

## 6. CONCLUSIONS AND RECOMMENDATIONS

The established link of economic growth to the growth and spread of mobile telephones, coupled with the wide-ranging evidence of social benefits gleaned at some cost because of this revolutionary technology, leads inevitably to the question of its recent vintage and the lessons that can be drawn to leverage its utility over what can be expected to be a fairly longer product life cycle.

6.2 That the ubiquitous mobile phone has earned its popularity by dint of its primary qualities of *mobility* and *permanent contactability* is without doubt. The technology has matured at a time characterized by *liberalization*, *privatization*, and *globalization* – processes that have influenced and in turn been influenced by the gadget that now serves both a fashion accessory for the high and mighty as well as an instrument of empowerment for participants in the labour market. The simultaneous growth of Information and Communication Technologies has ensured that numerous audio-visual and texting tools have converged in one handheld piece of equipment rendering it with qualities that place it at the centre of the postmodern yet material world, and yet, as McGuigan (2005) notes, it ‘is not reducible only to a material object, a commodity circulating in the global economy of transnational operations, of course; it is also a means of communication with considerable social and cultural significance’<sup>63</sup>. This significance has been noted in studies and in the literature to be cutting both ways – it is a source of delight *and* grief – but on balance, it must be held in its favour that the beneficial effects have *potentially* far greater impact than the harmful effects.

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<sup>63</sup> p. 46

6.3 Secondly, the growth of mobile telephony in India, as in many other developing country contexts, has been truly phenomenal. The *low cost* and *ease of* rollout of mobile telephone networks have enabled the country to leap-frog to a position of reasonable parity with other countries in developing telecommunication infrastructure. While there is scope for further improvement in mobilizing subscriptions from different strata of society, it is indeed true that a compound annual growth rate of mobile phones of 83% between 1999 and 2008 and of total telephones of 54% between March 2004 and December, 2008 is no mean achievement. That mobile telephony has been the driver of the entire 'phase III' surge of telephony post-2005 is beyond doubt, given that more than 90% of the subscriptions belong to this category, and absolute number of fixed telephone lines shows a declining trend. Mobile phone growth has in turn been led by low tariffs and the *pre-paid* boom (85% of mobile subscriptions) engendered by a competitive market and deregulation. The steep growth in telephone connections has had beneficial effects in terms of efficiency and productivity gains, spin-offs from cross-sectoral effects, an overall welfare effects.

6.4 There is considerable evidence in the literature regarding the direct economic benefits of growth in telephony. Estimates of the level of such impact have varied across studies, with higher levels of up to 0.15% economic growth for every 1% growth in telephony reported from developed country studies, and a most recent 0.12% economic growth per 1% mobile telephony growth reported from a study of Indian States. The existence of positive and significant effects as well as that of a 'critical mass' beyond which network externalities will push up the positive effects

has been noted in a wide body of literature. Given the evidence of consistent correlation between mobile telephony and economic growth in different Indian States registered in the present study over a period of three years since March 2006 and the prior evidence of the causal relationship, it is safe to conclude that the *growth of mobile telephony in different Indian States has a positive impact on economic growth.*

6.5.1 That said, data analysis from the present study clearly indicates large gaps of *two kinds*

- a) An *urban-rural gap* that is pretty consistent across States with different levels of overall performance in mobile telephony growth; and
- b) A *gap between States* that calls for clear strategies to increase telephone penetration in some laggard States.

6.5.2 The worst performing States in terms of having a significantly higher urban-rural divide in telephony are Bihar, Chhattisgarh, Assam, North East I (Meghalaya, Mizoram, Tripura), Jharkhand, North East II (Arunachal Pradesh, Manipur, Nagaland), Madhya Pradesh, and Uttar Pradesh. The two southern States of Karnataka and Andhra Pradesh also show a gap between urban and rural telephony that is above the national average. Special efforts would be required to reduce the gap in these States so that the growth dividend from telecommunication growth is more evenly distributed between urban and rural areas and mitigate the 'telephone divide' that may be construed as one component of the digital divide. A secondary point that arises out of the analysis is that of these States, the States of Madhya Pradesh, Bihar, Assam, and of the North East need to ensure more universal coverage of mobile telephone infrastructure in their villages, along with the States of Maharashtra, Gujarat,

Rajasthan, Orissa, and Jammu & Kashmir that seem to perform at above national average on urban-rural gap.

6.5.3 In terms of the *growth opportunity* for laggard States, the study reveals that the least performing States of Jharkhand and Chhattisgarh can potentially increase their overall growth rate by an astonishing 5 – 6% if they achieve the (mobile) telephone penetration rates of Kerala, Tamil Nadu, or Punjab. Even the ‘above average States like Andhra Pradesh, North East I, Gujarat, and Karnataka, there is scope for improving the growth rate by 1.5 – 2.5 % if the teledensity rates improve to the level of the high performing States. This is not to conclude simplistically in favour of a ‘telephony-led-economic-growth’ scenario, and is subject to the caveat that teledensity growth cannot be a substitute for growth but can be an enabler for it to *trickle down*, and in terms of the lessons drawn from the connectivity scorecard, is further subject to concomitant improvements in other physical and social infrastructure for full leverage.

- 6.6 The social impact of mobile telephony can be seen along three dimensions of
- a) Changing social dynamics in interpersonal, business, and professional relationships and altering social systems in different ways;
  - b) Affecting individual behavior at work, home, and in public spaces; and
  - c) Influencing innovative and creative coping behavior and applications.

6.7.1 Under the first head, it can now be concluded that since the mobile telephone has become the ‘phone of first choice’ for most people, and given its handy nature, intrusion in social spaces has become commonplace, and both ‘talking’ and ‘texting’

on the move have become socially acceptable means of communication. There are concerns regarding the deleterious effect this remote form of communication could have on relationships that now are starved of richer face-to-face communication. Another negative effect is the way in which work and personal appointments are being scheduled and re-scheduled since it is easy to do so at the click of a button, as is the lack of concern for others as reflected in poor telephone etiquette among users. There is, on the other hand, realization that mobile telephones can and do act as the 'new garden fence' in facilitating therapeutic gossip and in reducing urban anomie.

6.7.2 Business and professional relationships have certainly gained from the social impact of the mobile telephone. As the examples of *Grameen* in Bangladesh and *LabourNet* in Bengaluru and *Reuters Market Light* in Maharashtra and Punjab (*Box 3*), along with evidence from study of fisherfolk in Kerala and *Easy Cabs* in Hyderabad (*Box 5*), prove the beneficial effects being derived by both 'bottom of pyramid' informal sector self-employed individuals as well as small and medium business enterprises. The awareness of prospects and the utility of these phones is well illustrated by field examples from interior Rajasthan (*Box 1*) and metropolitan New Delhi (*Box 2*) that are enabling start-up small scale enterprises to derive tangible benefits from them.

6.7.3 The concerns regarding effects of mobile telephones on individual behavior at home, work, and in public spaces are being articulated specifically from the middle and upper classes, or from developing country research. While there is indeed evidence (see *Box 1*) that there is a generational divide that makes the earlier generation look askance at the entertainment potential of the mobile phone, it is also

true that for the generation that has been the first to adapt to a 'mobile world', and to the generation that has come to its own *after* mobile telephones have become well-entrenched, they represent a degree of flexibility, ease, and comfort that are for these youngsters *necessities* rather than luxuries. However, at the level of the underprivileged sections of society, there is evidence that *ownership* of the mobile phone confers social prestige and status to the owner. This does not, at least not as much in South Asia as in South East Asia, translate into a relationship of *sharing*: ownership is coveted perhaps because *access* is so prized. Cultural factors such as the felt need for face-to-face business interaction still need to be overcome by large sections of the population before mobile phones can be used to fully leverage economic opportunity.

6.7.4 The utility and value of mobile telephones in times of emergency and disaster are also noteworthy. Individuals have been known to misuse mobile phone features such as SMS and MMS, but there is an increasing realization of the potential benefits from mobile phone usage in times of emergency. While they do play a role in early warning, mobile phones find their most potent disaster management application in *relief and recovery* in view of the relatively faster speed of recovery of mobile infrastructure and the previously noted capacity of mobiles to decentralize the sharing of information. Government departments like the police have initiated steps to utilize the potential of short messaging service. The flip side of deviant behavior among certain sections is exemplified in the reaction from examination bodies for example who have placed a ban on entry of mobile phones into examination centres (see *Box3*).

6.7.5 The way forward then is to expand upon the capacity of the mobile telephone to build up a virtuous cycle of social and economic benefits especially to the underprivileged sections of society, as is evidenced by the examples and research marshaled in this study. There is ample evidence of the beneficial impacts, of course tempered by the caveat that mobile phone technology, like all other technology, needs to be understood in its correct cultural dimension so as to mitigate ill-effects and unexpected consequences. The role of markets is crucial in this context, but the 'war cannot be left to the generals'. There is enough evidence of market failure and gaps in access that warrant that government play a role in setting suitable policy, that regulators ensure that the spread of telephony is more seen than it is now in India, and that consumers and civil society organizations respond adequately to create relevant *content* that would allow society to fully leverage the *carrier* infrastructure that has been developed on the ground.

### ***Recommendations***

6.8 In addition to the number of policy pointers that have emerged in the summary of conclusions above, the following recommendations suggest themselves in the context of the study and previous discussion:

- a) The regulatory regime in India should continue with its 'light touch' approach that has seemingly served it well in increasing *aggregate supply* of telephones.

- b) Telecommunications policy needs to be more fully integrated into development policy, given the strong evidence of its causal link to economic growth.
- c) Such integration is necessary at the decentralized State level as well. This is particularly true of 'laggard' States like Bihar, Chhattisgarh, Assam, North East I (Meghalaya, Mizoram, Tripura), Jharkhand, North East II (Arunachal Pradesh, Manipur, Nagaland), Madhya Pradesh, and Uttar Pradesh that must concentrate more than other States to reduce the *urban-rural gap* in ownership and access to mobile phones to mitigate the 'telephone divide'. The States of Madhya Pradesh, Bihar, Assam, and of the North East can straightaway consider increasing coverage of mobile phones to their villages that is now languishing well below the national average, if necessary by more vigorous recourse to the Universal Service Fund<sup>64</sup> administered under the aegis of the Central Government's Department of Telecommunications. This policy prescription applies to the States of Maharashtra, Gujarat, Rajasthan, Orissa, and Jammu & Kashmir as well, which have shown a lesser degree of gap but still have some way to go in terms of achieving universal coverage of villages with mobile infrastructure.
- d) Low performing States such as Jharkhand and Chhattisgarh have the opportunity to increase their economic growth by 4 – 6% by playing 'catch

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<sup>64</sup> The USO Fund came into existence in 2002 and was given statutory status in December, 2003, for providing access to telegraph services to people in rural and remote areas at affordable and reasonable prices. It is administered by an authority under the Department of Telecommunication and is raised through a Universal Service Levy of 5% on the Adjusted Gross Revenue of most telecom service providers.



up' with States such as Kerala, Tamil Nadu, and Punjab in telephone penetration. While this is no simplistic prescription, concerted efforts to take advantage of the funding mechanisms available to improve telecommunications growth in these States, along with improvements to other physical and social infrastructure, can yield a high growth dividend.

- e) In the context of the difficult terrain and complex social and security circumstances obtaining in different regions of the country and in large parts of the underperforming States in this study, it is recommended that the establishment of a *separate entity to provide backbone infrastructure for mobile telecommunications networks* be considered by the Central Government. This entity could channelize the funds available under the Universal Service Fund in a meaningful way for a concerted drive for improvement of mobile telephone infrastructure in underserved States. The backbone so created would remove gaps in rural and total coverage between and across States, and could be available for hire to service providers to then encourage uptake of subscriptions.