticated, there is a growing trend for users to demand data service with higher bandwidth capacity. To meet customer demand, operators have started to employ IP-based technologies such as Ethernet. In a separate study, OFTA has observed that, in the commercial sector in Hong Kong, Ethernet is gaining increasing popularity[15].

[14] According to Teligen, the prices are the average of actual prices for data service obtained by APCC members in each reviewed economy.

[15] See OFTA's "Report On Local Leased Circuit Services In Hong Kong" issued on 11 December 2007. The report can be downloaded from OFTA's website at http://www.ofta.gov.hk/en/report-paper-guide/report/rp20071211.pdf

4.4.5 As regards the price level of Ethernet service in Hong Kong as compared with overseas economies, Chart 11 below shows that the prices of Ethernet service in Hong Kong are very low. Compared with Australia, South Korea and Singapore, the prices of Ethernet service in Hong Kong are the lowest in the region.

**Chart 11: Monthly rental charges for 2 km Ethernet, 2006**




## 5 CONCLUSION

5.1 OFTA's measure of Hong Kong's performance in telecommunications against the OECD economies shows that Hong Kong has one of the highest performing markets. All its performance indicators are well above the OECD average. Across all the important services categories, fixed, mobile, broadband and data services, Hong Kong consumers and business users enjoy the most economical environment for high quality communications services.

*** End ***