

Hong Kong's Mobile Market in Perspective

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Background

In May 2000 I responded to OFTA's consultation paper on 3G licensing (see http://www.trp.hku.hk/papers/2000/3g_response.pdf). The whole industry seemed to have gone crazy in the wake of the dot.com bubble and network operators in the UK and Germany had bid what I estimated was ten times the true value of a 3G licence. Securities analysts were generally enthusiastic that similar sums were worth bidding in Hong Kong. On the contrary I proposed that licences should be issued either according to the tax that operators would bid to pay on profits (they would then have the alternative opportunity to pass tariff reductions on to their customers) or according to the royalty payment they would bid to pay on turnover. By the time the latter proposal was adopted market sentiment had changed and four licences were issued to four bidders in 2001 at the reservation price. So what does this tell us about the state of the sector and its future prospects?

How Significant is the Mobile Sector to Hong Kong's Economy?

Over 85 per cent of the population of Hong Kong has a mobile phone, one of the world's highest penetration rates, but just how important this sector is to Hong Kong's economy can be gauged by examining the multiplier effect of expenditure on and by the industry. It is widely understood that average revenue per user (arpu) of around \$300 per month represents breakeven, that is fixed and variable costs are being recovered. I have estimated average monthly arpu for the years 1997-2001 based on data collected over recent years by the Telecommunications Research Project from operators and financial analysts' reports. These are weighted averages of very incomplete data. The weightings are the operator's estimated share of the market at the time, and even this data is incomplete, so these are very much best guesses.

1997 - \$605
1998 - \$400
1999 - \$314
2000 - \$300
2001 - \$250

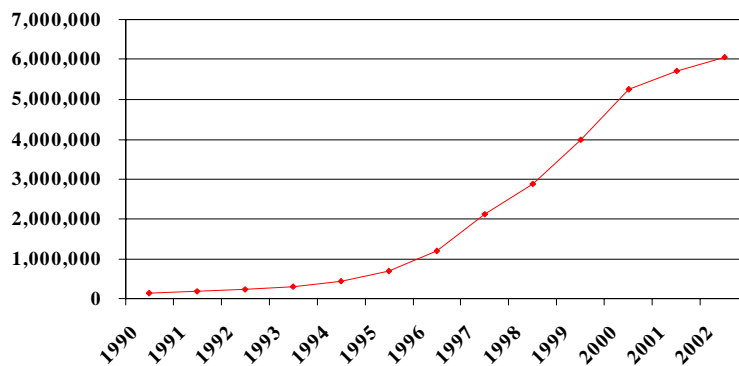
An annual weighted arpu of \$300 in 2000 yields annual gross revenue of around \$20 billion, or 2.2 per cent of GDP. This revenue is then recycled by the industry in the form of wages, office equipment supplies, utility bills, investment in base stations, and so on. If we assume that two thirds of this flows back to the local economy, and assume the propensity to save from personal and business incomes is 0.3, then we can estimate a multiplier effect on local incomes as \$44.4 billion. This makes the industry's annual contribution to the Hong Kong's GDP rate of growth *or contraction* in the order of 4.9

per cent.¹ That means, for example, if GDP grew at 6 per cent the industry would be making a contribution of around 0.29 per cent. These are significant numbers for good or for bad, and the mobile cellphone sector is clearly of great strategic importance to Hong Kong in economic terms.

What is the Current State of the Industry?

Resilient is a word that comes to mind when describing Hong Kong's mobile cellphone sector of the telecommunications industry. How six operators have been able to keep eleven networks running in a population of no more than 7 million is question the financial analysts having been asking since the late 1990s. The reason for the question comes out of the graph, which shows clearly how subscriber growth rates tailed off from 1999-2000.

Mobile Subscribers



Source: OFTA

Another adjective springs to mind, innovative. This market is a classic case of what economists term 'monopolistic competition', meaning there is intense competition between many companies, none of whom can exercise market power, but each uses innovative service packages and marketing to create a unique brand over which they have a monopoly. And despite the very poor economic climate for the past two-to-three years remarkably five out of the six operators announced profits for 2002. Previously only one had shown a profit for several years.

Severe cost cutting and re-engineering of networks has enabled the mobile operators to turn the corner in what remains an aggressive marketplace. But this follows a period of cutthroat competition when handsets were heavily subsidized and service packages were

¹ The basic multiplier relationship is given as $Y_t = I_t/s$, where 'Y' is income, 'I' is investment and 's' is the propensity to save, so savings 'S' = sY and $Y = I + S$ (which is an identity when the system is in equilibrium.)

often offered at below variable cost just to maintain market share. Tables 1 and 2 illustrating published cellular tariffs.

Table 1

| Changes in the Cellular Telephone Market – Dual Band/D-AMPS | | | | |
|--|-----------------------------|------------------|--------------------------------|------------------------------|
| <i>Charges (Min-Max)</i> | CSL 1010¹ | Hutchison | PacLink/1+1² | SmarTone |
| Monthly rental | | | | |
| 2003 | \$260 - \$830 | \$108 - \$308 | | \$88 - \$298 |
| 2001 | \$260 - \$1,430 | \$158 - \$510 | \$101 - \$288 | \$168 - \$888 |
| 1999 | \$260 - \$1,430 | \$138 - \$490 | \$101 - \$288 | \$168 - \$938 |
| 1997 | \$488 - \$1,500 | \$390 - \$1,450 | \$175 - \$1,000 | \$288 - \$1,1480 |
| 1995 | \$650 - \$1,800 | \$200 - \$1,025 | \$175 - \$725 | \$120 - \$700 ² |
| Free Airtime | minutes | minutes | minutes | minutes |
| 2003 | 150-1,000 | 200 – 2,000 | | 200 – 1,800 |
| 2001 | 150 – 3,000 | 200 – 1,800 | 101 – 1,001 | 100 – 1,850 |
| 1999 | 150 – 3,000 | 200 – 1,800 | 101 – 1,001 | 100 – 1,850 |
| 1997 | 120 - 1,010 | 100 - 1,000 | 0 - 650 | 150 - 1,000 |
| 1995 | 100 - 1,250 | 100 - 1,480 | 0 - 250 | 0 – 700 ³ |
| Airtime Charges | | | | |
| 2003 | \$0.90 - \$1.30 | \$0.50 - \$1.00 | | \$0.8 - \$1.20 |
| 2001 | \$0.60 - \$1.30 | \$0.40 - \$1.00 | \$0.80 - \$1.30 | \$0.5 - \$1.20 |
| 1999 | \$0.60 - \$1.30 | \$0.40 - \$1.00 | \$0.80 - \$1.30 | \$0.50 - \$1.00 |
| 1997 | \$1.20 - \$2.00 | \$1.30 - \$1.80 | \$1.30 - \$1.85 | \$1.20 - \$3.50 |
| 1995 | \$1.00 - \$3.40 | \$2 - \$5 | \$1.85 - \$4.75 | \$1.60 - \$4.00 ² |

Notes: 1. CSL also offer a 123 service at lower tariffs. 2.Ceased taking on new customers in 2002. 3.1993.
Source: compiled by the TRP from information supplied by operators since late 1990s.

Table 2

| Changes in the Cellular Telephone Market – PCS Operators | | | | |
|---|-----------------|------------------|-----------------|-----------------|
| <i>Charges (Min-Max)</i> | ST/Extra | New World | Peoples | Sunday |
| Monthly rental | | | | |
| 2003 | \$88 - \$298 | \$78 - \$488 | \$88 - \$488 | \$88 - \$288 |
| 2001 | \$108 - \$508 | \$118 - \$768 | \$33 - \$436 | \$38 - \$338 |
| 1999 | \$88 - \$488 | \$98 - \$768 | \$0 - \$500 | \$108 - \$308 |
| 1997 | \$128 - \$388 | \$138 - \$488 | \$0 - \$400 | \$88 - \$308 |
| Free Airtime | minutes | minutes | minutes | minutes |
| 2003 | 200 - 1,800 | 150 - 3,200 | 200 – 3,200 | 250 – 2,300 |
| 2001 | 120 – 1,800 | 100 – 3,000 | 300 – 2,000 | 300 – 1,800 |
| 1999 | 120 – 1,800 | 100 – 3,000 | 0 – 1,800 | 100 – 1,000 |
| 1997 | 100 – 1,000 | 100 - 700 | 0 – 1,200 | 100 - 1,000 |
| Airtime Charges | | | | |
| 2003 | \$0.80 - \$1.20 | \$0.50 - \$1.00 | \$0.50 - \$1.00 | \$0.40 - \$1.00 |
| 2001 | \$0.50 - \$1.00 | \$0.50 - \$1.00 | \$0.45 - \$1.00 | \$0.15 - \$1.25 |
| 1999 | \$0.50 - \$1.00 | \$0.50 - \$1.00 | \$0.45 - \$1.00 | \$0.50 - \$1.00 |
| 1997 | \$0.50 - \$1.00 | \$0.50 - \$1.00 | \$0.45 - \$1.00 | \$1.50 - \$1.00 |

Source: compiled by the TRP from information supplied by operators since late 1990s

Three things stand out from the story of and behind these tables. First, the direction and the range of the pricing packages is indicative of a highly competitive and segmented market in this industry. Different operators aim for different market segments. Second, there is a very noticeable effort by the industry to hold list prices beyond 1999 as average revenue per user (arpu) falls to and below breakeven point for the operators. But, third, it is also important to note that these list prices are very often heavily discounted in the marketplace, for example by offering customers who switch from other operators lower monthly subscription fees and more free airtime, and by offering much lower airtime charges for calls that are intra-network rather than inter-network.

The introduction of mobile number portability (MNP) in 1999 added to the urgency as subscribers could now change networks and operators at will without incurring the need to change numbers. The handset subsidy strategy arose out of the fact that subscribers would often take advantage of these offers to move to a new operator as soon as their existing handset and service package contracts expired. It was a buyer's market.

It wasn't always a buyer's market. The reason behind OFTA licensing six PCN operators in 1996 was disappointment that prices had not come down further and faster after a fourth GSM licence was issued in 1994. The effectiveness of introducing PCN competition was immediate and obvious from the tables. But where does the industry go from here?

The Future?

The salient feature of 3G is that it offers high speed Internet connection, and therefore access to Web-based content and applications. The salient feature of the marketplace is there is not yet a demand for this access. How then is the investment justified? I think there are two elements to the answer. Sooner or later (and that is where the risk lies) pervasive computing will become a reality where everyday things have embedded chips and networking at home and in the office will be normal. Within this environment 3G and 4G and its variants, including wireless LANS, will become ubiquitous. But immediately the revenue generator, apart from good old-fashioned peer-to-peer voice services, is already evident in peer-to-peer text short messaging services (SMS) and multi-media messaging services (MMS). These are currently seen as stepping stones towards a more sophisticated use of Web-based content and applications by consumers and enterprise customers, but in reality the latter may simply drive the former.

Whichever way the market goes, this sector will remain a key component of Hong Kong's advantage. Not so much in terms of infrastructure alone, because others have already caught up, but in terms of innovation in services and the extent to which they are used to enhance Hong Kong's economic performance. Finally, the development of content and applications is a sector in its own right that can create jobs and investment in Hong Kong, and much more thought, by vendors and operators as well as Government, needs to go into how this sector can be encouraged. One idea that came out of a recent Telecoms InfoTechnology Forum (see

http://www.trp.hku.hk/tif/papers/2002/nov/exec_digest021120.pdf) is to build a Development or Support Centre for SME developers in Hong Kong, perhaps at CyberPort.