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Multi-component Study
2006-2007:
Thailand report

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Deunden Nikomborirak

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Contact:

WDR Project, LIRNE.NET
Center for Information and Communication Technologies
Technical University of Denmark, Building 371
DK 2800 Lyngby, DENMARK

Phone: +45 4525 5178
Fax: +45 4596 3171
Email: info@regulateonline.org

WDR Project Coordinator Merete Aagaard Henriksen: henriksen@lirne.net
WDR <www.regulateonline.org>
LIRNE.NET <www.lirne.net>

LIRNEasia

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Contact:

LIRNEasia
12 Balcombe Place
Colombo 08
SRI LANKA

Phone : +94 11 493 9992
Fax: +94 11 267 5212
Email : asia@lirne.net

<www.lirneasia.net >

LIRNEASIA SIX COUNTRY MULTI- COMPONENT STUDY 2006-2007

DRAFT FINAL: THAILAND

Lead Researcher: *Dr. Deunden Nikomborirak*, Research Director, Thailand Development Research Institute, Bangkok, Thailand

Second Researcher: *Dr. Harsha De Silva*, *Lead Economist, LIRNE Asia.*

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Section 1: Brief History of Liberalization

Until recently telecommunications services in Thailand were exclusively provided by two state-owned enterprises (SOEs): the Telephone Organization of Thailand (TOT), which held a monopoly over domestic telephony, and the Communication Authority of Thailand (CAT), which had a monopoly in international gateway services. The market division between the two SOEs saw through the development of telecommunications sector in Thailand, but in the early 1990s it was recognized that the future growth of the industry would require infusion of private capital.

A unique scheme to preserve the statutory monopoly of the two SOEs, while accommodating the private sector, evolved. Beginning in 1992, TOT and CAT awarded concessions to private companies to undertake network development and to provide fixed line, mobile, satellite, paging and other communication services, under a Built-Transfer-Operate (BTO) agreement. Under such an agreement private concessionaires would invest in infrastructure and then transfer legal ownership in the installed network to the state operator upon completion. In exchange, they were granted a 25-30 years exclusive use of the network.

To secure a concession, private operators had had to submit bids indicating the maximum revenue share that they were willing to offer the state telecom operators in exchange for the right to operate the lucrative telecom business under the latter's statutory monopoly rights. Those that offered the highest revenue shares were granted a concession.

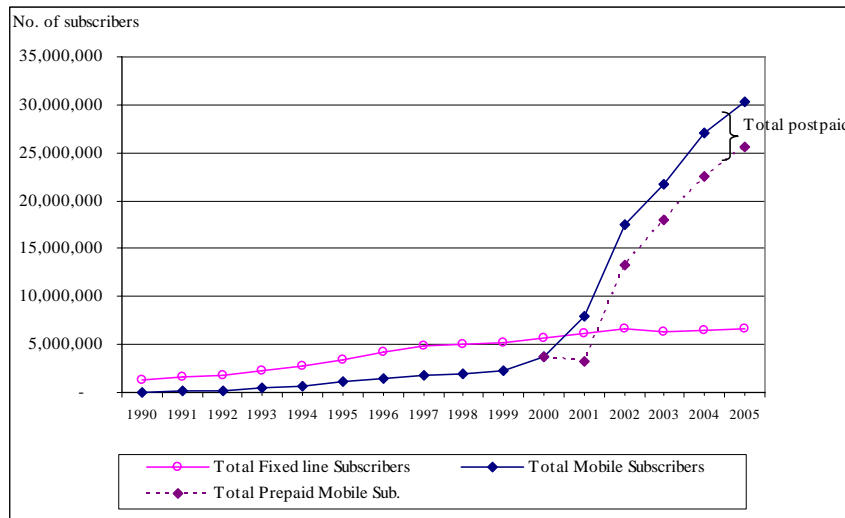
Since 1992, almost 40 major telecom concessions had been granted up until the promulgation of the Telecommunications Act in 2001, which officially ended the era of state monopolies. The entry of the private sector into the Thai telecom landscape in the early nineties ushered in an era of remarkable expansion in the subscriber base of both the fixed and the cellular network as can be seen in [Graph 1 below](#). It is important to note that the growth rate of fixed line more or less stalled after 1996. This was because fixed line concession specified the maximum number of lines that each private operator was allowed to install. Since no new concessions were granted during the later half of the nineties, the roll out of the fixed line network ceased when the number of installed lines reached the ceiling. On the contrary, cellular concessions contained no such capacity restriction so that the number of mobile phone was able to continue on its rapid expansionary path.

The rapid surge in the cellular subscriber base after the year 2000 was due to outbreak of a price war upon the entry of a third major player after a long period of tacit price collusion under a duopolistic market structure. Introduction of pre-paid services also played an important role in boosting subscriber base among lower income customers who could not afford high fixed monthly fee and needed to control their expenditure as shown in Graph 2. As can be seen in Graph 3, the Thai mobile market growth peaked in 2001 and slowed down thereafter as the market approaches saturation with 27 million subscribers in 2005, almost half the population.



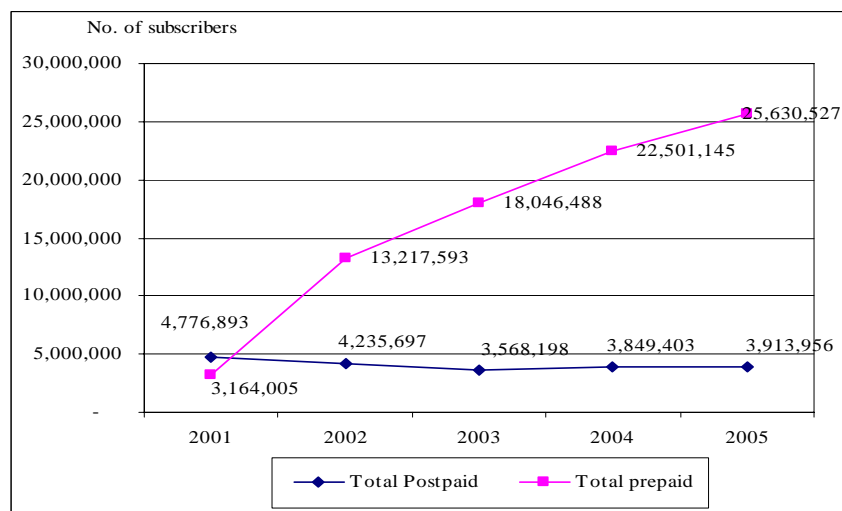
Looking into the future, the cut-throat competition in the mobile market is likely to continue considering the pending entry of the fourth player, Thai mobile. Once completed, the network, based on CDMA technology, can support 11 million. Due to the much delayed roll out of the network in the regions, however, Thai mobile now secures only 150,000 subscribers. For Thai mobile to become a considerable player in the market by exploiting its 1900MHz-2000MHz W-CDMA frequencies for 3G services, like its peers, a strategic partner among the global telecommunication service operator will be needed.

Graph 1 Fixed line and Cellular Telephone Subscribers 1990 – 2005



Source: Companies' data

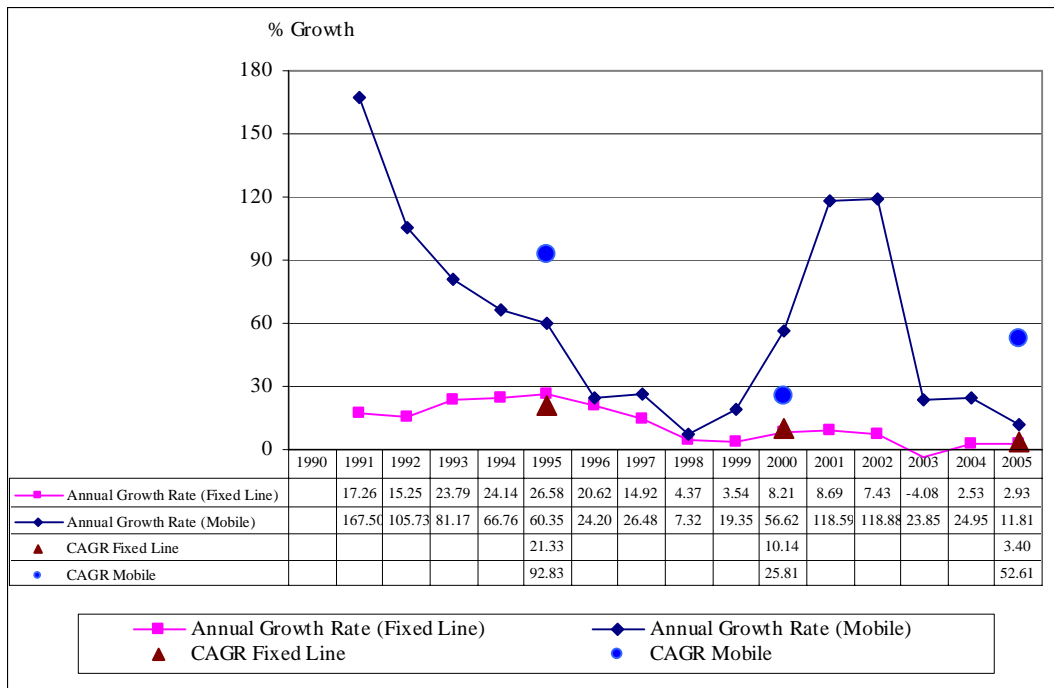
Graph 2 The Post-paid Service Boom



Source: Companies' data



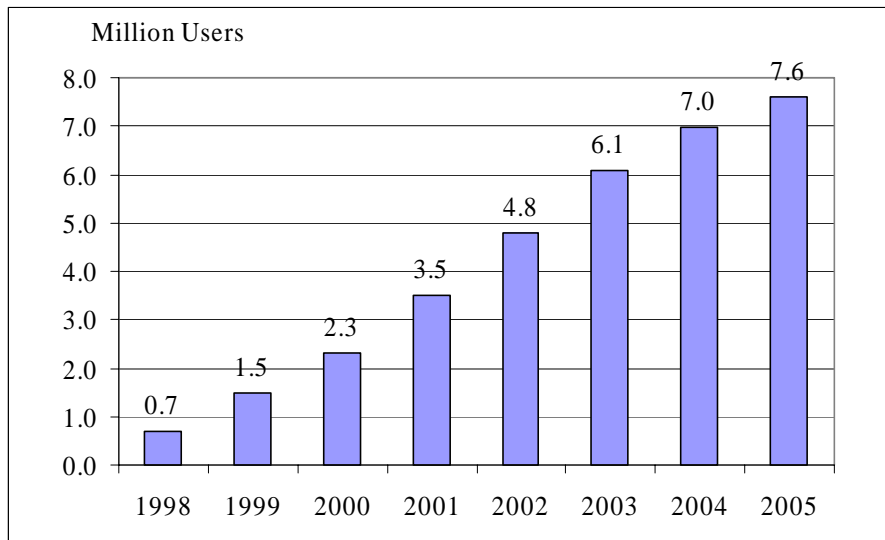
Graph 3 Fixed and Mobile Subscribers Growth and CAGR



Source: Author's Calculated

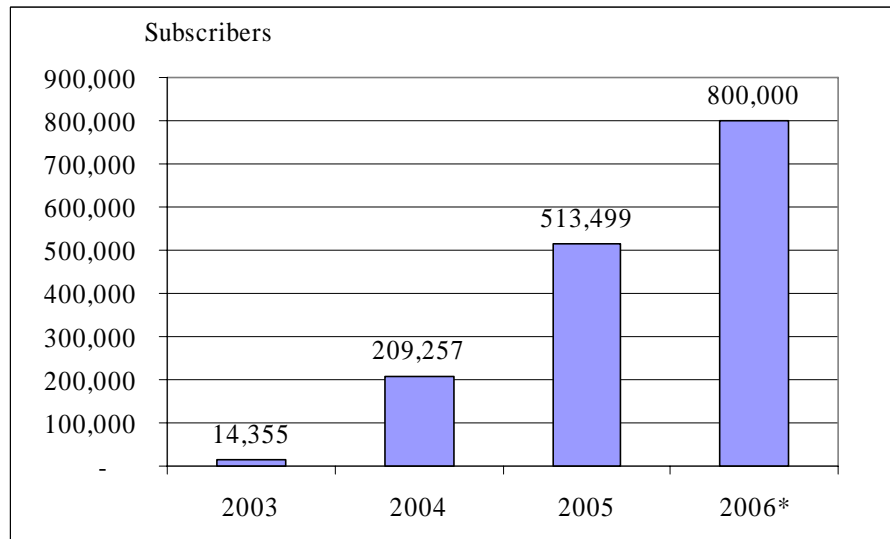
Turning to the internet service, the number of internet users increased steadily to reach 7.6 million, roughly 11.7% of the population in 2005 as can be seen in Graph 4. Broadband internet subscriber base was boosted by the government's policy promoting low cost high -speed broadband internet services in place of the 256 kbps dial-up service in 2003. TRUE, a fixed line telephone operator, offers the service in Bangkok area at US\$14.5 per month, while TT&T offered the same service for US\$ 24.5 in the provinces. As a result, the number of broadband subscribers surged from 14,355 in 2003 to 209,257 in 2004 and 513,499 in the following year. The number of broadband subscribers is expected to reach 800,000 by the end of 2006 as illustrated in Graph 5 below. According to a survey by the National Electronics and Computer Technology Center (NECTEC), more than half of internet subscribers in 2004 are broadband subscribers. This ratio is likely to increase markedly in 2005 and 2006.

Graph 4 Number of Internet Users



Source: 1. National Statistics Office
2. Data year 2003-2004 from NECTEC
3. Data year 2005 from Kasikorn Research Center

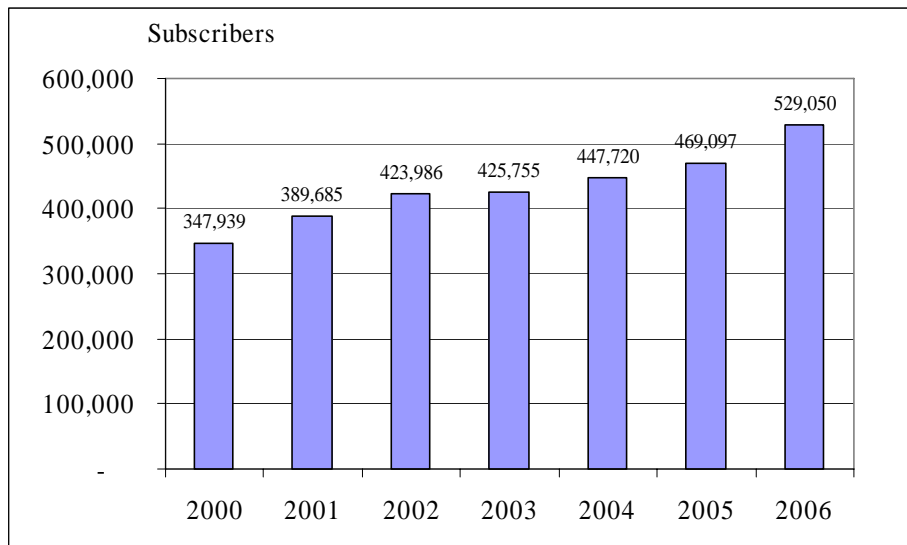
Graph 5 Number of Broadband Subscribers



Source: Ministry of Information and Communication Technology, Thailand Progress Report, AFACT Yearbook 2006.

In future, high-speed broadband internet service may also be made possible through coaxial cable or satellite network installed by the cable television service provider, UBC. Cable television subscriber base in Thailand has been growing rather slowly due to the lack of competition in the monopolistic market. Monthly subscription fee remains high and hence, new enrollment stalled.

Graph 6 Number of Cable Television Subscribers



Note: Data presented are based on third quarter figures.

Source: United Broadcasting Communication (UBC)'s website.

In 2000 an important legislation titled “The Organization of Frequency Allocation and Supervision of Radio Broadcasting, Television and Telecommunications Businesses Act,” was passed. The Act provides for the creation of independent regulatory bodies, the National Broadcasting Commission (NBC) and the National Telecommunications Commission (NTC). In the following year, the Telecommunications Business Act (TBA) was enacted to provide a pro-competition regulatory framework for the telecommunications sector.

Under the new law, state statutory monopoly was abolished so that new licenses could be issued by the NTC. The terms and conditions stipulated in telecom concessions signed between the state telecom operators, TOT and CAT, and the private telecom operators remain effective, however. Consequently, only 2 incumbent state operators were handed a license for voice service operation initially, while private concessionaires maintained a status of only a "subcontractor" of the two licensees under the aforementioned BTO agreement. No new fixed or cellular phone licenses have been handed out until to date. However, in August 2006, a gateway license was issued to Sky Office, an operator affiliated with the fixed line operator TA and the cellular operator, TRUE. Another overseas voice service license was issued to AIS International. The new entry would spark more competition in the overseas call service market that has been dominated by the two state incumbents, TOT and CAT.

The seven-member National Telecommunications Commission (NTC), the independent regulator mandated by the 1997 constitution responsible for licensing, spectrum management, and supervision of telecommunications operators, began its operations on November 1, 2004. The NTC's secretariat was formed from the former Post and Telecommunications Department (PTD) on November 1, 2004. The creation of the NTC follows reorganization with respect to ministerial oversight of the telecommunications sector in 2002. While the new Ministry of Information and Communication Technology (MICT) is responsible for overall telecommunications



policy, including such major initiatives as privatization of state-owned telecommunications firms, the initiative for liberalization clearly rests with the NTC which holds licensing power.

Three crucial measures are needed for Thailand to move its telecom sector forward: the liberalization of the telecom market to allow foreign participation, conversion of current concessions into operating licenses; and privatization of state enterprises.

The current telecom law caps foreign equity share in any telecom service supplier at 49%. This has not stopped foreign operators from taking over the local operators, however. It is well known that both the AIS, the largest mobile operator, is controlled by Temasek, Singapore's government investment arm, and that DTAC, the second ranking mobile operator, is controlled by Telenor, a Norwegian telecom operator. Foreign investors are often able to acquire complete corporate control, despite the direct equity share limitations, through indirect equity holding -- i.e., holding of equity shares in a series of holding companies up the company's ownership chain or through Thai nominees. While indirect equity holding in Thailand is legal and not counted toward the statutory foreign ownership limit, the use of Thai nominees to circumvent foreign ownership restriction is illegal and subject to criminal penalties according to the Thai Foreign Business Act 1999. Until 2006, the Thai government and the public were content to take a non-inquisitive stance towards the presence of foreign operators in the restricted telecom market.

It all changed when 44% equity share of Shin Corporation, the holding company of the largest cellular operator, AIS, was sold to Temasek, Singapore's government investment arm. The fact that Shin Corporation belongs to the then-in-power Thai Prime Minister, it inevitably became a politically charged case of foreign acquisition of a restricted business. The deal that was completed in January 2006 is still under investigation for an alleged use of Thai nominees to circumvent the foreign equity restriction. Unfortunately, this landmark investigation may have unintended spill-over to other foreign telecom operators that may have dodged the law in a similar way. If the law that bars foreign investors were to be strictly enforced, competition in the Thai telecom market would be very limited, to the detriment of the industry and the Thai consumers.

Concerning concession conversions, there has been no major progress in this area. The current revenue sharing between the state operators and private concessionaires undermine effective competition in the market. Many restrictions imposed on the private concessionaires in terms of pricing and network expansion, for example, pose major obstacles to the establishment of a level playing field in the telecom market.

On the privatization front, The TOT and CAT were corporatized in 2003 and renamed TOT Corporation and CAT Telecommunications, respectively. Privatization of the two SOEs should have followed, but is being delayed by the government's vacillation on when to merge the two SOEs, that is, before or after their initial public offering in the stock market. The stock market launching was expected to take place in 2004 but has been postponed until to date after the government's failed attempt to privatize the Electricity Generating Authority of Thailand (EGAT), another large SOE, in May 2006. The Administrative Court ruled the procedures null and void due to



conflict-of-interest problems. Any privatization attempts in the near future is unlikely given the fact that several privatization since 2002 have been marred with political vested-interest problems that left a bitter taste for most Thais.

Section 2: Current Market Structure and Competition

This section briefly describes the state of competition in major telecom markets and the nature of the players involved. Market structure has important implications for the development of the telecom sector, as well as regulatory environment.

2.1 Fixed-line Service

The law that created TOT in 1954 gave it monopoly control and ownership of all domestic telecommunications in Thailand. But under BTO arrangements, two other operators were permitted to put up fixed lines: Telecom Asia (TA) in the Bangkok Metropolitan Area, and Thai Telephone and Telegraph (TT&T) in rural areas. Currently, duopolists in both the Bangkok and the rural markets share comparable market shares. TOT occupies the larger share of 62% in the rural market, but only 42% in the Bangkok Metropolitan market as can be seen in Table 1. below. The market share has not changed materially in the past decades as no new fixed line licenses have been granted by the NTC and the state operator, TOT, has not been expanding its fixed line network.

TOT “competes” directly with its concessionaires, but only in service quality and scope of service offerings. There has been little effective price competition among the three fixed line operators because of the restriction on network expansion as well as on price adjustments that are stipulated in the concession contracts. Such restrictive clause has kept prices of fixed-line services, especially for domestic long distance calls, unchanged for almost a decade. When TOT recently introduced cheap domestic long distance services using VoIP technology, this became a source of dispute between TOT and its concessionaires who complained that TOT intentionally delayed their requests to lower their fees to match those of TOT in order to gain market share. Consequently, the level of competition in the fixed line market, measured by the HHI index barely changed for the Bangkok Metropolitan area as can be seen in Graph 7 below. The provincial market became more concentrated as ToT, the state dominant player, gained market share against its private competitor that has been bogged down by heavy debt and 43.1% revenue share obligation under the concession..

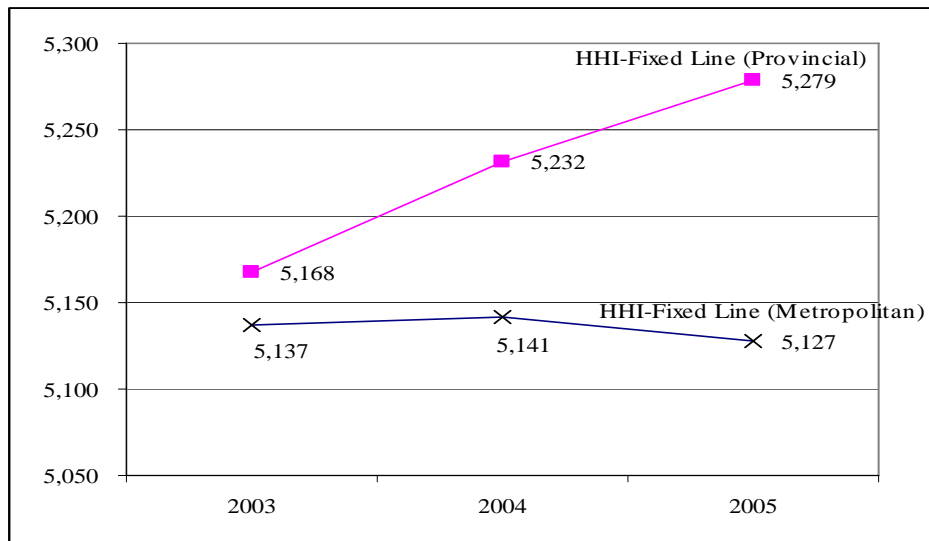
Table 1 Market Shares of Fixed Line Operators end of 2005

Service	Number of operators	Operators	Market Share (subscribers)
Fixed line telephone (Bangkok Metropolitan)	2	TOT (public) TA (private)	42% 58%
Fixed line telephone (provincial areas)	2	TOT (public) TT&T (private)	62% 38%

Source: TOT and TA Annual reports



Graph 7 HHI for Fixed Line Market 1999-2005



Source: Companies' data

2.2 Mobile Service

The mobile phone market has three major service suppliers, all of which are private concessionaires. They are Advanced Information Systems (AIS), Total Access Communications (TAC) and TA Orange. The remaining share belongs to new entrant, Thai mobile, and Hutch, the archaic analogue mobile service operated by the CAT. As mentioned earlier, the Thai mobile may develop into a major player given its network capacity. By the end of 2005, the market shares of the major three operators, measured by the number of subscribers, are 54.1%, 28.7% and 14.8%, respectively as can be seen in Table 2 below. Market shares based on revenues are mirror images of those based on subscribers as all target the same customer base and provide similar competing services.

Table 2 Market Shares of Major Operators end of 2005

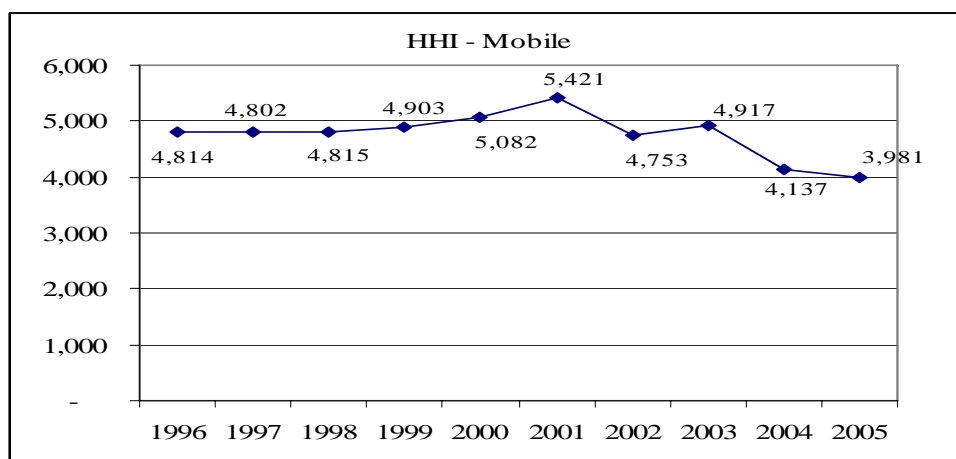
Number of operators	Major Operator	Market Share (subscribers)	Market share (revenue)
5	AIS (private)	54.1%	52.7
	TAC (private)	28.7%	30.4
	TA Orange (private)	14.8%	16.8
	Hutch (state)	1.9%	NA
	Thai mobile (state)	0.4	NA

Source: AIS and TOT Annual Reports

In terms of past trends, the level of competition in the cellular market, measures by the HHI Index, markedly increased after the year 2001 as can be seen in Graph 8 below.



Graph 8 HHI for Mobile Phone Market 1999-2005



Source: Companies' data

Currently, 2 out of 3 major cellular operators are foreign operators, namely Telenor of Norway, operating DTAC, and Temasek Holding of Singapore, operating the largest cellular player, AIS. Competition between foreign operators tends to be fierce. There is no doubt that the recent price war had tremendously benefited the lower income group. The number of subscription increased from 1.4 million in the year 2000 to 9.2 million in 2002 and an overwhelming 30 million in 2005.

As mentioned earlier, the Ministry of Commerce and the NTC are currently investigating the qualification of the two foreign operators, DTAC and AIS, whether they are violating the Telecommunications Act which limit foreign equity holding to 49%. Should the NTC decides to pass rules that include indirect foreign equity holding in the calculation of the foreign equity share, then foreign investors would have to divest. This would indeed result in calamity. Thailand would then be deprived of much needed foreign participation in the development and competition in her telecom market. Considering the size of the telecom stake that would have to be relinquished, it is likely that the share would fall into the hands of one of the local business tycoons that already wield overwhelming economic and political power in the Thai market.

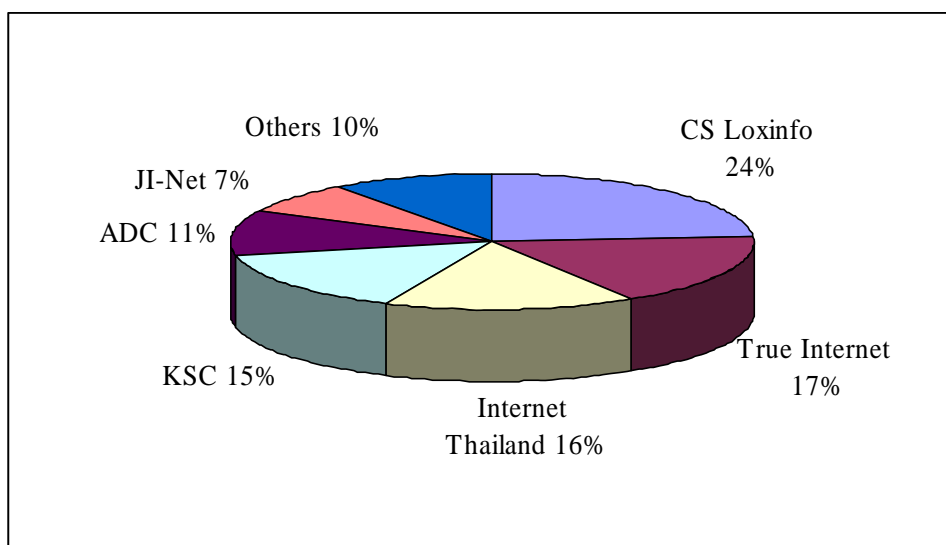
2.3 Internet Services

Before the NTC was established, all ISPs operated under the CAT's concession. In exchange for a 10 years concession, they were required to grant 32 percent of their equity share to the CAT. This arrangement prevented ISPs from expanding, since a third of any additional capital injection would need to be transferred in gratuity to the CAT. Moreover, the monthly subscription fee for a dial-up service price was capped at 900 baht or roughly US\$23. This has facilitated tacit price collusion among handful of ISPs in that all quoted the same ceiling price but offered some discount based on case-by-case negotiation. Fortunately, those concessions now all expired.



Since 2005, the NTC has handed out 44 ISP licenses. Prices of connection, mainly broadband these days, have come down significantly. In 2003, the Ministry of Information and Telecommunications and Technology (MICT) launched a policy to lower the broadband internet subscription fee to lower than **US\$ 25 per month**. As a result, the number of broadband internet users increased dramatically from 50,000 people to 250,000 in 2004. The projected number in 2006 is 1 million.¹ Despite the relatively large number of service providers, prices of the leased line services remain high due to the excessive access charge of the CAT, who monopolizes the international gateway access. Previous research has shown that the price of international half-circuit provided by CAT is at least 40% higher compared to those competitively supplied².

Graph 9 Internet Market share by Revenue 2005



Note: 1) Market share figures are calculated based on 21 operating ISPs' revenues according to Nectec's website (<http://iir.ngi.nectec.or.th/#isp>). Revenues of 3 TOT CAT and TT&T have been eliminated from the calculation as they include those from other services such as fixed line and international calls.

2) Revenues data may include income from the following services: dial up, leased Line and broadband.

Source: Author's own calculation

2.4 Cable Service

Currently, Thailand has only 1 national cable television service provider, the United Broadcasting Communications. In the past, there were as many as 3 companies, but due to the limited size of the market at that time, only 1 operator emerged out of the fiercely competitive market. There are, however, many small local service providers in the regions, but Bangkok metropolitan area is served by a single supplier since 1995.

¹ CS Market Research(2005), Fixed Broadband

² Tangkitvanich, Somkiat (2001), State Interventions and the Internet Market: Lessons from Thailand. Paper available at http://www.info.tdri.or.th/library/quarterly/text/j02_1.pdf

2.5 Conclusion

To briefly conclude, the Thai telecom sector can be generally described as an oligopolistic market with not more than 3 major players on the market, except for ISP services. Nevertheless, healthy competition prevails in the bustling cellular sector. On the contrary, the rather sluggish fixed line market exhibits limited competition with constraints on new capacity installment and rigid price regulation.

Since the introduction of private concessions in 1992, the prominence of state service providers have continuously been eroded. Public operator non-existent in the cable television market and negligible in the most dynamic markets – i.e., the internet and the mobile markets. The last bastion of state telecom presence is in fixed line markets as can be seen in Table 3. If and when new fixed line licenses are handed out by the NTC, the state share of this market, too, will begin to slide.

Table 3 Summary: Thai Telecom market structure 2005

Service	No. of players	HHI	Market share <i>State : private</i>
Fixed line (Bangkok Met)	2	0.51	42:58
Fixed line (regional)	2	0.53	62:38
Cellular	5	0.40	2:98
Internet	21	0.16*	0:100
Cable (Bangkok Met.)	1	1.00	0:100

Note: * Data year 2004

Source: Author's Calculated

Section 3: Key Service Performance Indicators

This section makes a quantitative assessment of Thailand's telecom services in terms of i) availability ii) affordability iii) accessibility and iv) equity as can be seen in the table below.

3.1 Availability

3.1.1 Fixed and Mobile

Before the unleashing of the cellular price war in 2000, Thailand relied mainly on fixed wire line phone service³ for connectivity. Unfortunately, the roll out of the fixed network, which began in 1992 stalled in the late nineties as the term of the

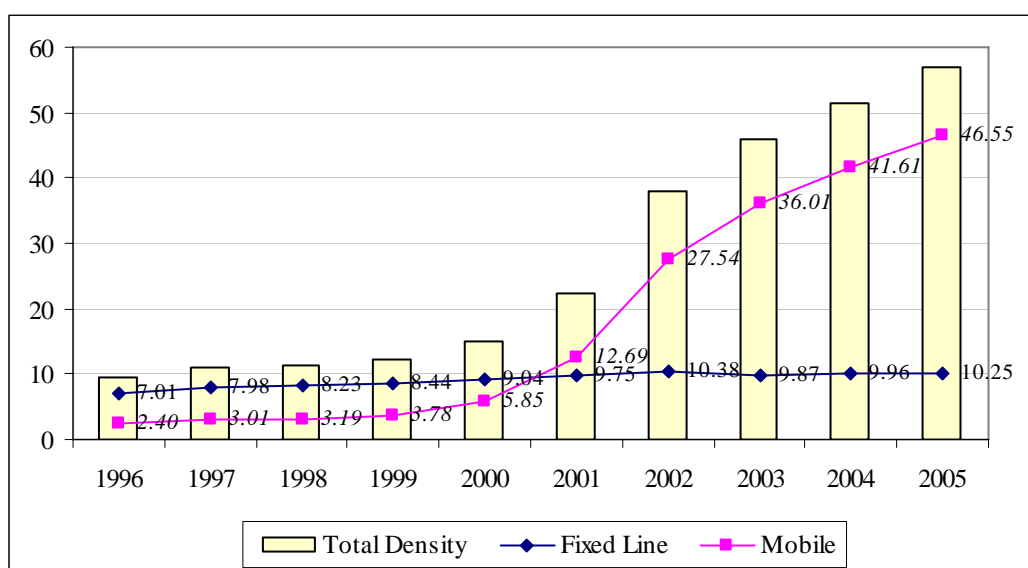
³ The number of wireless fixed line is negligible in Thailand given the easy access and affordability of mobiles services.



concession fixed the number of lines that each private concessionaire was allowed to install. As can be seen in Graph 10 below, the penetration increased only marginally during 2000 – 2004.

Unlike fixed line concessions, cellular concessions did not cap the size of the network that the private concessionaire may install. Beginning in 2000, the surge in cellular demand in response to falling prices prompted rapid roll out of the cellular network, which significantly contributed to the steep rise in the connectivity of the population. As can be seen in Graph 11 below, cellular penetration rate surpassed that of fixed line in 2001 and continued on a steep rising path to reach a high of 46.55 in 2005. Consequently, total tele-density more than doubled in 4 years from 22.44 in 2001 to 56.8 in 2005.

Graph 10 Total tele-density: fixed and mobile



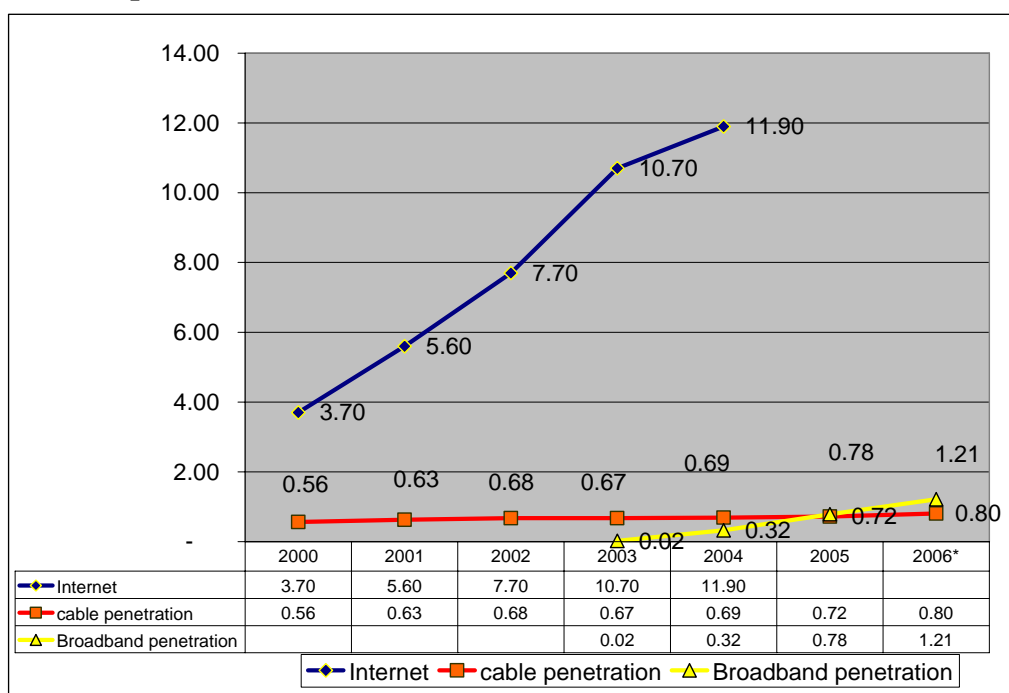
Source: companies' data

3.1.2 Internet, Broadband and cable

The internet, broadband and cable television density in Thailand remains relatively low. Internet users penetration in the year 2004 (most recent survey) was 11.9. This figure is likely to be much higher in the year 2005 and 2006, however, given the recent rapid spread of internet accessibility and usage. Among these users, very few have access to broadband service at home. In 2006, the number of broadband subscribers is expected to reach 800,000, representing only 1.2 % of the population. This may be the case because broadband service, while relatively affordable in Bangkok at less than US\$ 15 a month, is relatively expensive in the provincial areas where monthly fee starts from US\$ 25 at minimum.

Cable television penetration growth has remained somewhat flat given the relatively high monthly subscription fee of roughly US\$ 40 (including equipment rental fee) as well as a hefty installation fee of US\$ 240 charged by the only national cable operator. It should be noted, however, that there are 78 licensed regional cable operators serving 1-1.5 million subscribers.

Graph 11 Internet, Broadband and Cable Television Penetration



Source: National Statistical Service for Internet users figure, UBC for cable television subscribers and Ministry of Information, Communication and Technology for Broadband figures.

3.2 Affordability

Before the entry of the third operator, TA Orange, a joint venture between Telecom Asia, the local telco, and Orange, the British global telco, in the year 2000, there was no price competition in the duopolistic cellular market as can be seen in Table 4 below:

Table 4 Pricing Strategies of Major Mobile Phone Operators

Total Access Communication Plc (TAC)	
Package 1	A monthly fee of Bt500. Bt1 per minute for local calls and a maximum of Bt12 for a long distance call for the first three years.
Package 2	A monthly fee of Bt800. Free 400 minutes of local calls per month plus 40 minutes of free long-distance calls for the first two years.
Package 3	A monthly fee of Bt500. Fifty per cent discount from the normal rates for both local and long-distance calls.
Advance Info Service Plc (AIS)	
Package 1	A monthly fee of Bt500. Free 400 minutes of local calls per month. Additional calls at normal rates.
Package 2	A monthly fee of Bt990 for 200 minutes of local calls during peak times and 100minutes at off-peak times. Additional calls at normal rates.
Package 3	A monthly fee of Bt 1,290 for 200 minutes of nationwide at peak times plus 100minutes at off-peak times. Additional calls at normal rates.

Source: ITU (2000), Thailand: IP Telephony and the Internet page 9. Table compiled from The Nation, March 13, 2000 Available on-line at www.itu.int/osg/spu/ni/iptel/countries/thailand/thailand-iptel.pdf

The monthly subscription fee were fixed at 500 baht minimum for both operators for several years until TA Orange decided to embark on a price cutting scheme to make inroads into the incumbents' market share. Since then, price competition has intensified as the incumbents responded by slashing their prices. Currently, the minimum subscription fee for post-paid services have been reduced to 350 baht per month, which include 100 minutes of free call.

3.3 Accessibility

3.3.1 Public Telephone

Despite the stalled fixed line installation, the number of public fixed line telephone continued to grow steadily such that the number of lines per population increased from 1.64 to 4.68 as can be seen in Table 5. And, despite the cellular revolution, usage of public phone, measures in terms of number of metered pulse, continued to increase against the obvious decline in both residential and business usage. In 2004 public telephone usage amounted to 7.2 million metered pulse, while that of residential only 1.18 million and office, 0.86 million as shown in Table 7. Hence, one may conclude that public phone continues to be the major factor contributing to improved connectivity of the population.

Table 5 Public Telephone Access

	1998	1999	2000	2001	2002	2003	2004
No.of Lines	100,542	123,813	153,044	172,118	221,738	270,917	289,954
No. of lines per 1,000 population	1.64	2.01	2.47	2.76	3.53	4.29	4.68

Source: TOT PCL

Table 6 Public Telephone Usage

Unit: (thousands of metered pulse)

	1998	1999	2000	2001	2002	2003
Business	1103.01	1021.86	1035.14	1029.71	935.14	886.14
Residence	1596.2	1556.02	1656.76	1643.53	1361.84	1188.84
Public Telephone	5601.9	5720.21	6129.38	6302.19	6029.51	7206.73

Source: TOT PCL

3.3.2 Own Telephone/Computer

Statistics reveal that household ownership of mobile phones reached almost 40 per cent in 2004 as shown in Table 7 below. On the contrary, household fixed line ownership actually declined marginally perhaps due to the substitution of mobile for fixed line. This may be the case because mobile phones offer lower domestic long distance rates. In fact, there is no distinction between local and long distance rates for calls made from a mobile phone. On the contrary, making a domestic long distance call from a fixed line telephone is still subject to a per minute rate that is based on the distance as shown in table 9 below.

Only 12 percent of households have computers, however. This would indicate that wireless internet access network rollout will be critical to the internet penetration in Thailand, in particular in rural areas where fixed line services are very limited.



Table 7 Household ownership of fixed line, mobile and computer

	2000	2002	2004
Fixed	NA	24.2	23.9
Mobile	NA	30.6	38.6
Computer	4.3	6.7	11.8

Source: National Statistical Office, 2006

Table 8: Fixed line service fee

Package 1: Monthly fee 100 Baht – Local call to fixed line: 3 Baht/call; Call to mobile 1.5 baht/minute; long distance rate as shown in table 9

Package 2: Monthly fee 200 Baht – Local call to fixed line: 3 Baht/cal; long Distance Rate and call to Mobile are both 2 Baht/min.

Table 9 Domestic Long Distance Rates

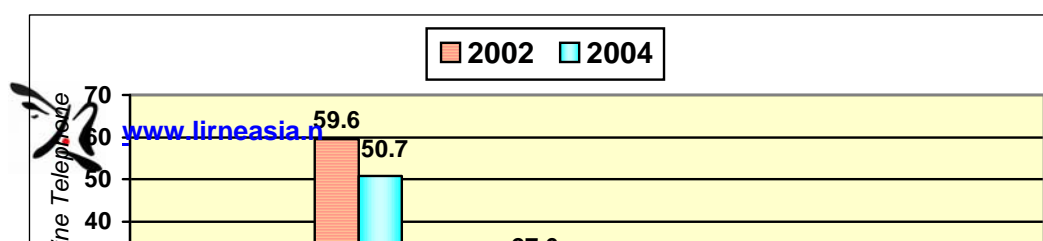
		Long Distance Rates			
day		0-50 km.	51-100 km.	101-200 km.	200 km.
workday	07.00-18.00	2.00	4.00	6.00	8.00
	18.00-22.00	1.00	2.00	3.00	4.00
	22.00-07.00	0.75	1.50	2.25	3.00
weekend	07.00-18.00	1.50	3.00	4.50	6.00
	18.00-22.00	0.75	1.50	2.25	3.00
	22.00-07.00	0.50	1.00	1.50	2.00

Source: ToT' 's website

3.4 Equity

Despite the high overall connectivity, Thailand's data still displays large gaps in communication accessibility between the higher income households living in the urban Bangkok Metropolitan areas and lower income ones living in the regional areas, in particularly, the Northeast region where income per head is lowest in the country. For example, roughly half of households in the Greater Bangkok region reported ownership of a fixed line telephone, five times the number for households in the Northeastern region as can be seen in Graph 12 below.

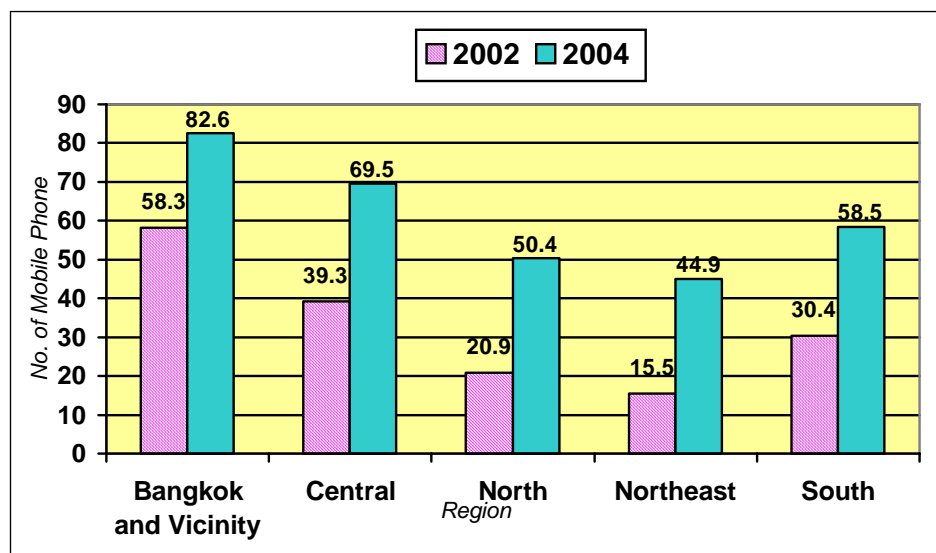
Graph 12 Percentages of Households Reporting Ownership of Fixed Line Telephones by Region



Source: National Statistics Office

The digital divide is less glaring in case of mobile phones. While 82.6 % of households in the Greater Bangkok region reported ownership of a mobile phone, 45% of those in the Northeast region reported one. Indeed, the rapid proliferation of mobile services, resulting from healthy price competition among major service suppliers, has helped close the divide. As can be seen in Graph 13, the percentage of households that reported ownership of mobile phones in the Northeastern region almost tripled in just 2 years 2002 to 2004. The same figure for the Northern region, the second poorest region, more than doubled.

Graph 13 Percentages of Households Reporting Ownership of Mobile Telephones by Region



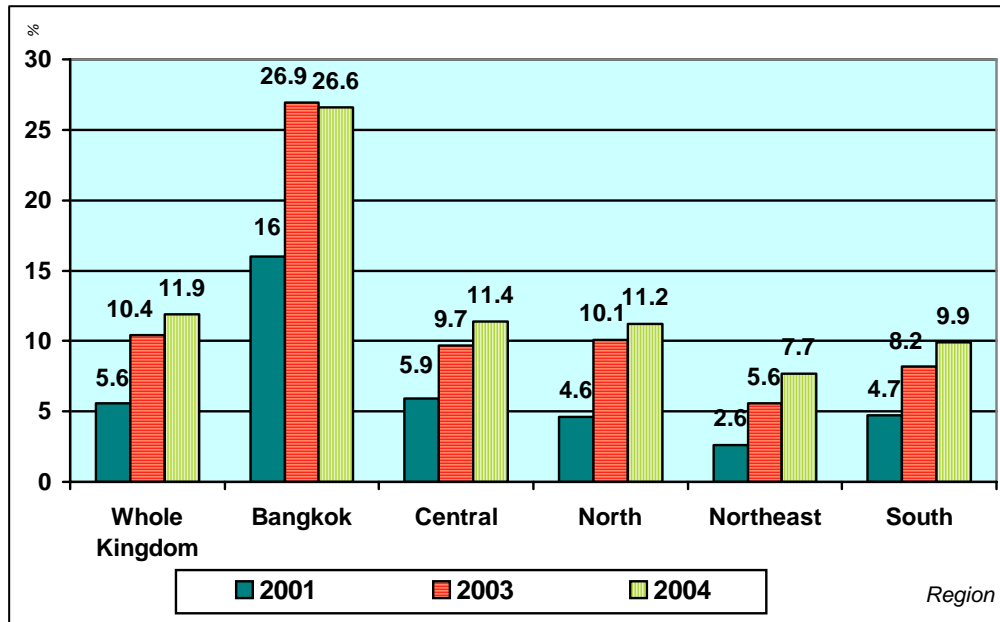
Source: National Statistics Office

Turning to the internet, there is a large difference in the number of internet users density in the Greater Bangkok Area and in the regions as can be seen in Graph 14 below. A large part of this discrepancy is likely the result of the lack of access to fixed line network. Data on internet users density is consistent with that on computer ownership as presented in Graph 15. In 2007, less than 7% of households in the

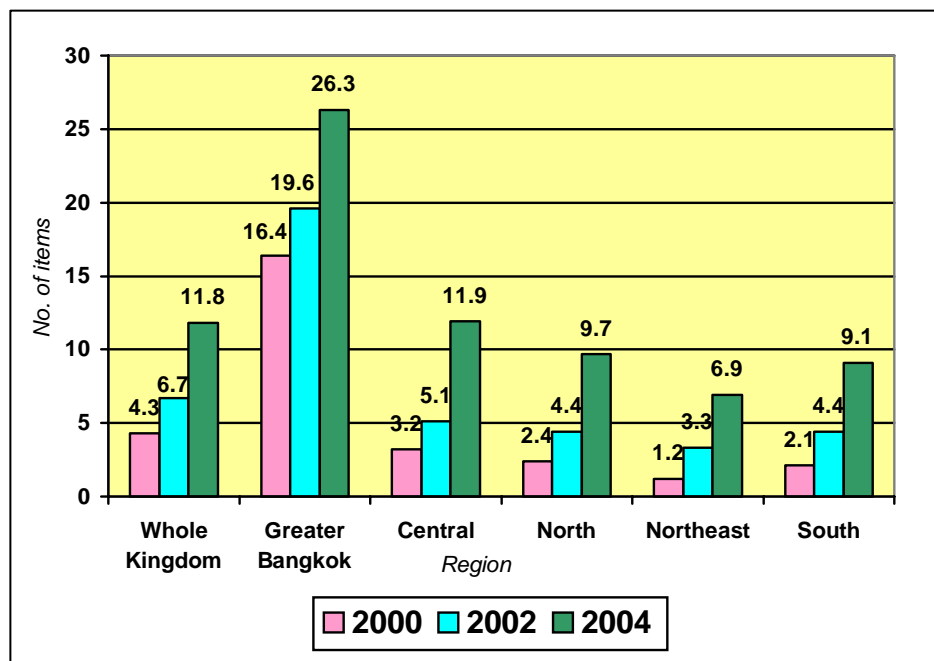


Northeastern Region reported ownership of a computer, while that in the Bangkok Metropolitan Area was 26.7%.

Graph 14 Number of Internet Users per 100 Inhabitants

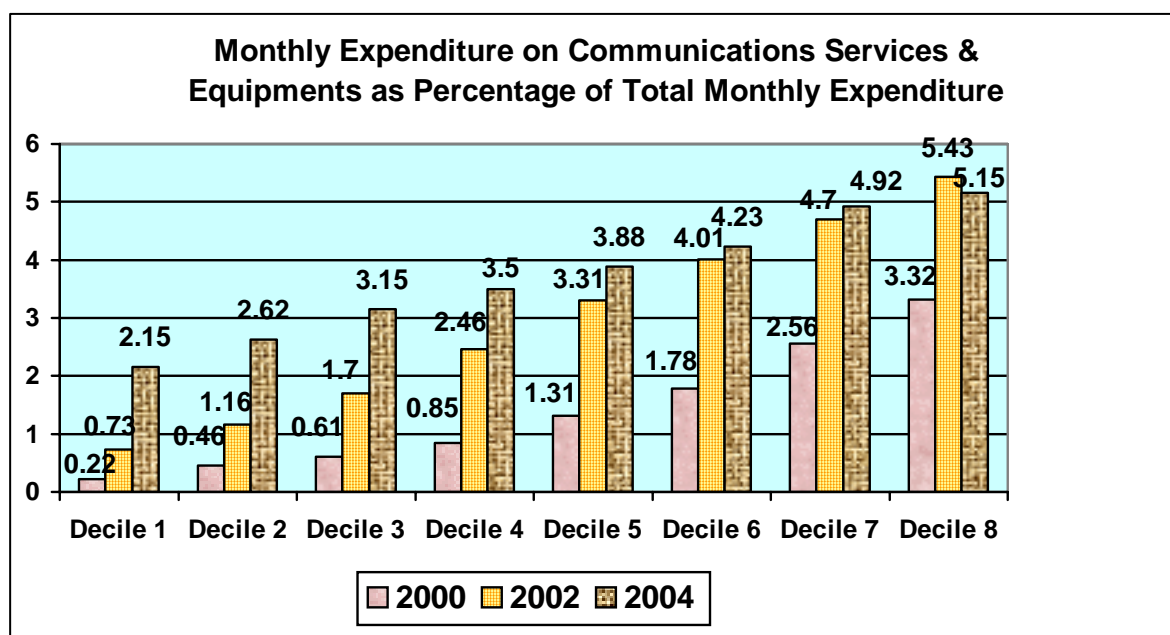


Graph 15 Number of Households Reporting Ownership of a Computer



Communication services appear to be affordable even for those in the lowest income group. According to Graph 16 in 2004 the lowest income group⁴ spent 2.15 per cent of their monthly expenditure on communications services and equipments. All income groups seem to have spent more on communications services and equipments during 2000-2004, reflecting wider availability and more intensive use rather than increase in cost. However, the expenditure figures for higher income decile groups seem to have tapered off and even declined in 2004 for the 8th income decile group. This seems to indicate demand saturation coupled with falling mobile tariffs that has reached extremely low levels.

Graph 16



To conclude, Thailand's key performance indicators reveal the following salient features of the development and performance of the Thai telecommunications sector

1. The rapid rollout of the mobile phone network in face of intensified market competition helped increase the country's teledensity and help close the digital divide.
2. Public phones remain most important and efficient source of public access.
3. Lack of competition leads to stagnant growth in fixed line roll out, which, in turn, affects the internet and broadband penetration. Similarly, the cable television monopoly held back the potential rollout of high capacity coaxial cable network that can support broadband internet access.

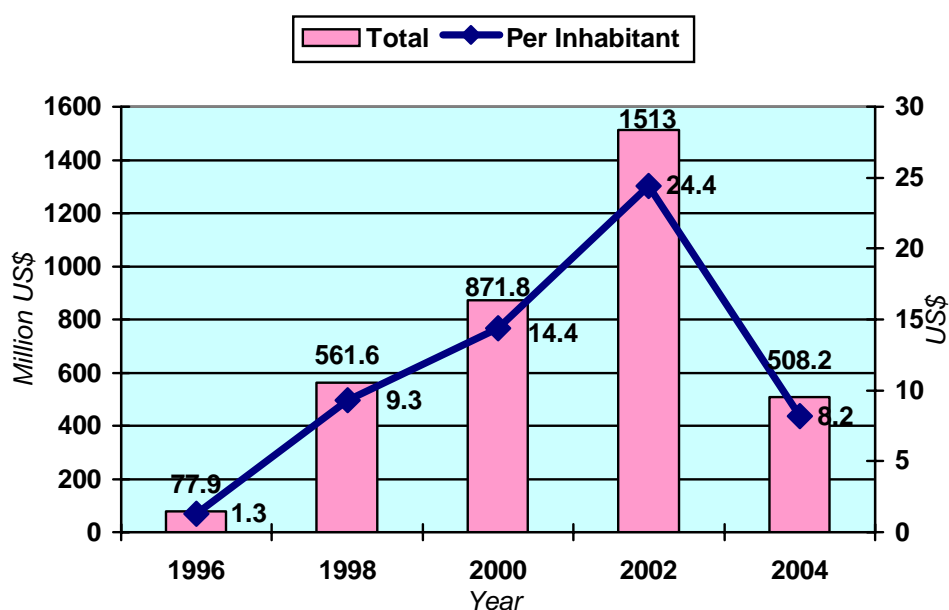
⁴ Data pertaining to the first and the last decile income group has been eliminated because of the extremely broad income range.

Section 4: Key Indicators of Telecom Industry Development

4.1 Investment

Investment in telecommunications in Thailand peaked in 2002 along with the rapid expansion in the cellular network expansion fuelled by strong competition in the market. Thereafter, investment dropped significantly as the market began to saturate.

Graph 17: Investment in Telecommunications Services



Note: * Investment refers to the annual expenditure associated with acquiring ownership of property and plant used for telecommunication services and includes land and buildings. Source: World Telecommunication/ICT Development Report 2006/ ITU

4.2 Revenue Contribution

Revenue of all operators increased during 2003-2004 during the cellular boom. But in 2005, revenues of the largest mobile operators, AIS and of the state fixed line operator, ToT, began to level off as can be seen in graph 18 below. But those of smaller players in the market continued to grow, reaching almost US\$ 6 billion or roughly 4 per cent of the country's GDP.

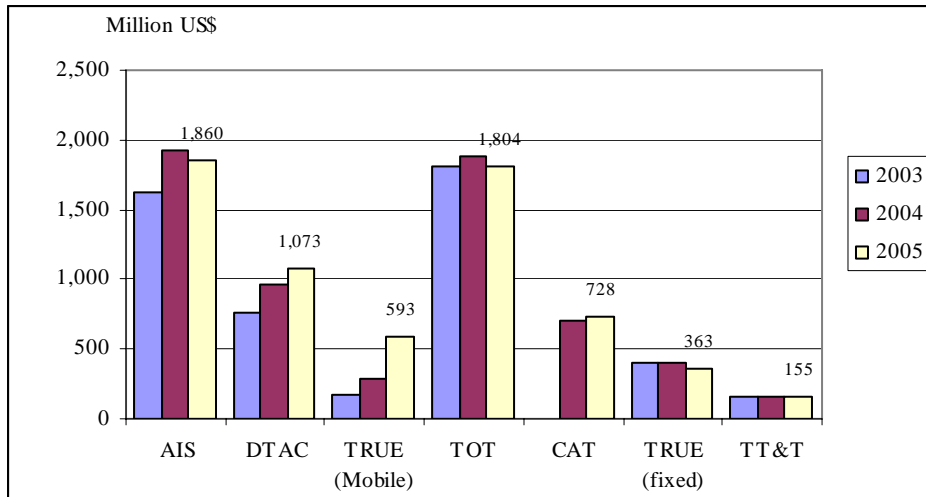
4.2 Tax Contribution

In terms of tax contribution, it is interesting to note that all tax contribution in 2005, as a result of stiff competition in the cellular mobile. Both private fixed line concessionaires, namely, TRUE and TT&T registered losses. In case of TT&T, this is due to the hefty revenue share burden that the company carries according to the revenue-sharing scheme specified under the concession with ToT. As for TRUE, the lackluster performance can be contributed to the rather sluggish fixed line market as mentioned earlier. However, both may be able to get out of the reds given the



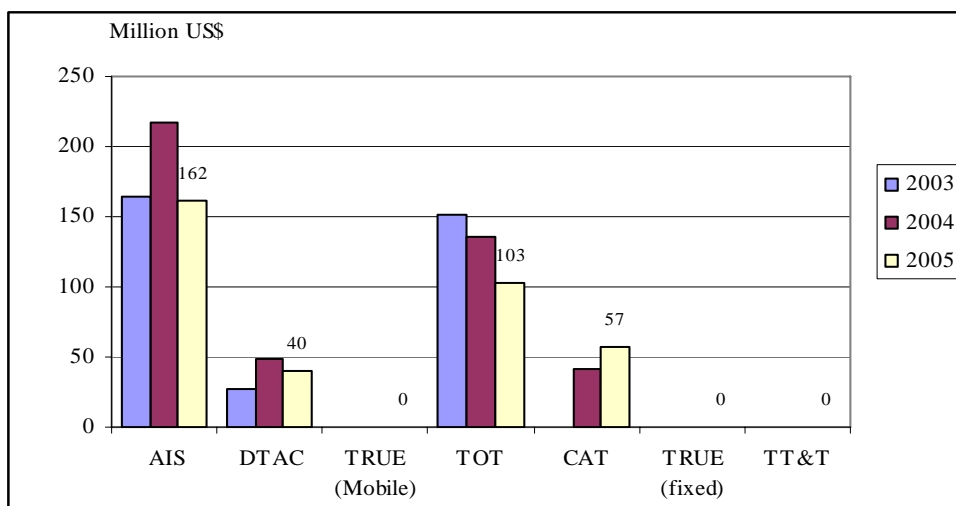
booming broadband market. CAT is the only operator that shows increased tax contribution. This is likely to be due to the increased revenue share collected from TRUE and DTAC (mobile), its 2 mobile concessionaires. On the contrary, ToT's tax contribution fell along with that of AIS, its major private concessionaire that contributes most to ToT's annual income.

Graph 18 Revenue of Major Telecom Operators: 2003-2005



Source: Companies' data

Graph 19 Tax Contribution 2003-2005



Source: Companies' data

Section 5: Telecom Regulatory Environment

This section consists of two parts. The first part, section 4.1, provides background information and analysis about the current regulatory environment in Thailand on key issues that are addressed in the TRE Questionnaire. The second part will summarize and interpret perceptions of interviewees governing domestic regulatory efficiency or lack thereof against the provided facts.

5.1 Current Regulatory Environment

5.1.1 Market Entry

According to the TBA, all services are to be licensed. There are three classes of license to be issued:

1. Type I license is for an operator who does not have a network and will offer a service where no restriction applies. The operator will only have to notify the Commission of its business intention, and a license will be issued.
2. Type II license is for an operator who may or may not have a network and will offer a service that is directed to a specific group, or the business operation will neither affect market competition nor adversely affect the public. The operator would only have to comply with the requirements set by the Commission to obtain a license.
3. Type III license is required of an operator who owns a network and intends to offer a service to the public, or the business operation may have an effect on market competition or on public welfare. The licensee will have to undergo evaluation by the Commission before it can commence business operation.

The Act does not specify the services reckoned under each license category. However, in June 200, the NTC has established guidelines concerning the classification of different types of telecom services. Type I license is deemed to apply to value-added service such as resale; type II license for an operator providing private networks or providing telecom services to corporate entities; and type III license for a full service network operator providing services directly to the public. Until to date, the following license has been issued by the NTC.

Table 10: ISP Licenses Issued by the NTC

Date	Service	Type of License	License holder
2004	Fixed line & mobile	3	TOT Corporation
	International voice services & mobile	3	CAT Telecom
24 June 2005	ISP	1	KSC Internet
18 August 2005	ISP	1	5 ISPs
19 October 2005	3G mobile	3	Thai Mobile (TOT)



	3G mobile (CDMA)	3	CAT
August 2006	International Internet Gateway	2	Sky Office Ltd (affiliated with True PCL)
August 2006	International voice services	3	AIS International Network Ltd (affiliated with AIS PCL)

Source: Collected by author

5.1.2 Access to Scarce Resources: Frequency Allocations

According to the Frequency Allocation Act, Frequency Allocation and Assignment are jointly determined by the National Broadcasting Commission and the National Telecommunications Commission. Until to date, there has been no new frequency allocation since the selection process of the National Broadcasting Commission has been marred by a series of allegations of conflicts of interests problems and fraudulent procedures. Although the Council of the State has ruled that, given the current deadlock in the selection of the NBC commissioners, the NTC may exercise the authority alone. However, private operators remain uncomfortable with the regulatory uncertainty and decided to wait for the selection process of commissioners to come through before applying for a 3G license. Nevertheless, the NTC has been providing “temporary use of frequencies” for Satellite services in October 2005 and allow the use of frequencies for testing 3G mobile services.

The law does not stipulate how frequencies are to be assigned, however. It merely states that the NTC is empowered to determine the fee for frequency usage and that frequency usage licenses are non-transferable. In the past, frequencies have been assigned on a first-come first-served basis. As a result, frequencies have not been assigned efficiently. A certain mobile concessionaire was provided with such large a frequency band that it was able to resell certain bandwidths to third party operators. Today, it remains unclear how frequencies are to be allotted, through auctioning or a “beauty contest”.

5.1.3 Interconnection

The current interconnection arrangements govern only the 2 state operators, namely CAT and TOT, the only two official licensees. The rate for domestic interconnection agreed by both enterprises is 1.07 baht or 25 US cents per minutes. Interconnection for overseas call currently stands at 3 baht or 75 US cents per minute, which is considered rather high and is subject to reviews.

Interconnection between private concessionaires is not specified in the concession contracts between state agencies and private operators and thus, poses serious problems. The lack of access or interconnection charge proved chaotic as mobile operators engaged in a price war that overburdens the network capacity, leading to sharp deterioration in the quality of calls.

The TBA mandates all licensees to interconnect. It also requires that the interconnection terms and rates are non-discriminatory. However, it contains provisions that could be used by incumbents as basis for refusing interconnection.



Specifically, it stipulates conditions when an incumbent may refuse to allow other licensees to “use” its network. No method for calculating interconnection fee is prescribed, but the law requires that the interconnection rates be reasonable and fair to all affected licensees.

The TBA sets procedures resolving disputes and requires NTC to issue a decision within 30 days. But it does not require the disputing parties to exert efforts to reach a resolution before appealing to NTC. In the future, this might result in carriers frequently seeking NTC’s intervention.

5.1.4 Tariff/ Quality regulation

Prices of telecommunication services are currently agreed upon by the SOEs and their concessionaires. Thus, price adjustments are infrequent, except for mobile services where the private operators are not constrained by concession agreements in setting their prices. Like in many markets prior to liberalization, revenues from international and long distance telephone are used to subsidize local telephone services.

The TBA provides a framework for price regulation. It requires licensees to publish their prices, which should be fair, reasonable and nondiscriminatory. The TBA prescribes price cap regulation where price will be regularly adjusted with the inflation rate and changes in technology. A factor that captures service quality can also be incorporated in the price cap formula. It appears that the TBA requires the NTC to regulate the prices of every telecommunication operator, dominant or not. But TBA has no provision for rate rebalancing, which is appropriate before the price cap regulation is implemented.

5.1.5 Regulation of Anti-competitive Practices

There are two legislations that provide safeguards for competition in the Thai telecommunications market: the Trade Competition Act of 1999 and the TBA. In addition, the Consumer Protection Act and other consumer-related laws also contain provisions aimed at protecting consumers in contracts and advertisement.

The Trade Competition Act contains provisions against five types of anti-competitive behavior.

- Abuse of Market Dominance: A business operator that has market power is prohibited from fixing price, setting conditions that limit the provision of goods or services, and interfering with business operations of other parties without reasonable grounds.
- Merger and acquisition: A business operator is prohibited from merging with other operators in a way that may reduce competition unless permitted by the Trade Competition Commission.
- Collusion: A business operator is prohibited from colluding with other business operators to conduct any act of monopolizing, reducing or limiting competition in the market.
- Cross-border provision: A business operator having a business relationship with a business operator outside the country is prohibited



from performing any activity that will restrict the freedom of a person in the country in purchasing goods and services.

- **Unfair Competition:** A business operator is prohibited from carrying out any act that ruins market competition and has the effect of destroying, impairing, or restricting business operation of other businesses. The use of information obtained from competitors with anti-competitive results can also be considered an unfair practice.

However, there are no guidelines for the implementation of the above prohibitions. Specific provisions, such as those defining dominance of a business operator, have not been issued even after the Act was enacted more than four years ago. Moreover, state-owned operators, like TOT and CAT, are exempted from this law. Thus the current competition regime has not been effective.

The TBA, however, empowers the NTC to undertake specific measures that will prevent a licensee from carrying out acts that have the effect of restricting market competition. This law may provide adequate competitive safeguards for the telecommunications sector.

5.1.6 Universal Service

Having monopoly over domestic telephone network, TOT is obliged to provide basic telephone services to rural and poor communities. During the past years, TOT's mission has been to provide public telephone services to every village nationwide. Funding for this missionary activity comes from revenues from other profitable services, specifically domestic long-distance, origination and termination interconnection charges for international services, and concession fees. This cross-subsidy arrangement is difficult to sustain when the international and long-distance markets are liberalized and the concession revenue is converted to excise tax.

The TBA provides a new framework for universal service provision. However, it leaves the definition of 'basic telecommunication services' open to NTC's interpretation. It also empowers NTC to require a licensee to provide universal service but specifies that the obligation must not cause inappropriate investment burden on the licensee and should be the same for operators providing the same services. In 2006, the NTC has announced a contribution to the USO fund at 4% of revenue for all licensed operators that do not invest in remote areas. The figure is considered rather high compared with 1-2% in most other countries. The NTC has the authority to decide how the Fund will be used to provide universal services. The Act is ambiguous on the mechanics for the disbursement of the Fund; this might be a source of future disputes among operators.

5.2 TRE questionnaire result

The questionnaire result shown below is based on 31 responses made by 17 telecom business operators, 2 journalists, 6 consumers, 1 private company, 1 academician and 1 NTC officer.

As can be seen in graph 19, scores for various regulatory functions range from 1.76 - 2.68 out of 5, which are rather low. Scores do not seem to vary across one type



of regulatory activity to another, but are relatively lower for mobile services. This reflects general lack of confidence in the NTC. This may be the case because the selection of the commissioners were marred with many alleged rigging such that the process took several years to complete. As a result, the public questions the integrity, impartiality and capability of the NTC. The lower mobile scores reflect the current interconnection turmoil, whereby no interconnection charges are applicable under the terms and conditions specified in the concessions. Currently, TRUE and DTAC, CAT's concessionaire, pay 200 baht monthly access charge per subscriber to TOT. AIS, TOT's concessionaire, however, does not have to pay such charges. Such an arrangement leads to unequal level playing field.

As shown in table 10, many respondents view the NTC's licensing and interconnection schemes as unclear. Many complained that the distinction between type 2 and type 3 licenses (see section 5.1.1), which carries different license fee, is not clear. Operators operating in the same business may be granted a less or more expensive license, depending on the discretion of the NTC. As for the interconnection charge, the NTC does not appear to have its own proposal of what the cost should be. Rather, it relies purely on numbers proposed by the private operators.

Tariff regulation receives the highest score for mobile. But this is no achievement of the NTC. The Commission has not been setting prices for any particular service, as competition in the market has been strong. Issues regarding frequency allocation and anti-competitive effect of the terms and conditions of concessions are external to the NTC as the law stipulates that frequency allocation can only undertaken jointly between the NTC and the NBC (National Broadcasting Commission). Given that the selection process of NBC commissioners continues to be mired in various allegations of rigging, frequency allocation in the near future is not likely to be possible. Finally, on the USO, most respondents are of the opinion that no clear plans or schemes have been made to implement the USO, despite the hefty contribution of 4% of revenue collected. Operators, private and state alike, are not satisfied with the allocation of USO funds since the disbursement of such fund is not transparent.

Graph 19 TRE questionnaire result



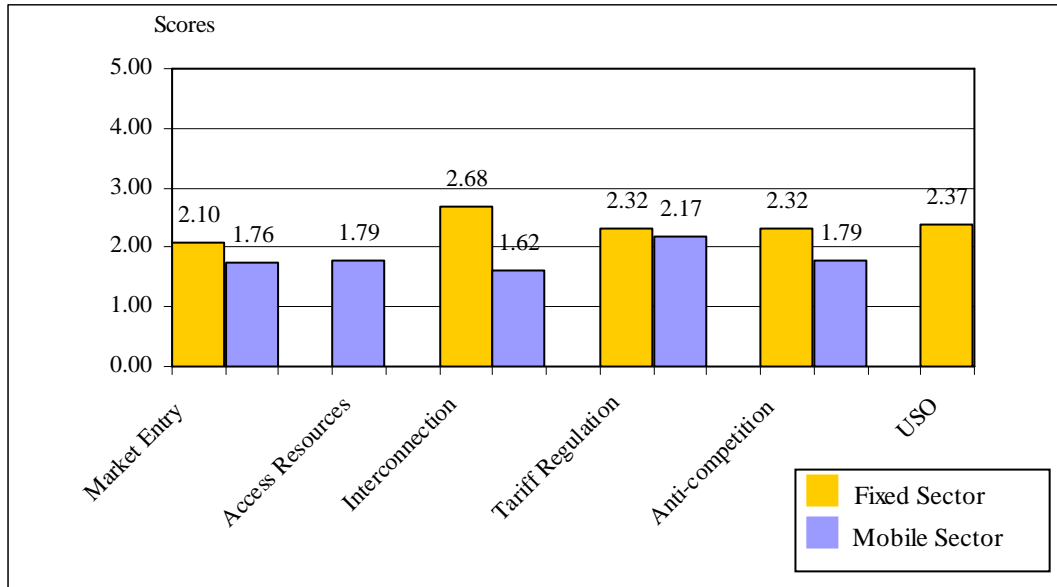


Table 10 Opinion from the survey

	Fixed sector	Mobile sector
1. Market Entry	License issuance is slow and unclear.	<ul style="list-style-type: none"> Market entry requires more frequency and licenses.
2. Access to Frequencies	NA - fixed line does not require frequency	<ul style="list-style-type: none"> Frequency allocation rules and procedures unclear
3. Interconnection	<ul style="list-style-type: none"> Unclear interconnection rules Cost-based interconnection charges not implemented 	<ul style="list-style-type: none"> Difficult to connect and drop call on peak periods. cost based interconnection charges not applied.
4. Tariff Regulation	<ul style="list-style-type: none"> Tariff is fair because of market competition rather than from regulation 	<ul style="list-style-type: none"> Tariff is low because of market competition.
5. Regulation of Anti-competitive Practices	<ul style="list-style-type: none"> Revenue-sharing scheme is unfair to private operators Revenue sharing scheme differs between 2 private operators 	<ul style="list-style-type: none"> Revenue-sharing scheme is unfair Access charge applies only to certain mobile operators according to the concession.
6. Universal Service Obligation (USO)	<ul style="list-style-type: none"> USO burden falls solely on state operator Regulator focuses on mobile at the expense of fixed line USO contribution is too high 	-no USO for mobile

Source: Author's survey

Section 6: Interpretation of the Shoestring Results

The Shoestring 2 study undertaken by AC Nielsen Lanka (Pvt) Limited in 2006 aimed to illustrate usage and behavioural patterns in using ICT and how it differs between low income earners to high income earners in Thailand. The sample size for the survey was 700, with equal male and female samples surveyed and 500 from the lower income group and 200 from higher income group. The sampling method used was stratified random sampling.

The results are telling about the accessibility and affordability of telecom services in Thailand as follows:

6.1 Accessibility

Among the 700 samples surveyed, 95% had accessibility, meaning those who have made or received a call during past three months from any source. About a quarter of those that had access, a phone can be reached within 15 minutes maximum for lower income group and 10 minutes maximum for higher income group. The main modes of communication by order of frequency of use are own mobile, public payphone booth and relatives or friends' phones as can be seen in Table 11 below. This result confirms earlier analysis that mobile and public phone contributed significantly to accessibility, in particular for lower income users. What is new here is that shared use also helps boost accessibility. The same study reveals that 69% of mobile phone owners share their phone with other family members. Sharing is less frequent for non-family members, however. This would indicate that the number of cellular phone users will likely exceed the number of subscribers significantly.

Table 11 Modes of Communication Used

	Percentage of low income teleusers that indicated use in the past 3 months
<i>Own mobile</i>	78
<i>Public Pay Phone</i>	33
<i>Relative/friend's phone</i>	30
<i>Mobile of another household member</i>	15
<i>Household fixed line</i>	14
<i>Neighbour's phone</i>	10
<i>Work place</i>	2
<i>Nearby shop</i>	1

Source: AC Nielsen Lanka Ltd., Shoestring Survey 2006

6.2 Affordability

The survey data reveals that the cost per minute of mobile phone in Thailand is relatively inexpensive when compared with other countries surveyed as can be seen in Table 12 below. Almost all surveyed individuals reported an expected cost per minute of not more than 5 cents a minute, as is the case in India. But in Thailand, the cost of local calls for fixed line appears to be least expensive among the surveyed



countries. This is because local calls on fixed lines, unlike those on mobile phones, are not metered. It costs roughly 7-8 cents per call.

However, the cost of mobile terminals remains relatively expensive in Thailand. Forty two percent of 62 non-owners of a phone indicated that the reason for not having a phone was that it is too expensive and that a new phone would cost them between US\$ 26-55, which is higher than in Pakistan and India, but comparable to the Philippines and Sri Lanka as shown Table 13 below.

Table 12 Expected Cost per minute of a Mobile Phone

	Pakistan		India		Sri Lanka		Philippines		Thailand	
	ABC	DE	ABC	DE	ABC	DE	ABC	DE	ABC	DE
Less than 1 cent	36%	37%	17%	11%	0%	0%		1%	37%	44%
Between 2c - 5c	60%	58%	83%	89%	29%	17%	8%	8%	56%	52%
Between 6c - 10c	3%	4%			45%	45%	28%	23%	7%	4%
Between 11c - 15c	0%	0%			19%	26%	24%	21%		1%
Between 16c - 20c	0%	0%			5%	9%	34%	41%		
Between 21c - 35c	0%	0%			1%	3%	6%	5%		
Base ALL	731	1,081	652	3,348	588	466	92	1,008	348	352

	Pakistan			India			Sri Lanka			Philippines			Thailand		
	MO	FX	N:O	MO	FX	N:O	MO	FX	N:O	MO	FX	N:O	MO	FX	N:O
< 1 cent	34%	35%	38%	17%	20%	10%		0%	0%	1%	4%	1%	45%	37%	40%
2c - 5c	62%	58%	57%	83%	80%	90%	9%	42%	10%	5%	19%	10%	50%	60%	54%
6c - 10c	4%	7%	4%				47%	42%	46%	12%	71%	34%	4%	3%	6%
11c - 15c			1%				41%	14%	26%	28%	2%	14%	1%		1%
16c - 20c							2%	0%	14%	47%	3%	37%			
21c - 35c								0%	3%	4%		3%			
ALL DE	231	150	701	286	306	2,756	82	101	283	561	38	409	258	27	67

Table 13 Expected Cost of a New Phone

	DE									
	Pakistan		India		Sri Lanka		Philippines		Thailand	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Less than \$ 25	82%	86%	77%	79%	10%	11%	15%	17%	16%	13%
Between \$ 26 - 55	16%	13%	18%	18%	16%	23%	47%	36%	42%	53%
Between \$ 56	1%	1%	5%	3%	28%	23%	20%	28%	22%	17%



- 85										
Between \$ 86 - 115	1%		0%	1%	27%	23%	13%	14%	4%	14%
Between \$ 116 - 145			0%	0%	9%	11%	4%	4%	11%	1%
Between \$ 146 - 175					6%	6%	1%		2%	1%
Between \$ 176 - 205			0%		3%	2%			1%	2%
None Owners	288	296	1,333	1,370	122	139	183	198	32	30

Source: AC Nielsen, Shoestring Survey

6.3 Equity

While mobile phone may lessen the digital divide, the lack of fixed line roll out prevented internet accessibility. According to the survey result, 90 % of the samples from lower income group do not access the internet or have not heard of internet access as shown in Table 14 below. This relatively high figure is shared by other countries surveyed that too, have relied on mobile phone for connectivity. It is therefore important not to overlook the importance of fixed line telephones in the development of the communications industry.

Table 14 The Internet Divide

Unit: percentage of samples

	Pakistan	India	Sri Lanka	Philippines	Thailand
I don't access the internet	62	28	70	77	54
I haven't heard about the internet	36	72	29	14	36
Total	98	100	99	91	90

Section 7: Key Challenges and Way Forward

In summary, Thailand's telecom industry has benefit greatly from private sector participation since over a decade ago. Competition among the private sector has resulted in a cellular boom that markedly improved the connectivity of the people. On the contrary, the fixed line roll out has been constrained by the conditions stipulated in the concession, which limits the number of lines that the private concessionaire may roll out. As a result, number of fixed line subscribers lagged far behind that of mobile subscribers. Fixed line availability in the provincial area remains appalling. Limited availability of fixed line translated directly into relatively low internet, and in particular, broadband, penetration. The establishment of an independent regulatory body in 2004 has limited impact on the telecom market development, as the body cannot solve the problems associated with the concessions between the state and the private operator that remain legally binding on the private



sector. Despite that fact, the NTC has been slow to hand out new fixed line licenses or implement USO policy to promote fixed line roll out in more remote parts of the country.

Four crucial measures are needed for Thailand to move its telecom sector forward: (1) the liberalization of the telecom market to allow foreign participation (2) conversion of current concessions into operating licenses (3) privatization of state enterprises and (4) the establishment of an effective regulatory body

7.1 Liberalization

The current telecom law caps foreign equity share in any telecom service supplier at 49%. This has not stopped foreign operators from taking over the local operators, however. It is well known that both the AIS, the largest mobile operator, is controlled by Temasek, Singapore's government investment arm, and that DTAC, the second ranking mobile operator, is controlled by Telenor, a Norwegian telecom operator. Foreign investors are often able to acquire complete corporate control, despite the direct equity share limitations, through indirect equity holding -- i.e., holding of equity shares in a series of holding companies up the company's ownership chain or through Thai nominees. While indirect equity holding in Thailand is legal and not counted toward the statutory foreign ownership limit, the use of Thai nominees to circumvent foreign ownership restriction is illegal and subject to criminal penalties according to the Thai Foreign Business Act 1999. Until 2006, the Thai government and the public were content to take a non-inquisitive stance towards the presence of foreign operators in the restricted telecom market.

It all changed when 44% equity share of Shin Corporation, the holding company of the largest cellular operator, AIS, was sold to Temasek, Singapore's government investment arm. The fact that Shin Corporation belongs to the then-in-power Thai Prime Minister, it inevitably became a politically charged case of foreign acquisition of a restricted business. The deal that was completed in January 2006 is still under investigation for an alleged use of Thai nominees to circumvent the foreign equity restriction. Unfortunately, this landmark investigation may have unintended spill-over to other foreign telecom operators that may have dodged the law in a similar way. If the law that bars foreign investors were to be strictly enforced, competition in the Thai telecom market would be very limited, to the detriment of the industry and the Thai consumers.

7.2 Concessions conversion

Concerning concession conversions, there has been no major progress in this area thus far since the last failed attempt by the ousted government of Thaksin Shinawatra. Any conversion scheme would have to be perceived as transparent and fair not only by the private concessionaires and the state owned enterprises, but also the public. Past attempts at converting these concessions have fallen prey to alleged money politics and vested interests.

The current revenue sharing between the state operators and private concessionaires undermine effective competition in the market. Many restrictions imposed on the private concessionaires in terms of pricing and network expansion, for example, pose major obstacles to the establishment of a level playing field in the

telecom market. The government will need a group of persons or an organization with unquestionable integrity and impartiality to intervene to ensure a conversion scheme that will be acceptable to the public.

7.3 Privatization

On the privatization front, The TOT and CAT were corporatized in 2003 and renamed TOT Corporation and CAT Telecommunications, respectively. Privatization of the two SOEs should have followed, but is being delayed by the government's vacillation on when to merge the two SOEs, that is, before or after their initial public offering in the stock market. The stock market launching was expected to take place in 2004 but has been postponed until to date after the government's failed attempt to privatize the Electricity Generating Authority of Thailand (EGAT), another large SOE, in May 2006. The Administrative Court ruled the procedures null and void due to conflict-of-interest problems. Any privatization attempts in the near future is unlikely given the fact that several privatization since 2002 have been marred with political vested-interest problems that left a bitter taste for most Thais.

Looking forward, the government will need implement a better thought out privatization plan with pre-privatization market restructuring to ensure effective competition. All privileges granted to the privatized state enterprises (such as loan guarantees, free use of Crown property, exemption from competition law, etc.) will have to be withdrawn to ensure a level playing field in competition between the privatized enterprise and the private sector.

7.4 Regulatory Challenges:

As the TRE results indicate, the performance of the NTC is mediocre in the eyes of those involved in the telecommunication businesses. It is important that the regulatory authority establish clear rules or guidelines pertaining to its licensing procedures as well as establish a transparent and participatory "rule making" procedures that involved proper notification and responses to comments and queries of stakeholders that are publicly available.

Key Regulatory Events June 2005 - June 2006

DATE	EVENT
20 June 2005	Conclusion of numbering plan accommodating 300 million numbers to be implemented in 2006.
22 June 2005	Announcement regarding the classification of different types of telecommunication services
22 June 2005	Interconnection Rules for ISPs
24 June 2005	First license issued to “KSC”, an ISP
4 July 2005	Criteria for application for Type 1 2 and 3 licenses specified. Types of telecom services that would require Type 1 2 or 3 licenses specified.
5 August 2005	Type 1 and Type 3 licenses issued to TOT & CAT (state owned incumbents)
16-18 August 2005	11 more ISP licenses issues
8 September 2005	License fee at 3% of sales
28 September 2005	Regulations governing the application for frequency usage.
28 September 2005	Regulations governing the allocation of “special numbers”(such as 001 002 – 009)
14 October 2005	Temporary frequencies allocation to IP Star (Satellite)
19 October 2005	Two 3G mobile licenses issued to TOT and CAT'
9 November 2005	Regulations Governing Universal Service Obligations established. Licensees must contribute 4% of total sales to the Universal Service Fund.
17 November 2005	Rules on temporary use of frequencies for technical testing purposes.
2 December 2005	Approval of use of RFID frequencies
7 December 2005	Approval of 3G System testing by AIS for 90 days.
10 January 2006	Regulations on the provision of VoIP services
10 January 2006	Regulations governing the application for International Internet Gateway Services
8 March 2006	Order prohibiting TOT from charging fee for directory assistance service
3 May 2006	Approval of General Framework pertaining to the calculation of Interconnection Charge
16 May 2006	Order for mobile operators to increase number of circuits to 40,800 in order to fix drop calls problems resulting from aggressive promotional campaign.
17 May 2006	TBA was amended to allow 49% foreign equity holding in Type 2 and 3 service suppliers.
18 May 2006	Numbering Plan finalized.
24 May 2006	Order prohibiting mobile phone operators from terminating services for pre-paid mobile service subscribers whose pre-paid account remains positive even when the usage period had expired.
26 July 2006	Order prohibiting CAT and TOT from refusing to rent line capacity to small value-added operators.
10-12 August 2006	Type 2 license for International Internet Gateway Services issued to Sky Office Ltd and Type 3 license for International Call Service issued to AIS International Network Ltd.
28 August 2006	“Interim Interconnection Charge” proposed by operators approved.

