

POLICY IMPLICATIONS OF THE DOI ANALYSIS FOR INDIA

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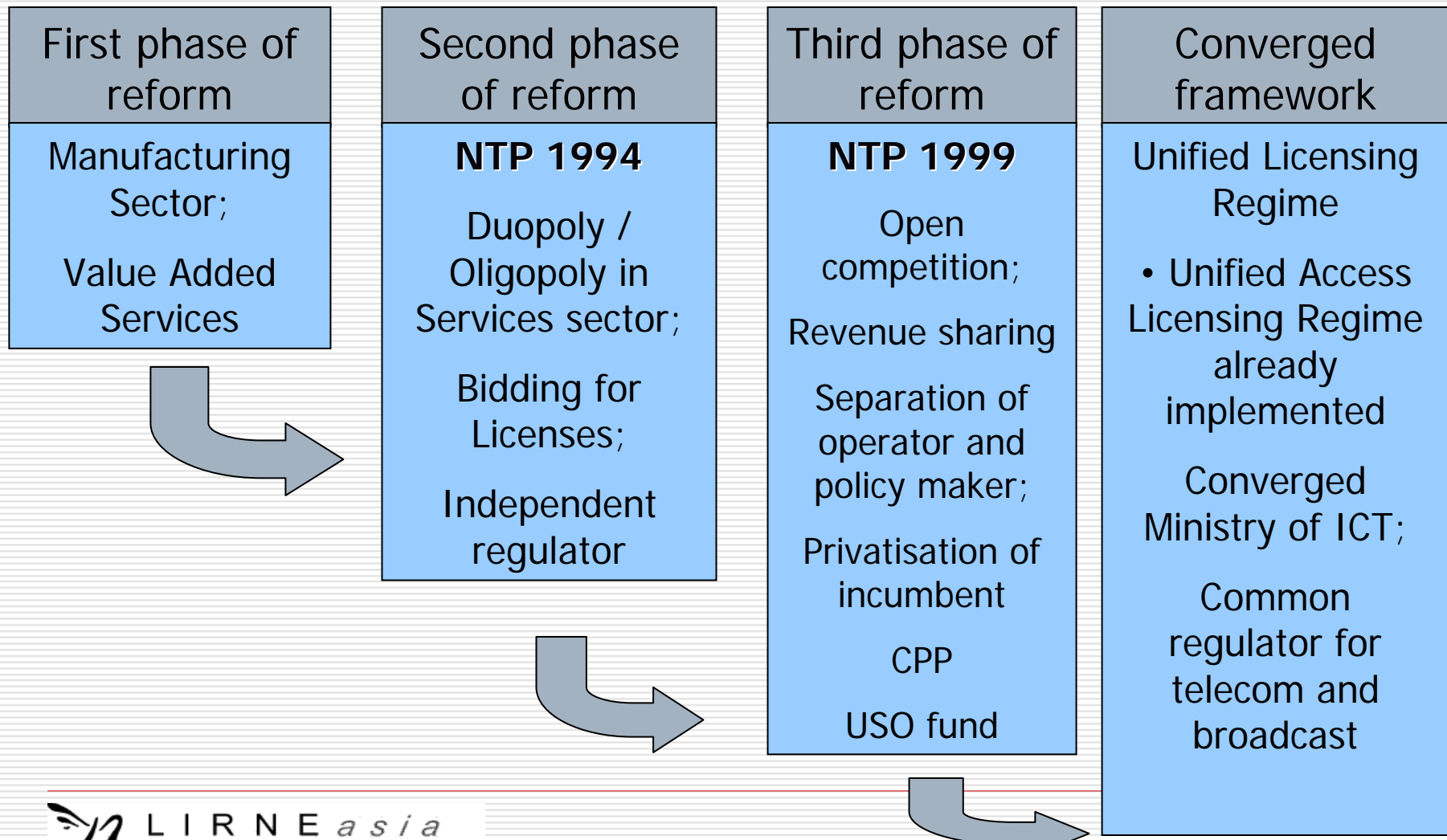
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OUTLINE

- ❑ Provide a brief overview of the policy and regulatory environment influencing DOI along with the major lessons
- ❑ Identify the policy and regulatory constraints in achieving a higher DOI by analysing the sub-indices of DOI
- ❑ Provide appropriate policy solutions to address these constraints
- ❑ Discuss the importance of extending DOI measurement to the different States of India

Phases of Policy Reforms: The Indian Story at a Glance

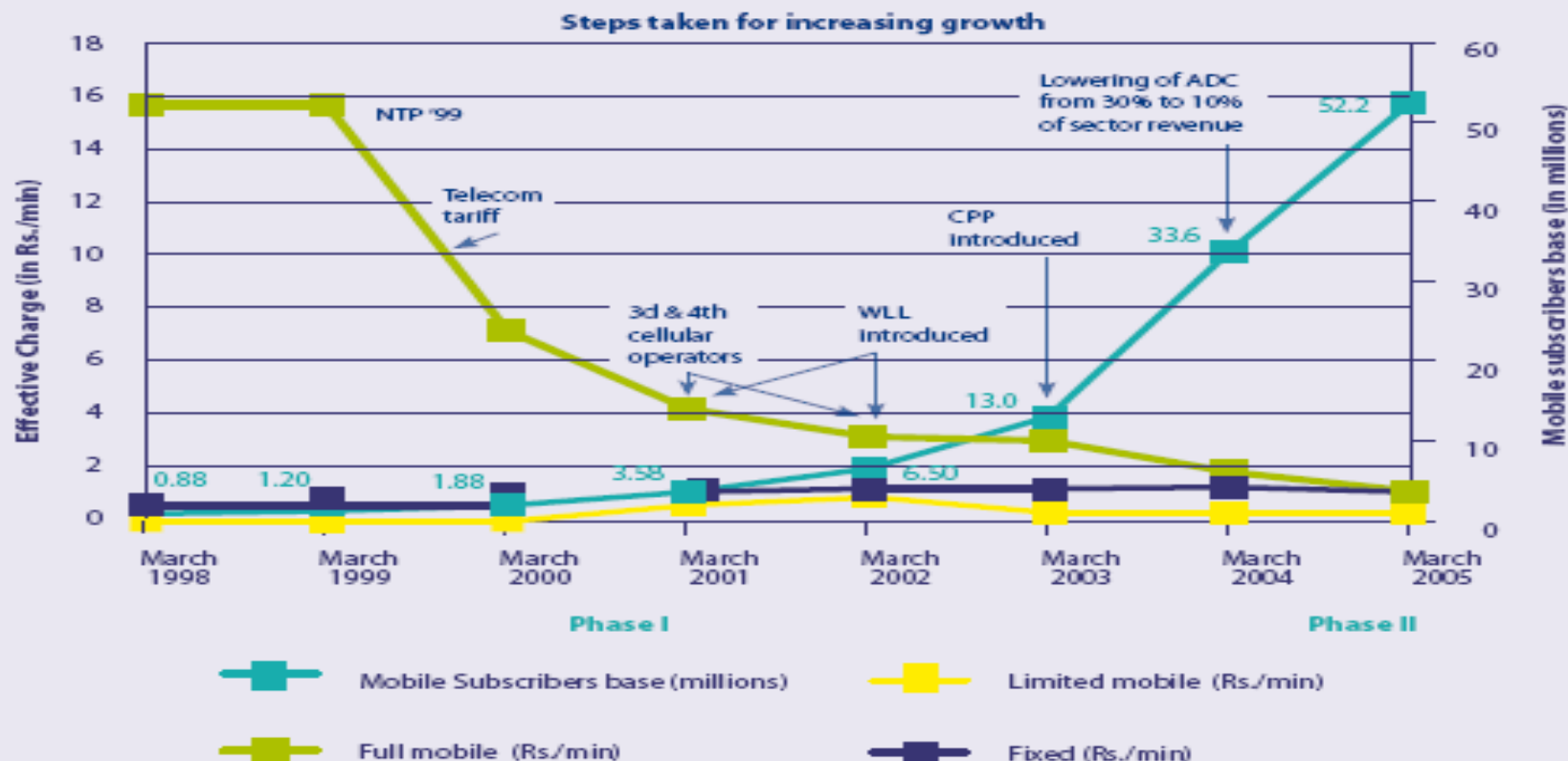


Regulatory Strategies for increasing Competition

- ❑ TRAI facilitated huge reduction in forborne tariffs in 2003-05
- ❑ Growth picked up substantially after 2003 when the mobile tariffs started approaching fixed tariffs
- ❑ Allowing handsets sales in installments
- ❑ Mobile growth in 2003-04 and 2004-05 > average mobile growth in earlier years X 12
- ❑ Teledensity 2 percent or so in 1999 to around 12.80 percent in 2006
- ❑ Mobile sector grew at 72.62 percent in comparison to an 8.64 percent growth of fixed sector between March 2005-06
- ❑ *India was one of the fastest growing countries in its DOI position and the major contributor to this was a healthy DOI opportunity score of 0.80*

Improving India's DOI: Impact of Policy Measures

Mobile growth and effective charge per minute (in Rupees)



Note: NTP '99 = India's New Telecom Policy 1999.

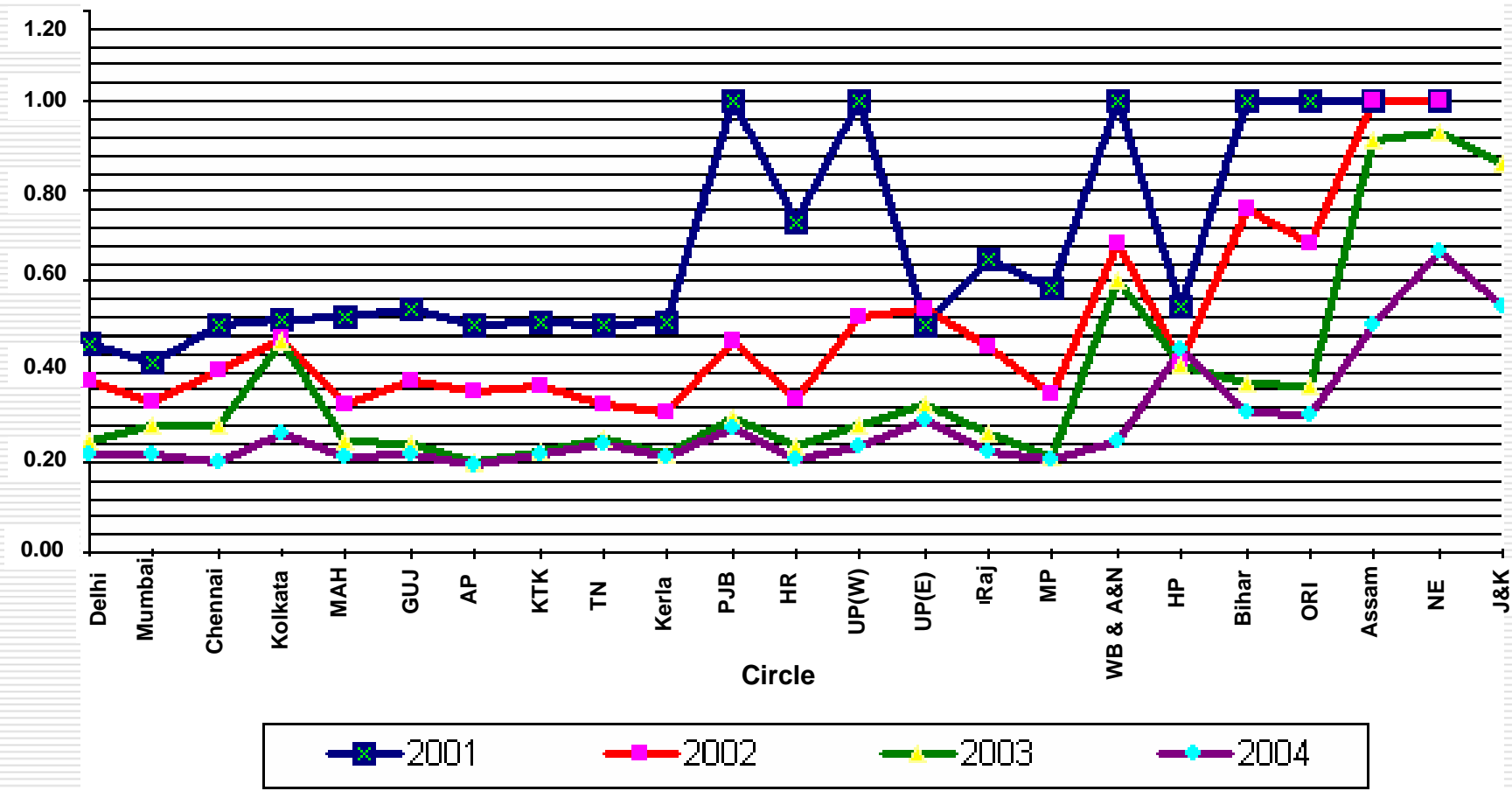
WLL = Wireless Local Loop

CPP = Calling Party Pays

ADC = Access Deficit Charge

Source: Telecommunications Regulatory Authority of India.

Level of Competition



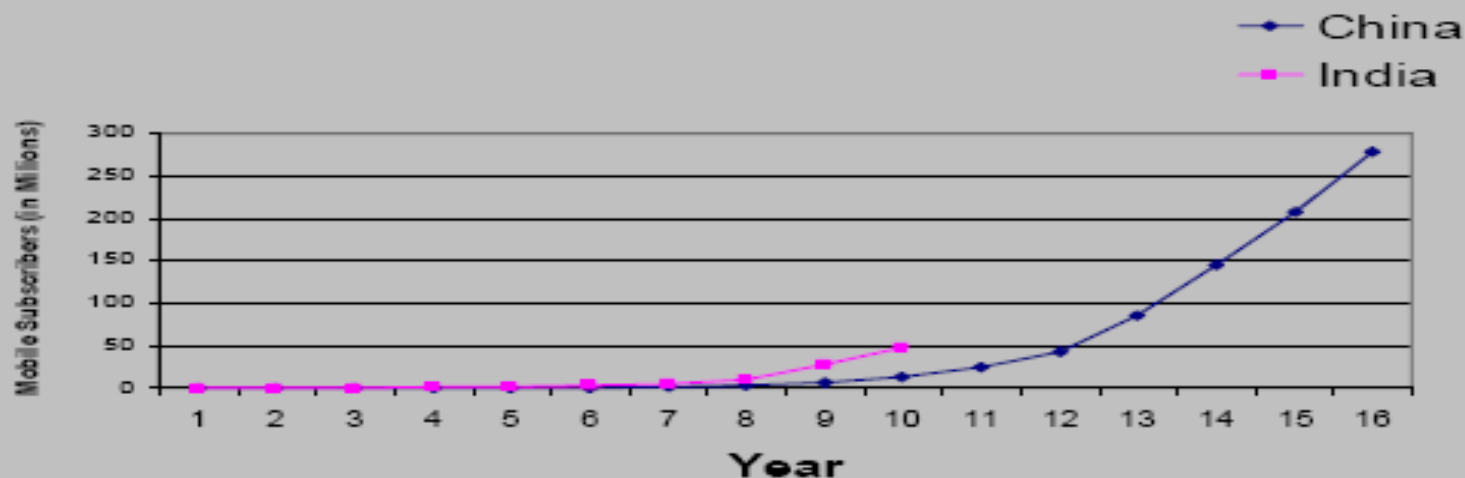
India's DOI: Analysis of the Micro picture

DOI Indicator	DOI Score	Disaggregated DOI
Percentage of population covered by mobile cellular telephony	0.600	Opportunity Index: 0.801; Rank: 110 Infrastructure : 0.044; Rank: 139 Utilization: 0.038; Rank:93 DOI: 0.294; Rank: 119.000 Mopp: 0.768 Minfra: 0.023 Mobile DOI: 0.263; Rank: 124 Mutilization: 0.000 Fopp: 0.869 Finfra: 0.058 Fixed DOI: 0.328; Rank: 112 Futilization: 0.056
Mobile cellular tariffs as a percentage of per capita income	0.935	
Internet access tariffs as a percentage of per capita income	0.869	
Proportion of households with a fixed line telephone	0.103	
Mobile cellular subscribers per 100 inhabitants	0.045	
Proportion of households with Internet access at home	0.023	
Mobile Internet subscribers per 100 inhabitants	0.000	
Proportion of households with a computer	0.048	
Internet users per 100 inhabitants	0.023	
Ratio of Fixed Broadband Internet subscribers to total Internet subscribers	0.090	
Ratio of Mobile Broadband Internet subscribers to mobile Internet subscribers	0.000	

India's DOI: Analysis of the Micro picture

- ❑ Far below its potential in terms of its DOI ranking
- ❑ Successful in improving the Opportunity sub-index
- ❑ Policy and regulatory constraints impinging upon Infrastructure component of DOI (139th position)
- ❑ Similarly, utilisation component can respond to positive policy initiatives
- ❑ China, Brazil and Indonesia are in the medium-DOI countries, India is conspicuous by its absence

Mobile - India - China Performance



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
China	0.003	0.01	0.02	0.1	0.2	0.6	1.6	3.6	6.8	13.2	24	43	85	145	207	279
India	0.03	0.22	0.8	1.1	1.6	3.1	5.5	10.5	28	48						

Introduction of Mobiles:

China year 1 : 1988 Year 17 : 2004

India year 1 : 1995 Year 10 : 2004

Note: Values are for end of year (December)

> So far, on any year to year basis, after late start of mobiles in India, we have done better than China

> We must continue – but corrective measures required for phase III (2005-07)

India's DOI: Analysis of the Micro picture

(Population Coverage ~ 20-25%)

	<i>By area</i>	<i>Population Coverage</i>
Towns	~2000 out of 5100	~250 Million
Rural areas	Negligible	Negligible

Proposed Network Coverage by 2006 ; operators plan (Population Coverage 75%)

	<i>By area</i>	<i>Population Coverage</i>
Towns	~4900 out of 5100	~300 Million
Rural areas	~350,000 out of 607,000 villages	~450 Million

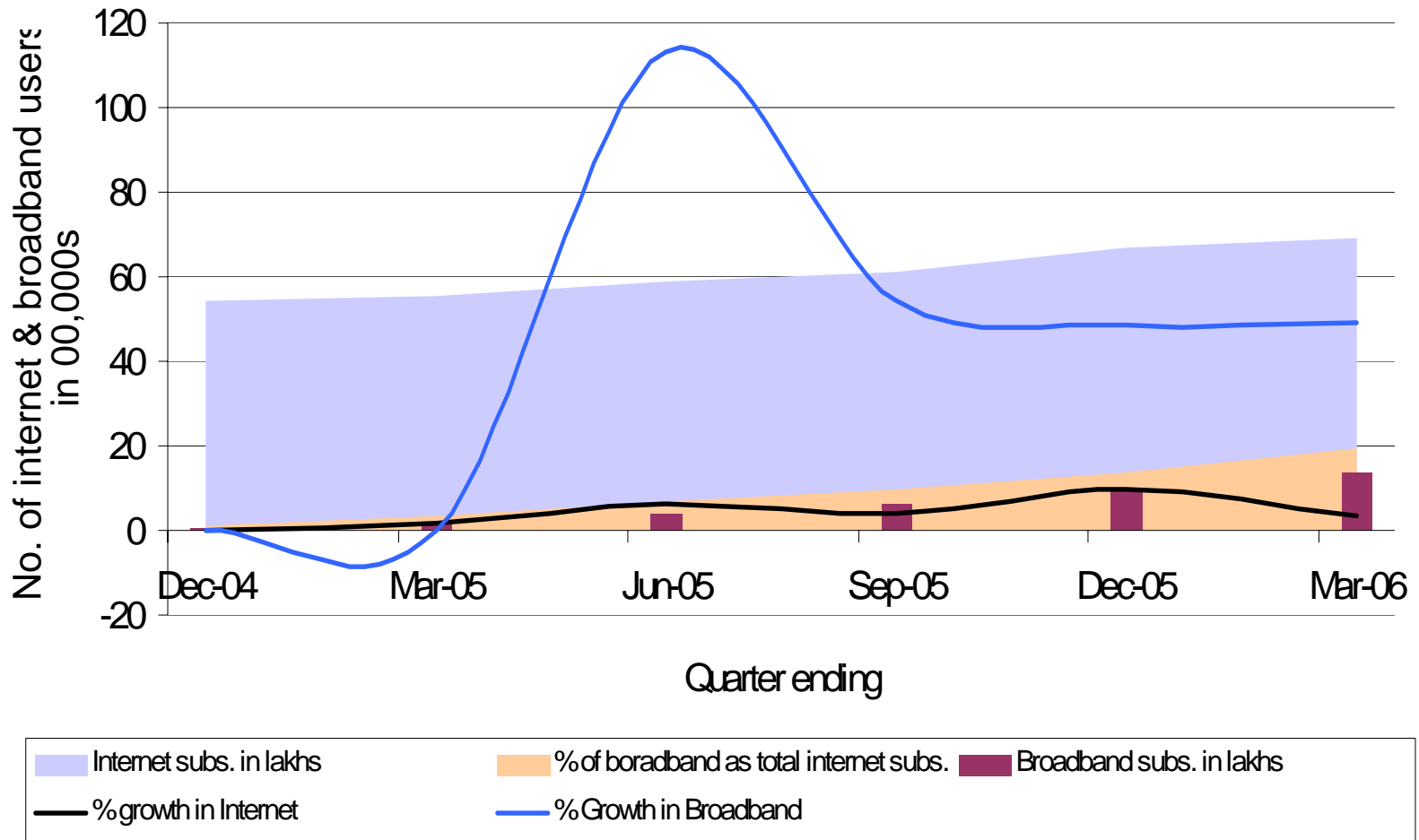
Universal Service Policy and DOI

- ❑ Low penetration of cellular mobile services in rural areas due to the inadequate BTS infrastructure
- ❑ Current USO: covers individual phones and not infrastructure expansion
- ❑ Improved use of existing Assets: 6,70,000 route kms OFC network. Connecting 30,000 exchanges out of which 27,000 in rural area
- ❑ Effective, non-discriminatory access regime for sharing of backbone
- ❑ South Korea has achieved extraordinary results through public funding of backbone networks
- ❑ Sustainability of universal service: remove regulatory barriers to competition

Broadband Policy and DOI

- ❑ Current broadband penetration 1.55 million
- ❑ Target 3 million by 2005 as set up in Broadband Policy 2004
- ❑ Strong position of the incumbent: competition limited
- ❑ Most of the current broadband connections in large cities where private BSOs and cable operators are also providing service with their own local loop
- ❑ Penetration is poor in smaller cities and outside urban areas where only government operators are providing service.
- ❑ Major policy stumbling block: Local loop unbundling (LLU)
- ❑ LLU as a regulatory intervention is an instrument to discipline market power, reduce monopolistic bottlenecks and possibly provide way for innovative service offerings such as broadband connectivity
- ❑ IPLC and DLC prices

Slowing Growth Rates Broadband

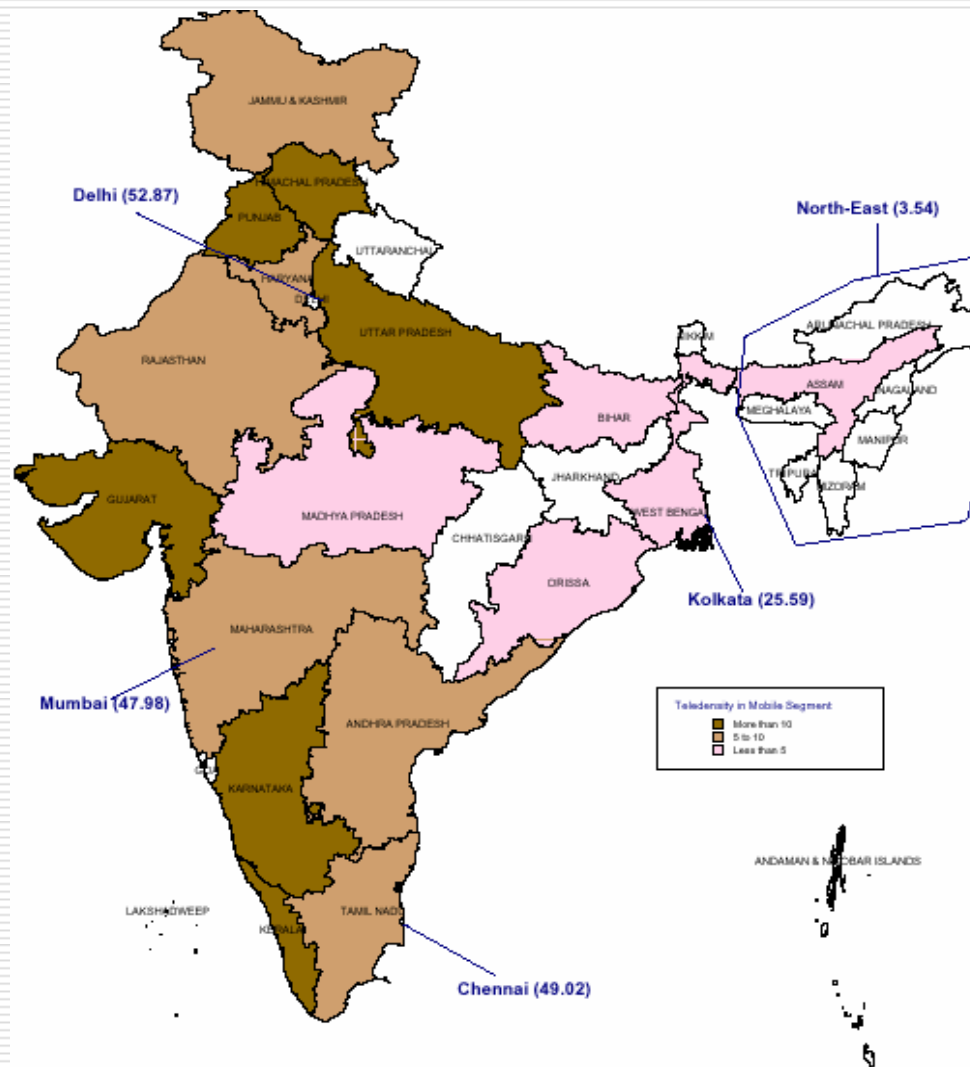


Extending DOI to the States

- ❑ Demand side, represented by the socio-economic status of households, plays an important role in diffusion of ICT
- ❑ Garbacz and Thompson, Perl, Crandall and Waverman, Biancini and Malik
- ❑ Gauged the impact of literacy rate, Access to electricity, NSDP
- ❑ High Correlation co-efficient between teledensity and these variables
- ❑ Per-capita income or the demand side in general is extremely important in e-readiness.

	E-readiness	Environment Score	Readiness Score	Usage Score
Per-Capita Net State Domestic Product	0.21	0.21	0.15	0.89
E--readiness Score	1.00	0.95	0.90	0.89

State-wise differences in mobile teledensity



Conclusions

- ❑ DOI an effective policy tool not only to see which policies worked and which failed but also provide a guide for the future policy and regulation
- ❑ Regulator's perseverance in promoting mobile technology an important factor in explaining India being a major gainer in its DOI score between 2001 and 2005
- ❑ To catch up with its neighbors like China, it has to constantly improve its mobile coverage and mobile teledensity



Conclusions

- ❑ Ratio of fixed Broadband internet to all internet users can be a major driver of the DOI utilization index
- ❑ Replicate the urban competitive model in the small towns and the rural areas with a less distortionary and more enabling Universal Service Policy
- ❑ Importance of coordination between the various government agencies and the private sector in order to collect robust data for the DOI analysis

Thank you

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