ANNEX

Estimation of the Economic Benefit and Financial Impact on Hong Kong Telecommunications Limited due to Liberalization in the External Telecommunications Sector

Introduction

1 To support the negotiation between the Government and Hong Kong Telecommunications Limited (HKT), both the Government and HKT have constructed financial models to estimate the tangible economic benefit and financial impact on HKT arising the early termination of the exclusive licence held by Hong Kong Telecom International Limited (HKTI).

2 This paper describes the methodology of the financial model of the Government (referred to as the "financial model").

General Methodology

3 Two companies, namely HKTI and Hong Kong Telephone Company Limited (HKTC), both wholly owned subsidiaries of HKT, are involved in the operation of external circuits and services. HKTI provides the circuits and services between the external gateways of Hong Kong and the distant correspondent carriers. HKTC is the holder of a Fixed Telecommunication Network Services (FTNS) licence and provides *local* connecting services between the customers and the external gateways operated by HKTI. Liberalization in the provision external circuits and services will have financial impact on both HKTI and HKTC.

4 The financial model estimates the Net Cash Flow (NCF)[1] of HKTI and HKTC in each financial year up to the nominal expiry of the HKTI's exclusive licence (which is 30 September 2006). The financial model discounts the NCF of the two companies in each financial year by the reasonable cost of capital and calculates the Present Value (PV) as of the end of 1997 (when the negotiation was conducted).

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[1] The analysis of the Net Cash Flow is a standard technique in evaluating financial impact. It takes into account the cash outflow and cash inflow as a result of the change being considered. The Net Cash Flow analysis takes into account the time value of money and the impact of corporation tax on the cash outflow and cash inflow.

5 The financial model calculates the PV of the NCF of HKTI and HKTC for the two cases:

(a) *Base Case*: Callback is allowed as from 1996/97. International Simple Resale (ISR) for facsimile and data is to commence from 1 January 1998. The provision of circuits and voice telephony services will remain exclusive to HKTI until 30 September 2006.

(b) *Liberalization Case*: Callback is allowed as from 1996/97. International Simple resale for facsimile and data is to commence from 1 January 1998. Service competition for voice telephony (including ISR for voice services) will commence from 1 January 1999. Facilities-based competition (i.e. competition in the supply of external circuits) will commence from 1 January 2000.

6 The difference between the PV of the NCF in the two cases is the financial impact on HKTI and HKTC arising from the liberalization. The sum of the financial impact on HKTI and HKTC is the financial impact on HKT.

7 For the two cases, the consumer payment for external voice telephony services (IDD telephony services) and external circuits (leased circuits) are calculated for each financial year up the nominal expiry of the HKTI's exclusive licence. The PV of the consumer payment is calculated by discounted cash flow analysis. The difference in the PV of the consumer payments in the two cases is the tangible economic benefit arising from the liberalization.

Macro Assumptions

8 The following "macro" assumptions are used in the financial model:

Inflation	6% per annum
Real discount rate	8% per annum
Corporation tax rate	16.5%
Price elasticity of demand for IDD services	-0.3

Traffic Growth

9 The future growth rates of the Hong Kong originated and overseas originated traffic for voice and facsimile/data traffic are forecasted by analysis of the past growth trends. The future volume of the traffic in each year up to the nominal expiry of the HKTI's exclusive licence is forecasted.

10 The traffic volume used in the financial model is shown in Attachment 1.

11 The current distribution of Hong Kong originated traffic by destinations is shown in Attachment 2.

Accounting Rates and Delivery Fee Trends

12 The International Telecommunication Union is studying the reform of the international accounting rates system. At the same time, the US administration, through its unilateral action, is putting pressure on US carriers to reduce accounting rates quickly. In any event, accounting rates are expected to decline rapidly in the coming years, particularly over the routes to/from countries with more developed economies as they liberalize in accordance with their World Trade Organization (WTO) commitments from 5 February 1998. As a result of the decline of the international accounting rates, it would not be possible to maintain the present level of delivery fees.

13 The financial model has assumed the rapid decline of the international accounting rates and delivery fee over routes outside mainland China both in the Base Case and the Liberalization Case. Over mainland China routes, the financial model assumes a decline rate of 5% (nominal) per annum. For example, the current settlement rate (half of the accounting rate) between Hong Kong and United States is HK$3.06 per minute. It is forecast to drop to HK$1.20 per minute by 2000/01.

Price Trends

14 In the Base Case, Hong Kong originated calls may be routed to the overseas destinations through direct outgoing, callback and, for facsimile and data only, ISR. Callback and ISR are not available to destinations in mainland China. The prices for callback and ISR are estimated from the operating costs of the two modes of operation. The prices of the direct

outgoing routes are estimated as a discount from the HKTI prices (prices approved under the HKTI licence which were the prices paid by the consumers before any form of liberalization was introduced) having regard to the competitive pressure from callback and ISR for facsimile and data.

15 In the Liberalization Case, Hong Kong originated calls may be routed to the overseas destinations through direct outgoing, callback and ISR (for facsimile and data as from 1 January 1998 and voice as from 1 January 1999). Callback and ISR will not be available to destinations in mainland China. The prices for callback and ISR (where allowed) are again estimated from the operating costs of the two modes of operation. The prices of direct outgoing routes are also estimated having regard to the competitive pressure from ISR.

16 For routes to destinations which do not permit ISR, the financial model takes into consideration the possibility of "refile" through a third country which permits ISR between Hong Kong and the "refiling" country.

17 There are two main reasons which will lead to further price reduction due to liberalization:

(a) Competition in the external gateways

By combining the operation of the FTNS and the external gateway, more margin is available to an operator for discount to customers. More operators in the external gateways would also lead to more intense competition and further price cuts.

(b) Competition from ISR Operation

In the Base Case, for voice services, competitive pressure is available from callback only. Due to the expected decline in delivery fees, callback cost is expected to gradually increase in the future years. In the Liberalization Case, ISR is available even for voice services (as from 1 January 1999). ISR cost is expected to be below callback cost and declining as higher "compression" (the technology to put more calls onto a given leased circuit) is possible. Thus the discount from the HKTI prices for direct outgoing routes can be expected to be deeper than in the Base Case.

18 The price trends to typical destinations are illustrated in Attachment 3.

Market Share Trends

19 In the Base Case, competition has already been introduced in the routing of calls between the customers and the external gateway of HKTI. In fact, HKTC is losing considerable market share and has applied to the TA for a declaration of non-dominance in the provision of such connection services for external services. (This application is still being considered.)

20 Despite the presence of intense competition in the routing of calls to the external gateways in the Base Case, all external calls (outgoing and incoming calls) must be routed through the external gateways of HKTI. This applies to all callback calls. HKTI has therefore 100% market share in the Base Case.

21 In the Liberalization Case, the new FTNS operators will operate their own external gateways in competition with HKTI. The ISR operators will also divert traffic from the gateways operated by the FTNS operators. This means that HKTI no longer has 100% market share as in the Base Case. The financial model estimates the market share of HKTI through the market share of the operators competing with HKTC in the routing of traffic to and from the external gateways. It is likely that the new FTNS operators will route most of their traffic through their own gateways or ISR.

22 The financial model assumes the international norm of "proportional return". Thus loss of market share of the HKTI gateways in the outgoing direction would result in similar loss of market share in the incoming direction.

23 The market shares of various modes of operation in the Base Case and Liberalization Case are illustrated in Attachment 4.

Overall Result

24 In 1997/98, consumers paid about $11 billion for external services. The PV of consumer payments up to the nominal expiry of the HKTI licence is estimated to be $95 billion for IDD services and $11 billion

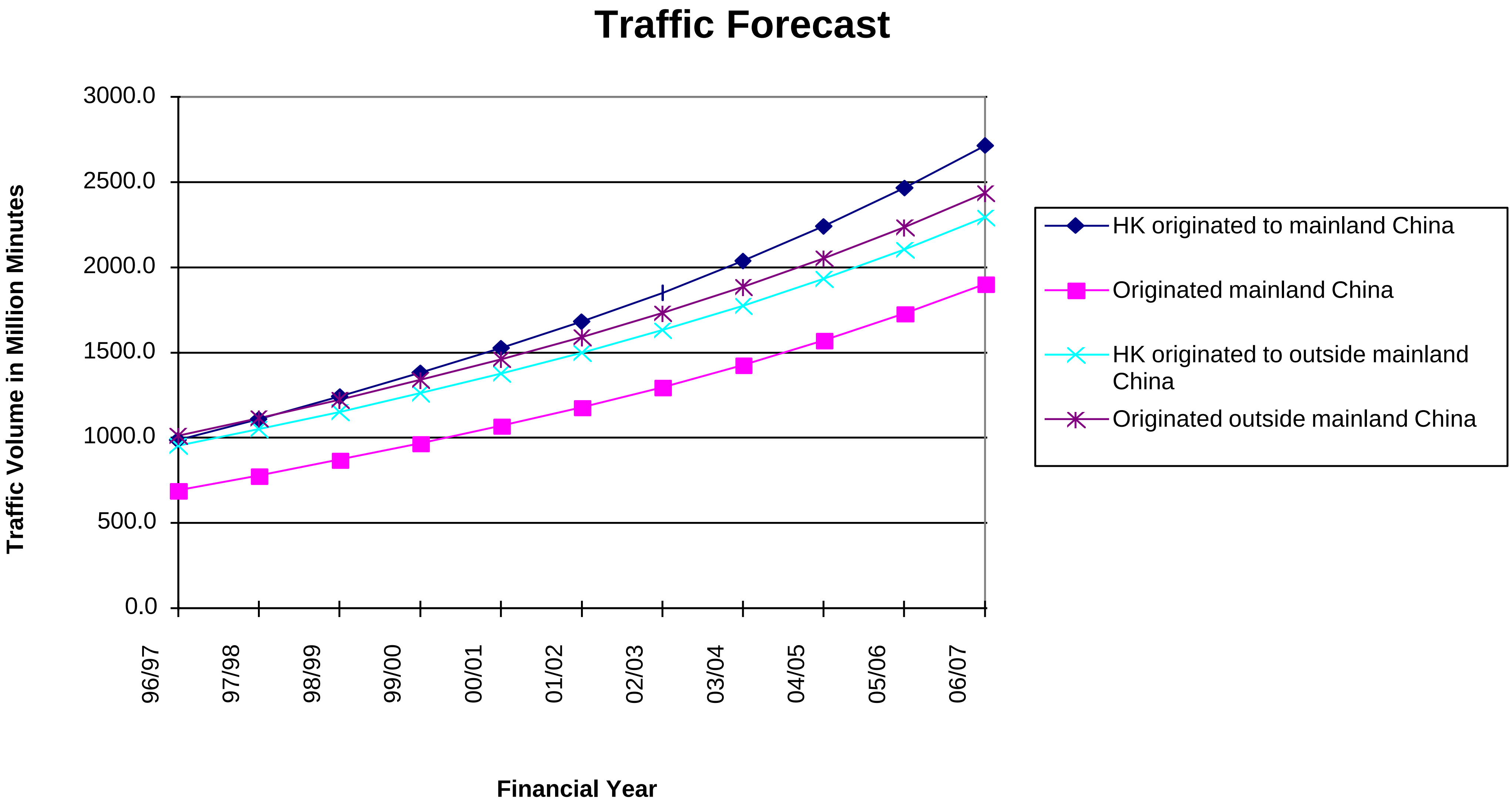
for leased circuits. The liberalization will lead to saving by consumers of $17.1 billion, including $14.8 billion for IDD services and $2.3 billion for leased circuits.

25 The impact on HKT of the loss of the HKTI exclusivities in accordance with the Agreement with the Government signed on 20 January 1998 would depend on assumptions on traffic growth, market share erosion and price reductions. After testing different scenarios, the PV of the impact on HKT was found to be within the range of $12 billion to $20 billion. The most probable impact on HKT due to the liberalization would be towards the middle of the range (assuming that royalty would continue to be paid up to 2006).

26 If the commencement dates for service competition and facilities-based competition are postponed by one year, the consumer benefit would fall substantially by $3.2 billion (from $17.1 billion NPV to $13.9 billion NPV) but the financial impact on HKT would only fall by $2.0 billion NPV. The higher consumer benefit from an earlier surrender of the HKTI licence and the importance of liberalizing Hong Kong's external telecommunications to a date which keeps us competitive compared to our regional competitors (e.g. Singapore) argue strongly for proceeding with the liberalization contained in the Agreement reached with HKT.

27 January 1998

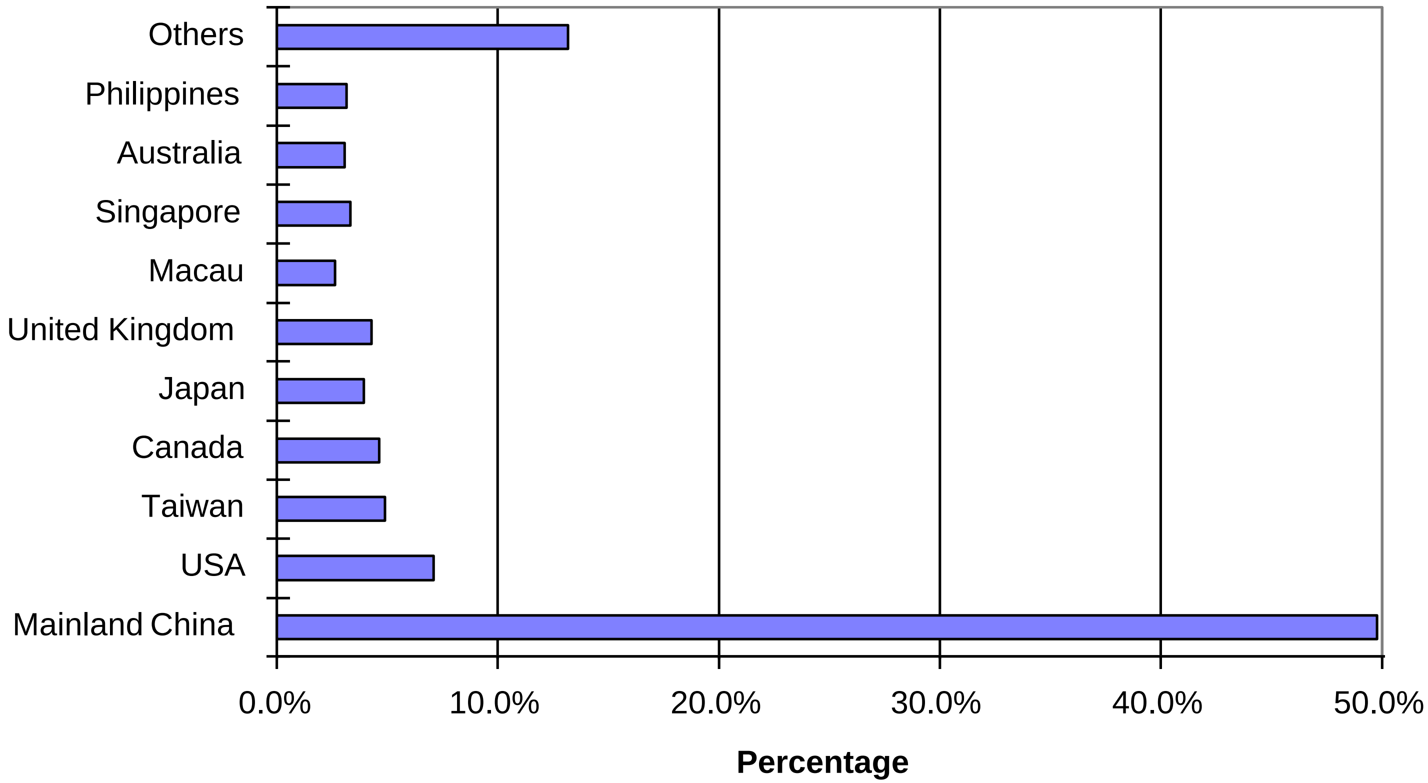
Attachment 1



Attachment 2

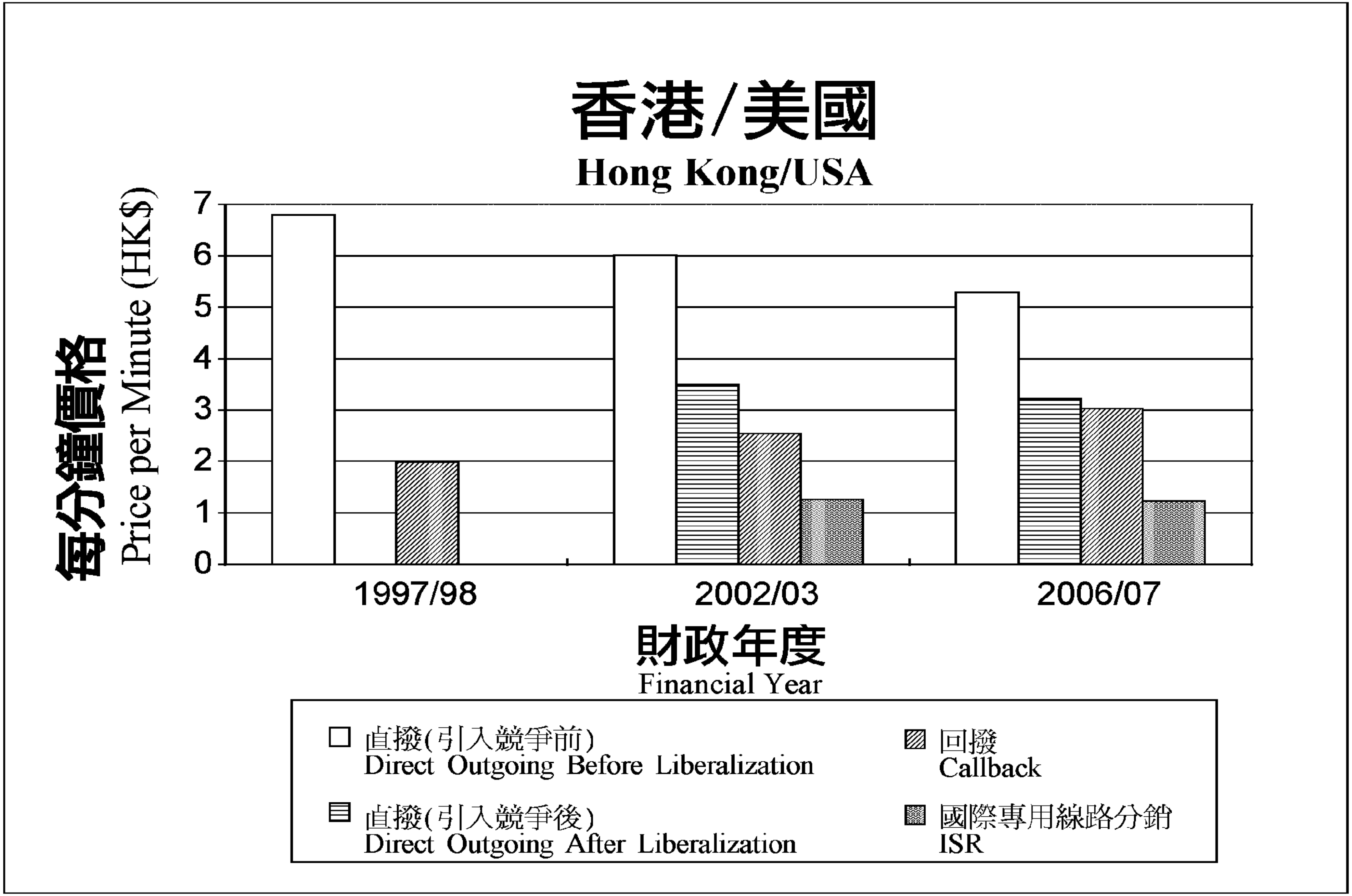
	1997/98
Mainland China	49.8%
USA	7.1%
Taiwan	4.9%
Canada	4.6%
Japan	3.9%
United Kingdom	4.3%
Macau	2.6%
Singapore	3.3%
Australia	3.1%
Philippines	3.2%
Others	13.2%

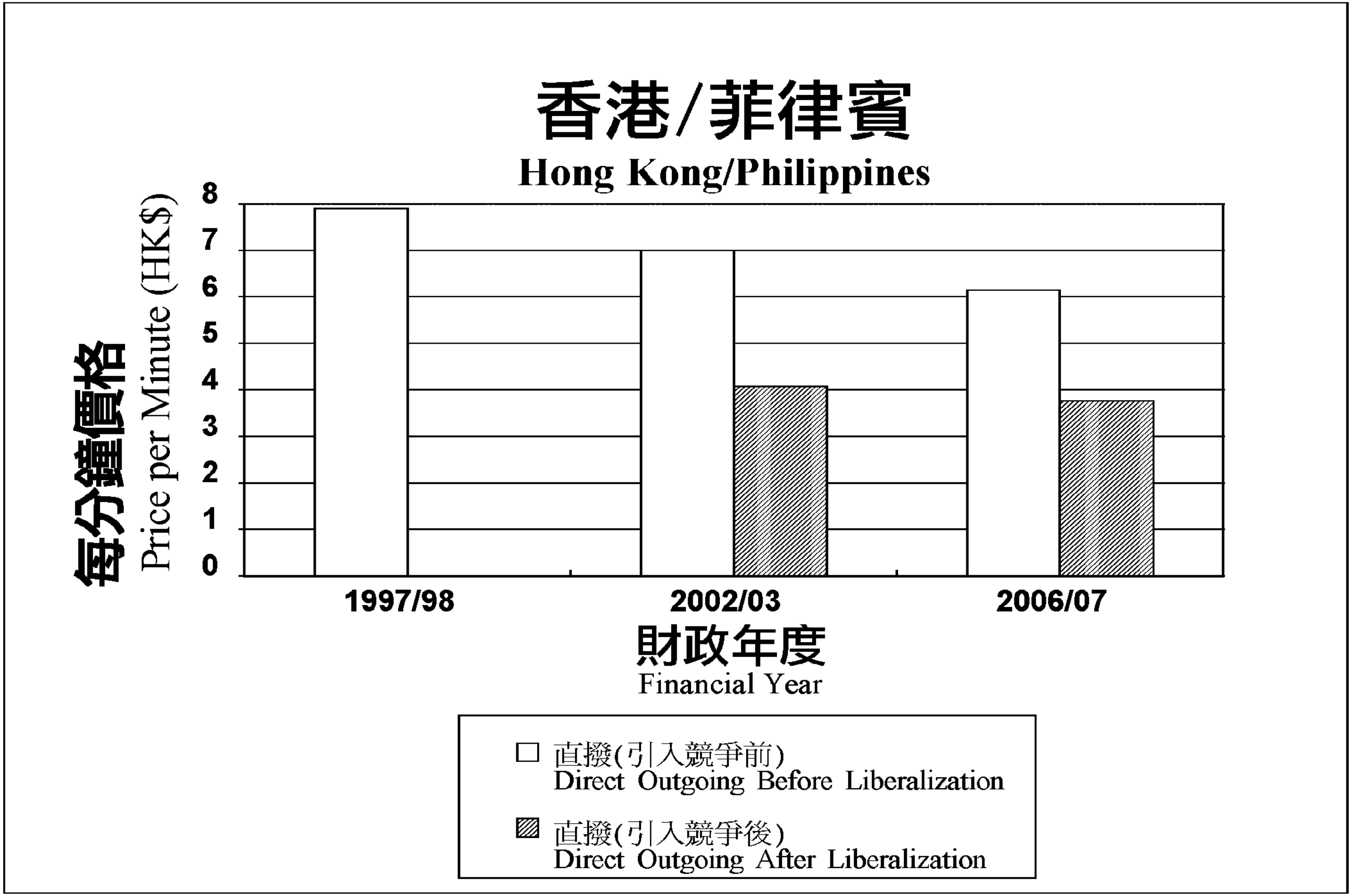
Hong Kong Originated Traffic Distribution by Destinations

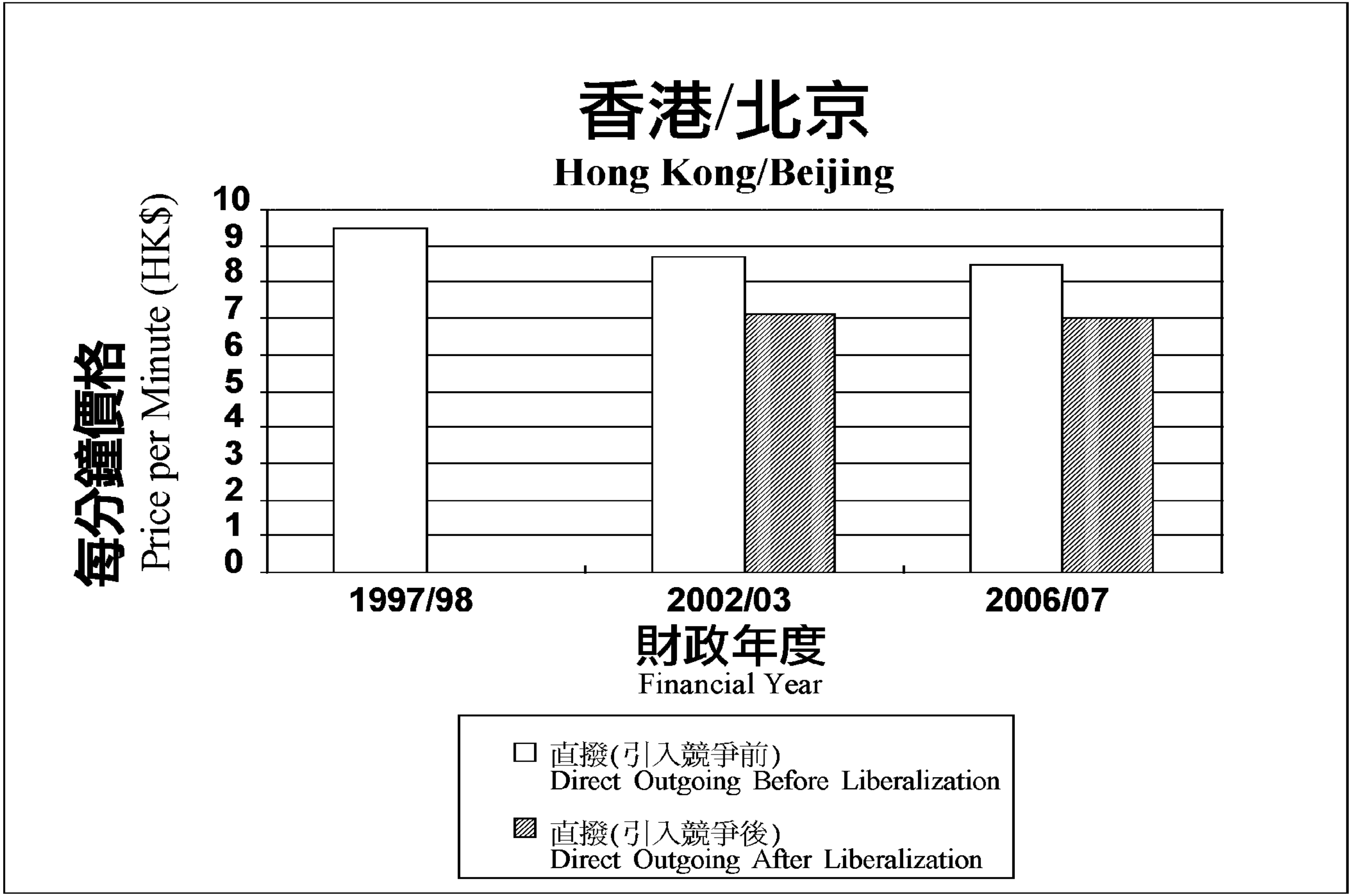


Attachment 3

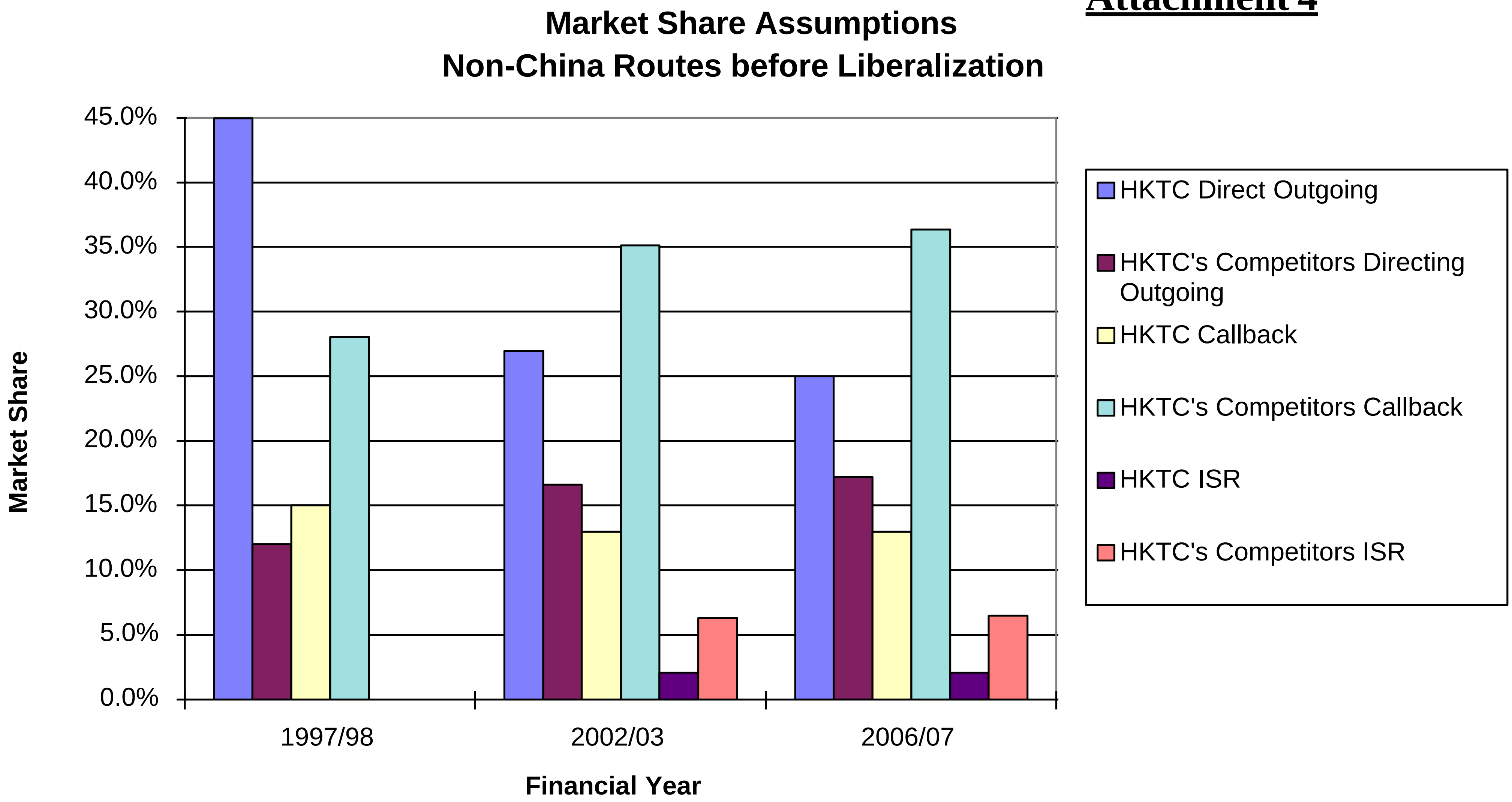
估計競爭對市場價格的影響
FORECAST OF IMPACT OF COMPETITION ON MARKET PRICES

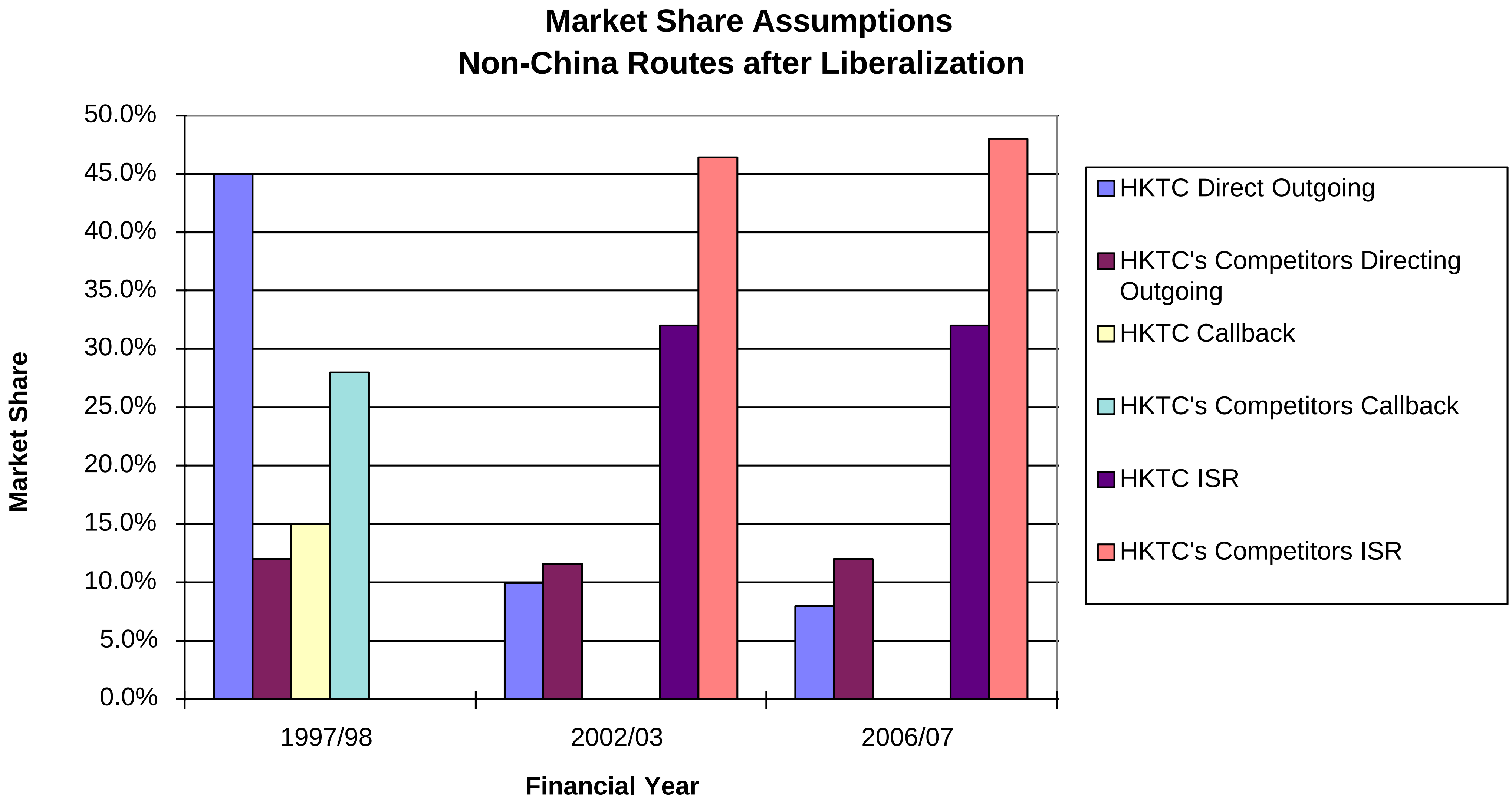

香港/美國
Hong Kong/USA
每分鐘價格
Price per Minute (HK$)
7
6
5
4
3
2
1
0
1997/98
2002/03
2006/07
財政年度
Financial Year
直撥(引入競爭前)
Direct Outgoing Before Liberalization
回撥
Callback
直撥(引入競爭後)
Direct Outgoing After Liberalization
國際專用線路分銷
ISR


香港/菲律賓
Hong Kong/Philippines
每分鐘價格
Price per Minute (HK$)
8
7
6
5
4
3
2
1
0
1997/98
2002/03
2006/07
財政年度
Financial Year
直撥(引入競爭前)
Direct Outgoing Before Liberalization
直撥(引入競爭後)
Direct Outgoing After Liberalization


香港/北京
Hong Kong/Beijing
每分鐘價格
Price per Minute (HK$)
10
9
8
7
6
5
4
3
2
1
0
1997/98
2002/03
2006/07
財政年度
Financial Year
直撥(引入競爭前)
Direct Outgoing Before Liberalization
直撥(引入競爭後)
Direct Outgoing After Liberalization

Attachment 4




Market Share Assumptions
Non-China Routes after Liberalization
Market Share
50.0%
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
1997/98
2002/03
2006/07
Financial Year
HKTC Direct Outgoing
HKTC's Competitors Directing Outgoing
HKTC Callback
HKTC's Competitors Callback
HKTC ISR
HKTC's Competitors ISR