A Case Analysis of Telecom Industry of China and India with Focus on Cellular Subscriber base

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Abstract

The Telecom Regulatory Authority of India had carried out a comparative study in 2005 on the status of telecom service sector of India and China. The comparison of performance indicators between two fastest growing telecom markets help to draw strategies for new investment and expansion of telecom networks, tariff and pricing of retail and wholesale services, usage pattern and related capacity requirement etc. The paper earlier published by the Authority was extensively used by policy makers, academicians, investors and service providers etc. The paper had also drawn interest of the media and was also reproduced in reputed journals. The Authority in continuation of its endeavor to provide such benchmark studies is publishing this revised and more extensive comparative study of performance indicators of Indian and Chinese Telecom service sectors. In this study paper financial/ economic indicators and regulatory indicators in China have been compared with the Indian Telecom sector. The inputs for this paper on Chinese telecom companies' arc taken from Annual reports

Keywords: Telecom service, performance indicators, economic indicators and regulatory indicators

Introduction

1.1 Overview of Chinese Telecom Industry

China is now the world's largest telecom market. China has six key telecom service providers viz. China Mobile Group, China Unicorn group, China Telecom group, China Netcom group, China Railcom and China Satcom. AU Chinese telecom companies are state owned. The total Chinese telecom revenues during 2005 were \$72.70 billion, representing an increase of 11.81YcJ over the previous year. During 2005, 100 million new subscribers were added- 38.68 million new fixed line users and 58.60 mobile users.

At the end of 2005, there were 740 million phone users million fixed line users 350 and 390 million mobile users.

At the end of 2005, the tele density for fixed line services was 27'Yc) and 30% for mobile services. The total tele density was 57%. At

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the end of 2005, there were 37.5 million broadband

internet users. Net addition during 2005 was 12.63 million users.

Short message Services (SMS) remained a major contributor to telecom growth. About 304.65 billion massages were sent, an increase of 40% over the previous year. The total revenue from SMS surpassed 30 billion Yuan (US\$ 3.72 billion). Usage of other value- added services (VAS) like multi message services (MMS), ring tone downloads also increased.

1.2 Objectives of the study:

The study was undertaken with the following objectives:

1) To analyze the Comparison of subscriber base of China and India and coverage of Telephone services in villages.

2.1 Comparative Analysis

a) Comparison of Indian and Chinese Telecom industry

The Growth of mobile services in India over the past few years has been phenomenal. Mobile subscribers' arc growing at a CACI. (of around 85(% since 1999 but fixed link subscribers arc not growing at a similar pace. Now over 4 million mobile subscribers' arc added every month. On the other hand China has registered a growth h of 16(% in the mobile subscriber base in the year 2005 with

Broadband Subscriber:

The monthly addition of broadband users in China is around 8.5 Lakhs per month against 1.3 lakh in India.

Total broadband users in China and India are given in the following table:

I Year ended 31st December

2) To measure the growth of telecom revenues in China and India.

3) To measure the growth Comparison of direct employment in China and India.

1.3 Methodology

To compare the growth of coverage of Telephone services in villages and direct employment in China and India I have used Bar Chart. I have also used t-test to measure the significant difference between the subscriber base of China and India.

I have done a comparative study and used Bar chart to explore a quick idea about the real picture in China and India. I have taken data from Annual reports of Chinese Telecom companies and TRAI, China Daily and Dept. of Telecommunication of India to make a comparison study and get a valid conclusion.

monthly addition of 5 million subscribers every month.

The Chinese fixed line services registered 12% growth during 2005. The expansion was mainly on the wireless platform and now over 23% of fixed line subscribers are connected through wireless local loop. Indian on the other hand registered an annual growth of 2%.Summary of subscriber base of China and India is given below.

- 2 Year ended 31st March
- # March 2006
- 3 At the Year ending 31st December 2005
- 4 At the Year ending 31st December 2006
- 5 Total of China Telecom and China Netcom
- 6 Average of last three month.

b) Coverage of Telephone services in Villages:

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Telephone service is available in 971X) of villages of China against 89% in India. Comparisons table is given below.

Total telecom revenue of Chinese telecom companies increased from \$ 65 billion to \$ 72.70 billion during the calendar year 2005. Telecom revenue in India during 2005-06 was Average Revenue per User (ARPU):

ARPU in India and Chinese is comparable in CSM pre paid segment but ARPU for post segment in China is much higher. ARPU for CDMA services are also higher in China in

) Minutes of Usages per Subscriber of Mobile (MOU):

The comparison of usage pattern of mobile cellular services in India and China is In the table below. Usages of cell services arc much higher in India compared to China.

10-For the year ending 31st
December 2005
11 For the year ending 31st
December 2006
12 based on China Telecom
and China Netcom

The capital employed per subscriber for the Basic Service is much lower when compared to India. However, capital employed for the cellular segment is lower in India. Higher

Chinese Companies earn higher rate of return on the capital employed than Indian companies. The returns on the capital

The capital investment for expansion/up gradation of telecom networks during 2005-06 by Indian and Chinese companies is given in the following table. The Chinese companies

c) Telecom Revenue:

\$19.50 bill1on. The comparative statement of growth of telecom revenues is given in the following table:

comparison to India. ARPU for Basic Telephone Services is higher in India when compared to ARPU for Basic Telephone in China. A comparison of ARPUs is summarized in the following table: d

Minutes of Usage of GSM and CDMA based cell services in India are 32% and 70% respectively higher when compared to Chinese services.

In spite of higher MOU the ARPU in India is lower than China for reason that tariffs in India are lower.

13 based on China Unicom

14 based on China mobile

and China Unicom

A comparison of EBITDA margins of India and China show that the Chinese companies are able to generate higher rate of EBITDA. The comparison table is given below.

capacity utilization in the mobile sector could be the reason for lower capital employed in the mobile segment. Details are summarized in the following table:

employed for the previous financial year has declined for both countries. Details have been summarized in the following table:

have projected to make investment to the tune of \$ 23 billion during 2006. It is expected that investment by Indian companies will also increase by at least 15%.

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Indian mobile market is much more competitive when compared to the Chinese mobile market. Higher competition is also reflective in the lower Indian ARPUs in spite

The World Information Technology Report 2005 of World Economic Forum has ranked India at 40th position, China at 50th position in Networked Readiness Index Rankings 2005 in

of higher usage of telecom services. The competition level has been compared using HHI Index of China and India is given below:

terms of Network Readiness. As this indicates availability of opportunities that could result in greater inflow in the telecom sector in India.

The picture of India & China is shown in the following diagram.

e) Direct Employment in Telecom Sector

Comparison of direct employment is given below:

China's corporate tax is 33% against 30% in India. The effective tax rates for telecom companies in China were also estimated using actual payout of tax and found that it lies between 18% to 32%. The results are summarized in the following table:

In China a 3% business tax on telecom revenues is payable against 12.24% payable as service tax in India. The results are summarized in the following table:

15 China Mobile's MOU

16 Based on China Mobile and China Unicom GSM's MOU

17 Average of all Mobile Operators

18 China Unicom CDMA's MOU

19 Weighted Average of all network services for the year ending 2005.

20 Average SMS in respect of GSM Cellular service providers for the quarter ending December 2005.

24 Based on BSNL and MTNL.

26 China Telecom's Capital Employed per Subscriber at the year ending.

27 BSNL's Capital employed per subscriber at the year ending

28 China Mobile's Capital employed per Subscriber at the year ending.

The industry carries a burden of high levies

*Backbone spectrum charges extra GST – Goods and service Tax

**Estimated from spectrum fees & revenue of China Mobile

Mobile Tariffs in India compared to global Benchmarks.

29 Average of all mobile operators as per accounting separation reports.

30 China Telecom's Return on Capital Employed (RoCE)

31 Based on BSNL and MTNL

32 Index 1=Monopoly, 0=Pure HHI Competition and > 0.50=moving towards competition

Networked Readiness Index (NRI) 33 measures the propensity for countries to exploit the opportunities offered bv information and communications technology.

34 Effective tax rate means tax payable by the companies under Minimum Alternate Tax (MAT) under section 115JB of the Income tax Ac, 1961 or tax payable after taking in to account the benefit of section 801A of the Income Tax Act, 1961 (applicability of provisions of "Tax Holidays")

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Average = 0.20 Tariffs have fallen further to around 0.01 Levels Section-3

3.1 Statistical Analysis:

| Here we want to test the Hypothesi | Here we want to test the Hypothesis that the Null Hypothesis | | | | | |
|------------------------------------|--|--|--|--|--|--|
| | a) H10: there is no significant difference between the | | | | | |
| Against the alternative Hypothesis | subscriber base of China and India in Cellular Line (Mn). H11: there is significant difference between the subscriber base of China and India in Cellular Line (Mn). | | | | | |
| | b) H20: there is no significant difference between the subscriber base of China and India in Fixed Line (Mn). | | | | | |
| Against the alternative Hypothesis | H21: there is significant difference between the subscriber base of China and India in Fixed Line (Mn). | | | | | |
| Against the alternative Hypothesis | c) H30: there is no significant difference between the subscriber base of India Fixed line and India in Cellular Line (Mn). H31: there is significant difference between the subscriber base of India Fixed line and India in Cellular Line (Mn). d) H40: there is no significant difference between the | | | | | |
| Against the alternative Hypothesis | subscriber base China Fixed and China in Cellular Line (Mn). H41: there is significant difference between the subscriber base of China Fixed and China in Cellular Line (Mn). | | | | | |

Paired Samples Statistics

| | Mean | Ν | Std. Deviation | Std. Error Mean |
|--------|----------|----|----------------|-----------------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| CHINA1 | 207 4000 | 10 | 108 6515 | 34 3586 |
| Ciman | 207.1000 | 10 | 100.0010 | 51.5500 |
| | | | | |
| INDIA1 | 32 6710 | 10 | 11 8984 | 3 7626 |
| | 52.0710 | 10 | 11.0904 | 5.7020 |
| | | | | |
| | | | | |

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Pair Samples Correlations

| | N | Correlation | Sig. |
|-----------------|----|-------------|------|
| CHINA1 & INDIA1 | 10 | .973 | .000 |
| | | | |

Paired Samples Test

| | Differences | | | | | t | df |
|--------------------|-------------|-------------------|--------------------|---|----------|-------|----|
| | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | |
| | | | | Lower | Upper | | |
| CHINA1 - INDIA1 | 174.7290 | 97.1160 | 30.7108 | 105.2564 | 244.2016 | 5.690 | 9 |

Paired Samples Statistics

| | | Mean | Ν | Std. Deviation | Std. Error Mean |
|--------|----------|----------|----|----------------|-----------------|
| | | | | | |
| Pair 1 | CHINAFXT | 207.4000 | 10 | 108.6515 | 34.3586 |
| | CHINACEL | 20.5850 | 10 | 30.7226 | 9.7154 |
| Pair 2 | INDIAFXT | 32.6710 | 10 | 11.8984 | 3.7626 |
| | INDIACEL | 191.9000 | 10 | 153.1538 | 48.4315 |

Paired Samples Correlations

| | | N | Correlation | Sig. |
|--------|------------------------|----|-------------|------|
| Pair 1 | CHINAFXT & CHINACEL | 10 | .841 | .002 |
| Pair 2 | INDIAFXT & INDIACEL | 10 | .972 | .000 |

Paired Samples Test

| Paired Differenc | | | t | df | Sig. tailed) | (2- |
|---------------------|--|--|---|----|-----------------|-----|
| es | | | | | | |

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| | | Mean | Std. | Std. Error | 95% | | | | |
|--------|--------|----------|-----------|------------|-----------|----------|--------|---|------|
| | | | Deviation | Mean | Confiden | | | | |
| | | | | | ce | | | | |
| | | | | | Interval | | | | |
| | | | | | of the | | | | |
| | | | | | Differenc | | | | |
| | | | | | e | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | CHINAF | 186.8150 | 84.4516 | 26.7059 | 126.4020 | 247.2280 | 6.995 | 9 | .000 |
| | XT - | | | | | | | | |
| | CHINAC | | | | | | | | |
| | EL | | | | | | | | |
| Pair 2 | INDIAF | - | 141.6154 | 44.7827 | - | -57.9234 | -3.556 | 9 | .006 |
| | XT - | 159.2290 | | | 260.5346 | | | | |
| | INDIAC | | | | | | | | |
| | EL | | | | | | | | |

Conclusion

From T-testing the calculated value of tstatistic is greater than tabulated value of tstatistic. Calculated value of t-statistic is 5.690 and tabulated value of t-statistic is 2.101 at 95% Confidence Interval Therefore H0 is not accepted so there is a significant difference between the subscriber base of China and India.

Indian mobile market is much more competitive when compared to the Chinese mobile market. From Table -16 we can conclude that Direct Employment in Telecom sector in China is much higher than that of India. Chinese Telecom companies have employed about 6 lakhs direct employee where as their Indian counterparts have employed about 4.30 lakhs direct employee. Turnover tax on telecom revenues in China is effectively less than that of India. Service Tax GST in China is considerably less than that of India. Mobile Tariffs charges in India are lowest when compared to global Benchmarks. India has to develop a lot to exist the competitive market. India Government has to take new policy & strategy to achieve a great success in the market.

between the subscriber base of India Fixed line and India in Cellular and the subscriber base China Fixed and China in Cellular Line.

References

- Bhattacharya, R.N (2001): Environmental Economics: An Indian Perspective, OXFORD UNIVERSITY PRESS (New Delhi) .
- Bhalla .A.S and Bifhani.P : Some Global Issues
- Gujrati .D (1995): Basics of Econometrics, International Editions, Mc-Graw-Hill Book Co.
- Rauccher, M (1997): Environment and International Trade, New York: Oxford University Press.
- www.cygnusindia.com ; Cygenus Business Consulting and Research, Vol.510; Economy & Industry Monitor- West Bengal; October, 2005.
- Annual reports of Chinese Telecom companies and TRAI.
- China Daily Dated 14/03/ 2006 and Dept. of Telecommunication of India.

Also we found that there is a high correlation

www.weforum.org

⁵⁴

Appendix:

Tables:

Table-2.1 Comparison of subscriber base of China and India

| | Fixed Line (Mn) | Cellu | Cellular Line (Mn) | | | |
|------|--------------------|--------------------|--------------------|--------|--|--|
| Year | China ¹ | India ² | I China1 | India2 | | |
| 1997 | 70 | 14.54 | 15 | 0.34 | | |
| 1998 | 90 | 17.8 | 20 | 0.88 | | |
| 1991 | 110 | 21.59 | 40 | 1.2 | | |
| 2000 | 130 | 26.51 | 85 | 1.88 | | |
| 2001 | 180 | 32.44 | 145 | 3.58 | | |
| 2002 | 210 | 37.94 | 210 | 6.43 | | |
| 2003 | 263 | 40.62 | 269 | 12.69 | | |
| 2004 | 312 | 42.58 | 335 | 33.6 | | |
| 2005 | 350 | 45.91 | 390 | 52.21 | | |
| 2006 | 359# | 46.78 | 410# | 93.04 | | |

Source: Notional Bureau of statistics of China, MII and TRAI Table-2.2

| Particulars | Unit | China3 | India 4 |
|----------------------------|------|-------------|------------|
| Broadband Connection | Mn | 10.16^{5} | 1.13 |
| Average Addition per month | Mn | 0.85 | 0.13^{6} |

Source : Annual reports of Chinese Telecom companies and TRAI

Table-2.3

| Particulars | Unit | China | India |
|---------------------------|------|---------|--------|
| Total No of Village in | No | 701031 | 607491 |
| the Country | | | |
| No. of Villages with | No | 6890000 | 539572 |
| Telephone Services | | | |
| Percentage of | % | 97 % | 89 % |
| coverage | | | |

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Source: China Daily Dated 14/03/ 2006 and Dept. of Telecommunication of India.

| Table-2.4 | | | |
|-----------|--------|----------|--|
| Year | China | India | |
| 2004-05 | 65 | - | |
| 2005.06 | 72.7 | 19.5 | |
| Growth | 11.8 % | 14.7 % ! | |

Table-2.5

Average Revenue per User (ARPU)

| Particulars | Chir | na | | India |
|---------------|---------|-----------------------|---------|-----------|
| | US\$ | | US\$ | |
| | 2004-05 | 2005-06 ¹⁰ | 2004-05 | 2005-0611 |
| ARPU Basic | 9.14 | 8.54 ¹² | 15 | 14.5 |
| ARPU Mobile- | 10.31 | 9.31 ¹³ | 5.74 | 5.56 |
| CDMA | | | | |
| ARPU Mobile- | 9.62 | 9.43 ¹⁴ | 8.89 | 8 |
| GSM | | | | |
| ARPU Mobile- | 20.18 | 19.98 | 20.34 | 14 |
| GSM post paid | | | | |
| ARPU Mobile- | 6.77 | 5.94 | 5.25 | 6 |
| GSM Prepaid | | | | |

Source: Annual Reports of Chinese Telecom Companies 2005, TRAI.

Table-2.6

| Minutes of Usage per s | subscriber (| MOU) |
|------------------------|--------------|------|
|------------------------|--------------|------|

| Particulars | Unit | China | | | India |
|-------------|--------|-------------------|-------------------|---------|-----------------------|
| | | US\$ | | US\$ | |
| Year | | 2004-05 | $2005-06^{10}$ | 2004-05 | 2005-06 ¹¹ |
| MOU-GSM | Minute | 297 ¹⁵ | 300 ¹⁶ | 330 | 300 ¹⁷ |
| Total | | | | | |
| MOU-GSM | Minute | 194 | 214 | 233 | 308 |
| Pre-paid | | | | | |
| MOU-GSM | Minute | 517 | 524 | 599 | 675 |
| Post-paid | | | | | |
| MOU-CDMA | Minute | 292 | 277^{18} | NA | 470 |
| Total | | | | | |

Source: Annual Reports, TRAI.

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Table-2.7

| Earnings before Income Tax, Depreciation and Amortization (EBITDA) Margin (%) | | | | |
|---|--------|--------|--------|---------------------|
| Particulars | China | | India | |
| Year | Dec 04 | Dec 05 | Mar 05 | Mar 06 |
| Basic | 53.59 | 50.48 | 44.13 | 41.36 ²⁴ |
| Mobile | 49.41 | 49.85 | 32.60 | 31.33 |

Table-2.8

| Capital Employed per Subscriber (US \$) | | | | |
|---|--------|-------------------|-------------------|--------|
| Particulars | China | | India | |
| Year | Dec 04 | Dec 05 | Mar 04 | Mar 05 |
| Basic | 169 | 153 ²⁶ | 362 ²⁷ | 370 |
| Mobile | 163 | 152 ²⁸ | 167 ²⁹ | 147 |

Table-2.9

| Return on Capital Employed (RoCE) as % | | | | | |
|--|--------|---------------------|--------|--------------------|--|
| Particulars | China | | India | | |
| Year | Dec 04 | Dec 05 | Mar 05 | Mar 06 | |
| Basic | 14.79 | 13.25 ³⁰ | 10.92 | 8.10 ³¹ | |
| Mobile | 22.87 | 21.9 | 7.83 | 7.42 | |

Table-2.10

| Projected Capital expenditure | | | | |
|--------------------------------|-------|---------|--|--|
| Particulars | China | India | | |
| Year | 2005 | 2005-06 | | |
| Capital Expenditure (US \$ Bn) | 20 | 6 | | |
| Proportion of Revenue (%) | 28 | 31 | | |

Table-2.11

| Competition Position (HHI Index ³²) | | | | |
|---|-------|------|---------|---------|
| Particulars | China | | India | |
| Fiscal Year | 2004 | 2005 | 2004-05 | 2005-06 |
| HHI Index in Basic Services | 0.58 | 0.55 | 0.67 | 0.58 |
| HHI Index in Mobile Services | 0.40 | 0.36 | 0.16 | 0.15 |

Table -2.12

| The Networked Readiness Index Rankings (NRI Index ³³) | | | | |
|---|-------|---------|--------|---------|
| Country | India | | China | |
| Year | 2005 | 2006-07 | 2005 | 2006-07 |
| Score | 0.23 | 4.06 | - 0.01 | 3.68 |

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| Rank | 40 | 44 | 50 | 59 |
|-------------------------|----|----|----|----|
| Source: www.weforum.org | | | | |

Source: www.weforum.org

Table-2.13

| Direct Employment in Telecom Sector | | | | |
|-------------------------------------|--------|----------|--|--|
| Particulars | China | India | | |
| Year | Dec 05 | March 06 | | |
| Direct Employment (no.s) | 596002 | 429400 | | |

Table-2.14

| Corporate Tax | | |
|--------------------|---------|-------------------|
| Particulars | China | India |
| Corporate Tax Rate | 33% | 30% ³⁴ |
| Effective Tax Rate | 18%~32% | 11.22~%33.66% |

Table-2.15

| Turnover Tax on Telecom Services | | |
|----------------------------------|----------------------|---------------------|
| Particulars | China (Business Tax) | India (Service Tax) |
| Turnover Tax Rate | 3% | 12.24% |

| Table-2.16 | | | |
|--------------------------|----------------------|---------------------|--|
| | China | India | |
| Regulatory Charges | % age of revenue | % age of revenue | |
| Service Tax GST | 3% | 10% + GST | |
| License Fee | Nil | 3-10% | |
| Spectrum Charge | -0.5%*(China Mobile) | 2-6%** | |
| USO | Nil | Incl in License Fee | |
| Total Regulatory Charges | 0.5% + 3% (Tax) | 17% - 26% + GST | |

Source: COAI Pre-Budget Memorandum 2007-08

| Table-2.17 | |
|-------------|---------------------------------|
| Countries | Call Charges per month in US \$ |
| Australia | 0.24 |
| Brazil | 0.11 |
| China | 0.04 |
| Switzerland | 0.45 |
| Japan | 0.33 |
| India | 0.03 |

Source: COAI Pre-Budget Memorandum 2007-08

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Graphs :

Graph-2.1







Graph-2.3

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Graph-2.4



Graph-2.5



Graph-2.6



Graph-2.7

A Case Analysis of Telecom Industry of China and India with Focus on Cellular Subscriber base



Graph-2.8



A Case Analysis of Telecom Industry of China and India with Focus on Cellular Subscriber base