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Telecom Use on a Shoestring:

Strategic Use of Telecom Services by the Financially Constrained in South Asia

Version 2.0, February 2006

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Telecom Use on a Shoestring: Strategic Use of Telecom Services by the Financially Constrained in South Asia

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Draft for comment

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ABSTRACT:

When one talks of a ‘shoestring’ budget, it is understood that reference is being made to constrained finances, where individuals make attempts to cut costs through various methods without harming utility. This paper looks at the use of ‘strategies’ by such ‘shoestring’ users to reduce their communication costs. While the use of ‘long-term’ strategies, relating to the investment in a phone, is evident, that of ‘short-term’ strategies, relating to everyday use are looked at is found to be low. It is concluded that this is a result of a series of constraints on users, rather than a lack of a concern for controlling spending on telecoms.

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ABBREVIATED TITLE:

Telecom Strategies on a Shoestring

1.0 Introduction

This paper looks at what is termed 'strategic' use of telecom services amongst the financially constrained in South Asia. What is meant by 'strategic' use are the conscious decisions about use of telecom services in such a way as to minimize costs or improve utility; this could include what are termed 'long-term' strategies, relating to the overall decision to invest in a phone or not, and which mode to use, as well as what are termed 'short-term' strategies, or tactics, relating to the everyday use of the telephone.

There is a growing body of research that suggests that demand for telecom services in developing countries is greater than generally thought, especially amongst low income earners. Research is demonstrating that low-income earners are willing to spend significant amounts of their monthly incomes on telecom. Estimates of the share of monthly income spent by financially constrained groups on telecom services in developing countries are in the range of 10 per cent (Intelecon, 2005; Gillwald, 2005; Souter et al., 2005) –much higher than the 2-3 per cent rule-of-thumb regularly used in the telecom sector.[1] This clearly underlines the importance that these people place on such services in their lives. Such realizations, in line with Prahalad's (2004) notion of 'fortune at the bottom of the pyramid,' are leading the world's biggest GSM handset manufacturers to embark on initiatives to address the cost barrier to low-income earners bringing the cost of a mobile handset to below USD30, effectively creating 'a new low cost market segment' (GSMA, 2005. p.4).

[1] Commonly it is estimated that 'on average, around the world, people spend about 2-3 percent of their income on telecommunication' (Intven, 2000. p6.6).

It is becoming increasingly clear that poor people are willing to spend significant amounts on telecom and there are many benefits they gain from such use (See Bayes, von Braun & Akhter, 1999; Vodafone, 2005; World Bank, 1999). However, this does not mean that everyone who uses telecom services owns a phone; many users of telephones do not even own a phone, and rely heavily on public telephones, as seen in the findings of this study. In Africa, there is still a great reliance on public payphones, even in countries that have relatively high per capita incomes (Gillwald, 2005).

Souter et al. (2005) have pointed out that telephone ownership is rapidly growing in developing countries. In a study of the impacts of telecom on rural livelihoods and poverty in India, Mozambique and Tanzania, it was found that almost half of those who owned a phone only acquired it within the preceding year and a third of those without a phone indicated that they 'wanted to acquire one within the next year.' Similarly, in the present study, 22 per cent of fixed phone owners obtained their connection within the last year, while the corresponding figure for mobile owners was 59 per cent. Souter et al. point out however, that those benefiting from greater access to handsets are the higher status groups within the study populations; this disparity is evident in the current study, with, only a quarter of low income earners owning a phone, while close to half the high-income earners own one.

Although the literature and empirical evidence on the use of 'short-term' strategies in telecom use is limited, judging by the income levels of the people studied, that is, those with monthly incomes *below* approximately USD100, it seems reasonable to assume that such financially constrained people would engage in strategic behavior in the use of not just telecom services, but also in the consumption of many other goods and services. As pointed out in an issue of the NOKIA quarterly newsletter 'Prospective mobile users in new growth markets…earn less, their income is irregular

and they do not have much spending power. As such, they need to be very careful with their money' (NOKIA, 2005, p.3).

Various marketing strategies have been developed to serve the lower-end of the market in ways that take into account the volatility in spending patterns over the month, where a user may spend as much or as little as he or she is able to at any given point. A good example is prepaid mobile electronic credit refill facilities, where a user can add any amount (usually above a threshold) to her account. According to NOKIA (2005), 'Lower income consumers need low value top-ups of 1 USD or less and the opportunity to buy them anywhere. Electronic refill solutions (e-refill) meet both these needs. By replacing paper vouchers with text messages operators can reduce the cost of the prepaid process by up to 70%.' Although per unit costs may in some cases be higher, this is the price that users pay for being able to buy small amounts.[2] This logic is not limited to the telecom sector, it is commonly seen in fast moving consumer goods (FMCG) markets in the developing world, for example in India and Sri Lanka it is not uncommon to find shampoo, toothpaste, hair gel and many other items being sold in sachets at local shops; it is easier for a consumer to buy a small sachet of shampoo when disposable income is available, than buy a larger bottle that is lower in price per unit (Kishore, 2003).

Donner (2005) documents a widespread phenomenon in Uganda, known as 'beeping' where a person dials a mobile number and disconnects the call before the

[2] However, preliminary research by LIRNE*asia* has indicated that prepaid mobile is in fact cheaper than postpaid in Sri Lanka and India, contrary to conventional wisdom. A modified OECD basket methodology which takes into account calling charges as well as SMS charges, connection charges, and rental components yields this result.

callee picks up the call. The caller's number is recognized by the recipient's phone if it has been previously stored in it, and the recipient knows that the caller has sent a signal of some kind. The most common signals identified by Donner are to request the recipient to call back, to convey a 'pre-negotiated instrumental message' such as 'pick me up now' or to simply convey that the beeper is thinking of the recipient. This system ensures communication without speaking or typing a single word. Most importantly, it costs nothing to the beeper. One of the 'rules of beeping' according to Donner is 'the rich guy pays.'

The beeping phenomenon has become quite widespread in some African countries. For example, Mobitel Tanzania facilitates a free 'call-back beeping' service on its network, having realized that increasing number of users were going off air because of high priced airtime (http://www.mobitel.co.tz/Pages/faq's.html). According to Donner, two key factors drive this beeping culture, firstly a 'pervasive' prepaid card system, where often people lack the credit to make a phone call, and secondly, a calling party pays system which encourages people to make shorter calls but receive longer ones.

Chakraborty (2004) also reports of a 'missed call' culture in Sitakund, Bangladesh, arising as a response to the high cost of calls from mobiles, where users have similarly devised systems where the number of times the caller allows the phone to ring before he/she disconnects the line has a specific signal (e.g., one ring = 'I am at home, where are you?' two rings = 'I'm at your house, where are you?' etc.)

Section 2 of this paper outlines the background and the methodology used in this study; Section 3 presents the findings, exploring both the use of 'long term' and 'short-term' strategies in the use of telecom services by the financially constrained; and the final section, Section 4 provides concluding remarks.

2.0 Background and Methodology

This paper is based on a subset of findings of a larger knowledge, attitude and practice study of the telecom usage patterns and behaviors of a sample of 'financially constrained' 'users' in 11 localities in India and Sri Lanka, entitled *Telecom use on a shoestring: A study of financially constrained people in South Asia*. Face-to-face interviews were conducted in both countries with a total of 3,199 respondents (India: 2,099; Sri Lanka: 1,100) in April and May of 2005. Seven localities were surveyed in India and four in Sri Lanka (Table 1). With the exception of Colombo (Sri Lanka), interviewees were spread across urban and rural areas of each locality. The questionnaire was translated into, and conducted in, five local languages (Hindi, Malayalam, Oriya, Sinhala and Tamil).

Table 1: Distribution of respondents amongst centers studied

Country	Localities (State/Province): Urban/rural	Number of respondents
India	Mumbai (Maharashtra) : Urban, Rural	304
	Kasargod (Kerala) : Urban, Rural	300
	Sivaganga (Tamil Nadu) : Urban, Rural	300
	Gorakhpur (Uttar Pradesh): Urban, Rural	300
	Cuttack (Orissa): Urban, Rural	300
	Dehradoon (Uttaranchal) : Urban, Rural	295
	Neemuch (Madhya Pradesh) : Urban, Rural	300
Sri Lanka	Colombo (Western Province) : Urban	206
	Jaffna (Northern Province) : Urban, Rural	282
	Hambantota (Southern Province): Urban, Rural	301
	Badulla (Uva Province): Urban, Rural	311
Total		**3199**

For the purposes of this study, the 'financially constrained' were defined by two parameters; first, those with household income levels of approximately USD 100;[3] second, socio-economic levels. In Sri Lanka those belonging to socio-economic classification[4] (SEC) groups 'B,' 'C,' 'D' or 'E' were included in the sample. In the Indian sample, a different, but comparable socio-economic classification was used. Socio-economic classification of the 'financially constrained' in India according to the natural distribution of population is divided among urban and rural settings, each consisting of different SEC groups. In urban India the 'financially constrained' can be classified as SEC 'B,' 'C,' 'D' and 'E,' while rural 'financially constrained' in India can be classified as 'R1,' 'R2,' 'R3' and 'R4' based on the profession and type of dwelling of the chief wage earner (pucca and kuchha house). In this study, this division was followed for the socio-economic classification of Indian users.

Respondents were selected within selected households[5] based on KISH sampling techniques[6] to ensure random sampling as well as adequate representation of gender and age groups as in their actually existing ratios[7].

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[3] INR 5,000 in India and LKR 10,000 in Sri Lanka

[4] A standard classification, based on occupation and education level of the chief wage earner

[5] A maximum of five households were selected starting from one 'starting' household that was randomly selected from the electoral list.

[6] The KISH grid is a random sampling technique to select one respondent from many eligible respondents in a household. In this case, names, gender and ages of all household members using phones (in the preceding 3 months) were recorded (in descending order of

India and Sri Lanka are located in South Asia, the largest concentration of poor people in the world. Both countries have experienced rapid telecom growth within the past five years. In addition, India and Sri Lanka have differing mobile termination regimes: India is a Calling Party Pays (CPP) environment (from 2003), similar to the regime in fixed where the service of receiving a call is bundled together with call origination, which is charged; Sri Lanka is a Receiving Party Pays (RPP) environment, where one has to pay for both origination and reception, though many consumers now enjoy significant quantities of free incoming minutes under various packages. It was hoped that this study might bring out the differences, if any in telecom use among the 'financially constrained' in the two environments. The seven different localities in India and the four in Sri Lanka were selected, not to represent the two countries, but to capture the diversity *within* the two countries, taking snapshots of eleven very different markets, in terms of telecom access, economy, population and geography. For this purpose, the 'Indian' sample was further divided into two 'regions' for some of the analysis: 'Northern' India (Dehradoon, Gorakhpur and Neemuch) and 'Southern' India (Cuttack, Kasargod, Mumbai and Sivaganga). The rationale for grouping the locations was the broad similarity in socio-economical qualities of the locations. This was done in an attempt to preserve some of the diversity of the locations, as well as to split the sample more evenly for comparison.

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age). Based on the number of eligible respondents in household and the household contact number (n^{th} interview of each starting point), a random number sheet was used to select one of the many eligible respondents. This ensures that respondents selected are not skewed to any gender or age, but are reflective of reality.

[7] Only respondents over 18 years of age were interviewed.

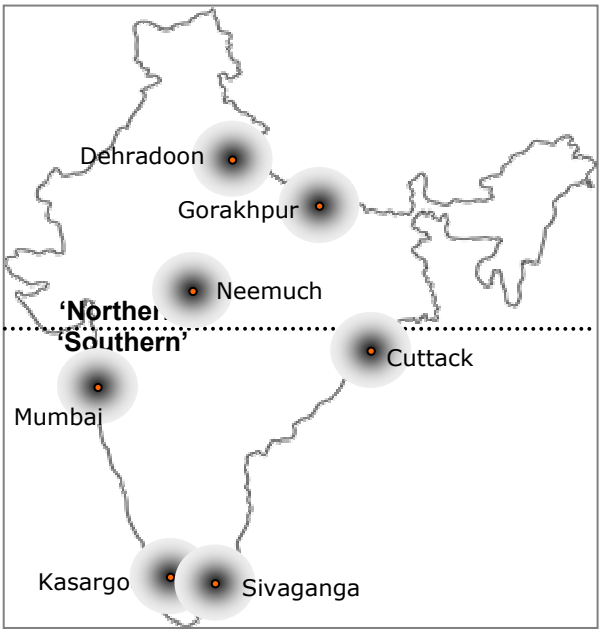

Figure 1: Indian localities

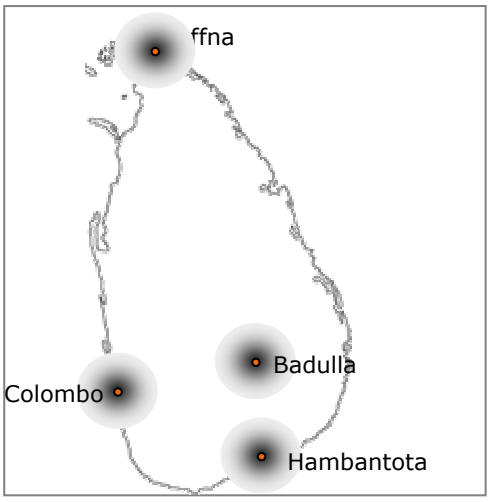

Figure 2: Sri Lankan localities

Limitations

The findings from this study are *not* representative of India and Sri Lanka as wholes. A true representation could only be obtained through pure random sampling according to the natural distribution of the population in the countries, rather than quota sampling which was undertaken to cover a priori heterogeneous locations. Quotas were allocated within the locations as given in Table 1.

Respondents were asked to indicate their monthly income for the purpose of analysis. While respondents were asked to consider income from all sources, it is still plausible that the income group indicated does not reflect true income levels; irregularities in remittances, which can account for substantial portions of income in developing country households where large sums of money are received at irregular intervals for special occasions or emergency situations could result in some income being unreported. Furthermore, such transfers may not even be considered as 'income' per se by the respondents.

For the kind of information that this survey sought to elicit, a questionnaire containing many more open-ended questions would have been optimal. However, given the size of the sample as well as the depth of the questionnaire, this was not practical. For this reason, the questions were closed-ended, but respondents were given many non-exclusive options to choose from.

The survey asked respondents about their calling patterns, in terms of average number of calls made and received per month, etc. to what destinations, for what purpose. It is recognized that the accuracy of this information is problematic because it is based on recollection. Thus the data obtained is only an indication of and not necessarily an accurate representation of individual calling patterns. Real calling patterns can only be obtained from billing records; this was not done in this study for privacy reasons. In any case the option of analyzing billing records exists only for a

small percentage portion of the sample, the 26 per cent of fixed phones owners and the 2 per cent of postpaid mobile owners.

There is also over representation of ‘unemployed’ persons and ‘housewives’ in the sample. This could not have been avoided unless quota sampling was adopted by occupation categories.

This study is the first of its kind in a series of user studies that will be repeated over time and across locations, through the LIRNE*asia* research network. In addition to contributing to the understanding of the use of telecom services by the financially constrained in South Asia, this first phase also serves as a pilot. This pilot has drawn attention to areas where modifications and improvements to the study design can be made.

One significant weakness of this study is that it does not study the financially ‘unconstrained.’ Sound conclusions about the behavior of the financially constrained can only be made if the financially ‘unconstrained’ are studied in comparison, that is, through a sample which also covers the SEC A’s and those with monthly incomes over USD 100 per month. The study also does not look at non-users amongst the financially constrained, and how their non-use is associated with financial constraints. Furthermore, it is not possible to say whether behavioral patterns identified in this study are also relevant to the financially constrained in more developed markets, or are unique to the financially constrained of South Asia alone, without studying comparable data for those markets as well.

This research has served as a pilot from which LIRNE*asia* has increased its understanding of telecom use by the financially constrained, as well as identified areas that can be improved upon in the research which will help shape LIRNE*asia*’s

2006-2007 *Telecom Use on a Shoestring* research to better understand this use, in a larger group of countries in South and South-East Asia.

3.0 Findings:

One of the most striking findings of this study, is that almost everyone use phones; of the 3,690 persons approached (using the KISH grid) in Sri Lanka, only 0.3 per cent (a total of 12 people) were not interviewed because they had not used a phone in the preceding three months.[8] In the Indian case, only 12 per cent of the 4,769 persons approached had not used a phone in the preceding three months. This means that 99 per cent of those approached in Sri Lanka, and 88 per cent of those approached in India had used a phone in the preceding three months. These are astonishing numbers for financially constrained in countries where teledensities, even if a generous estimate is made by adding fixed and mobile teledensities, are still below 30 subscribers per 100. This indicates a large segment of phone users are missing in the commonly used teledensity figures.

3.1 CONSTRAINTS ON STRATEGIC USE:

Strategies versus default outcomes:

When exploring the 'strategies' of the financially constrained, one has to understand the constraints on strategic use, to be able to distinguish between an actual 'strategy' and a default outcome.

[8] The remaining 2578 Sri Lankans were not interviewed, because of reasons such as income being too high, higher SEC group, not speaking the language, refused to be interviewed, no body at home, not in the age group, etc.

If an individual does not have a choice whether to obtain a fixed connection, is using his neighbor's phone really a 'strategy?' The answer is *no*; an action can only be a strategy if the individual has some other option, and can make a decision to do one thing or another. If he has no alternative, then using his neighbor's phone is just a default outcome. Thus, if and individual does not obtain a fixed or mobile connection because he/she cannot afford it, or the service is not available, then it is not a strategy, but a default outcome. This scenario will apply to some of those surveyed, by the very fact that they are financially constrained.

It is also important to understand what factors might prevent people from making strategic decisions; it is reasonable to assume that many of the people that the financially constrained call or are called by are also financially constrained people, possibly who do not have a phone. Even if the caller has a phone himself, he still has to work around the fact that the callee probably doesn't have a phone, and hence has to call her at a particular pre-coordinated time when she is near perhaps her office phone, leaving little room for strategy on the caller's part.

Many of the people surveyed in this study will face such barriers which might limit their ability to exert strategic behavior in the use of telecom services. It is important to understand this factor before proceeding with the analysis.

3.2 'LONG TERM' STRATEGIES:

How financially constrained people choose to communicate and why?

Respondents were asked to indicate which 'mode(s)' which they have used to access telecom in the last three months: fixed,[9] mobile,[10] public access[11] or some combination of the three. Table 2 and Figure 3 show that there is a great reliance on shared access, with almost two thirds of the sample relying solely on public access (37 per cent of respondents) or on public access with fixed and/or mobile (29 per cent of respondents). Figure 4 illustrates the higher reliance on shared access in Northern India in particular, with 79 per cent using public access phones and access through mobiles is as little as seven per cent. This is similar to the situation in Africa, according to findings of a recent ten country study by Research ICTs Africa! which finds heavy dependence on public payphones in several countries. For example, 83 per cent of those surveyed in Namibia indicated that at least one individual in their household had used a public payphone in the preceding three months, while in South Africa 47 per cent of those surveyed had used a public payphone in the preceding three months (Gillwald, 2005. p 24). These countries were the third and second wealthiest countries of the ten surveyed, respectively, in terms of GDP per capita.

The data reflects the ground reality. Mobile penetration in Sri Lanka (where cellular service has been available since 1989) was 15.85 subscribers per one hundred

[9] Defined as a phone which is fixed to a location whether connected to the network by wire or wireless.

[10] Defined as a wireless phone that a user can move around.

[11] Defined as a phone that is available for the public to use, which includes the following: public call offices, post offices, public payphone booth.

inhabitants as at end 2005,[12] while that in India (where cellular service has only been available since 1994) was 5.96 as at September 2005 (Telecom Regulatory Authority of India, 2005) Fixed teledensity in the two countries is not dramatically different: 5.14 and 4.07 subscribers per one hundred inhabitants at end 2004, respectively (ITU, 2004; pp.A8-A9). India has a large number of public call offices (or PCOs) across the country, making telecom services more accessible throughout the country to those who do not own a phone themselves.

Table 2: Mode of access used by respondents

	Fixed	**Mobile**	**Public access**
Percentage of respondents that use mode of access	49	19	66

NOTE: percentages do not add horizontally to 100, as some users use multiple modes of access

[12] Data sources: Samarasinghe (January, 19 2005) for mobile subscriber data & CBSL (2005, Special Statistical Appendix: Table 1) for population (provisional)

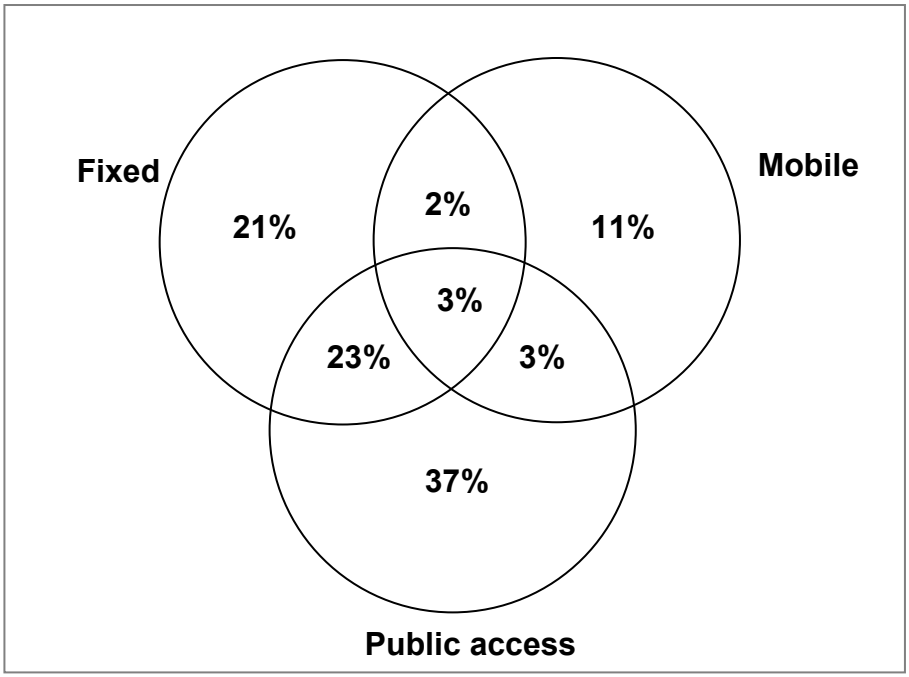

Figure 3: Mode(s) of access used by respondents

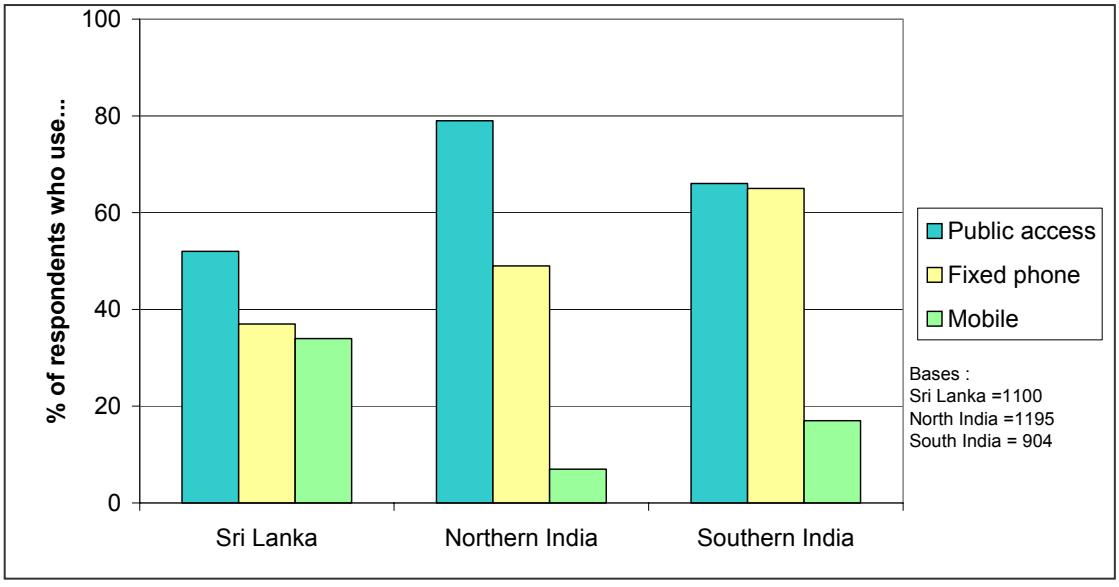

Figure 4: Mode of access used by respondents in Sri Lanka, Northern India and Southern India

Fixed use in India does not decrease from urban to rural areas, reflecting the relatively well developed infrastructure of rural India; public access, while still the most popular form of access, does not differ significantly between urban and rural areas in Northern or Southern India, but the little mobile use in India (12 per cent of total Indian sample) drops dramatically when rural areas are considered alone. In Sri Lanka however, people tend to move away from fixed and mobile toward public access in rural areas.

Fixed use tended to be higher amongst SEC groups B and C, those above 35 years of age as well as amongst females. Mobile use was higher amongst those below 35, especially males, and skewed toward urban areas. Public access users belonged to the less affluent, lowest SEC groups (D and E) and were mostly rural; Indian public access users were of a lower income category than their Sri Lankan counterparts. The younger age groups (below 35) were higher users of public access facilities.

Respondents were asked about the reasons why they use the mode(s) of access that they use. The reasons were later grouped into three main categories, cost-related reasons, convenience-related reasons and symbolic reasons, as given in Table 3 below. Respondents were able to select more than one reason.

Table 3: Grouping of reasons for choosing to use a particular mode of access

Cost	This mode is the most economical way to make calls
	This mode is the most economical way to receive calls
	This mode allows me to control my communication costs
Convenience	This mode allows me privacy when using it
	I can move around with it
	This mode is it is easy to use

	This mode is easy to access
	I can use this mode at any time
	I save on travel time and cost by using this mode
	The connection is clear
	I have no other choice
	I can use value-added services, e.g., short message service
Symbolic	using this mode improves my social status
	using this mode is fashionable

Cost and convenience were the main factors driving choice of access on all three modes, with convenience playing a larger role amongst mobile users, as depicted in Figure 5, namely the ability to use the phone at any time (71 per cent of mobile users) and while on the move (67 per cent).

Overall, the reasons for selecting fixed access and public access follow the same pattern. The top two reasons amongst fixed users were the economics of receiving calls (77 per cent of fixed users) and the clarity of the connection (65 per cent). Amongst public access users, the top two reasons were ease of use (70 per cent of public access users) and the economics of making calls (69 percent). Two reasons that play a greater role amongst fixed users are it being 'the most economical way to receive calls' and it 'can be used at any time.' This is likely to be because use of public access phones involves travel to a different location, at a particular time to receive a call.

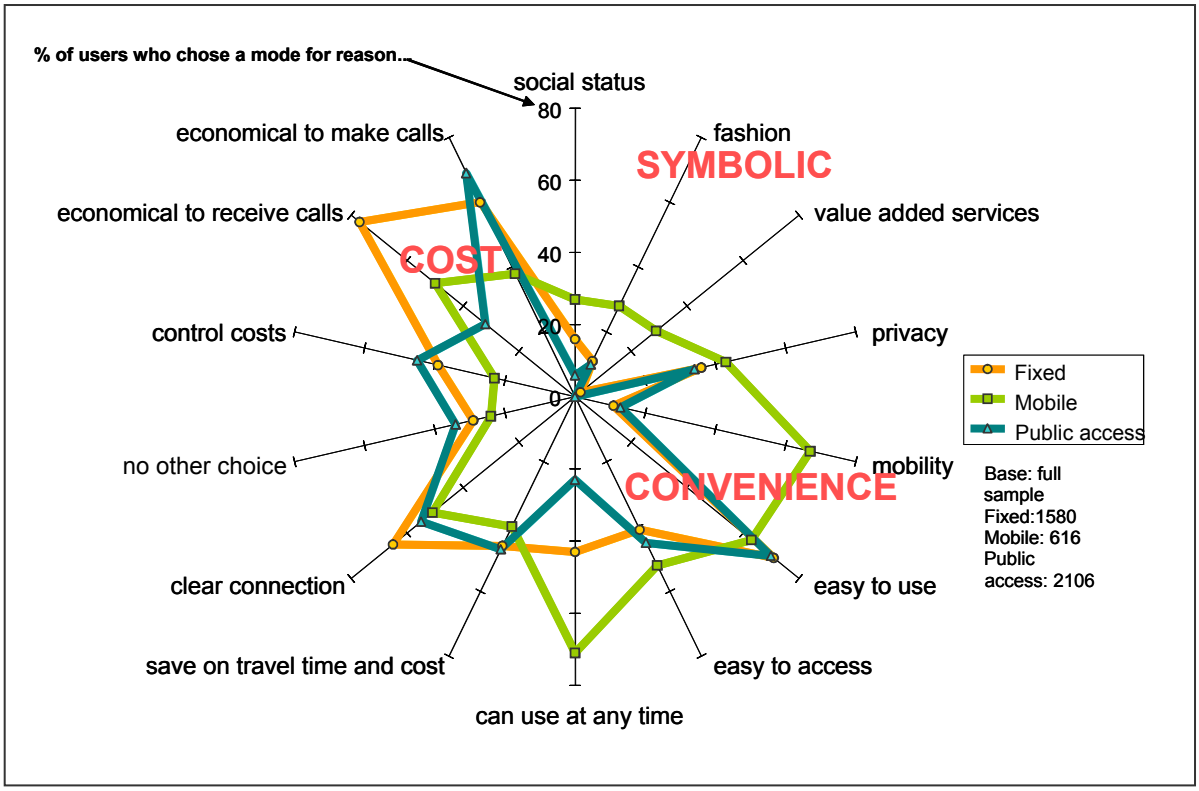

Figure 5: Reasons why fixed, mobile and public access users choose to use respective mode(s) (percentage of users of a mode of access who selected that reason)

Twenty to thirty per cent of fixed, mobile and public access users stated that the reason for using that mode was because they had no other choice; thus, for the remaining 70-80 per cent, the choice of mode can be seen as 'strategic,' in that they did have other options.

It is interesting that 80 per cent of Indian fixed users stated that fixed access is the most economical way to receive calls. With regard to receiving calls on public phones, there is an implicit cost of traveling to that phone at a pre-defined time which users may consider when selecting a mode of access. On mobiles, it is understandably more economical to receive calls in a CPP environment rather than an RPP environment, reflected in more Indian mobile users (72 per cent) stating that it is more economical to receive a call on a mobile than Sri Lankans (35 per cent). However given that India converted from an RPP environment to a CPP one in 2003

(Malik, 2004) and that Sri Lanka is still in an RPP environment, it is surprising that this reason would even be considered by Indians in deciding which mode of access to use as there is no explicit cost of receiving a call on any of them. Nevertheless, 80 per cent of Indian fixed users and 72 per cent of Indian mobile users considered the economics of receiving calls when selecting which mode to use.

What respondents use the telephone for

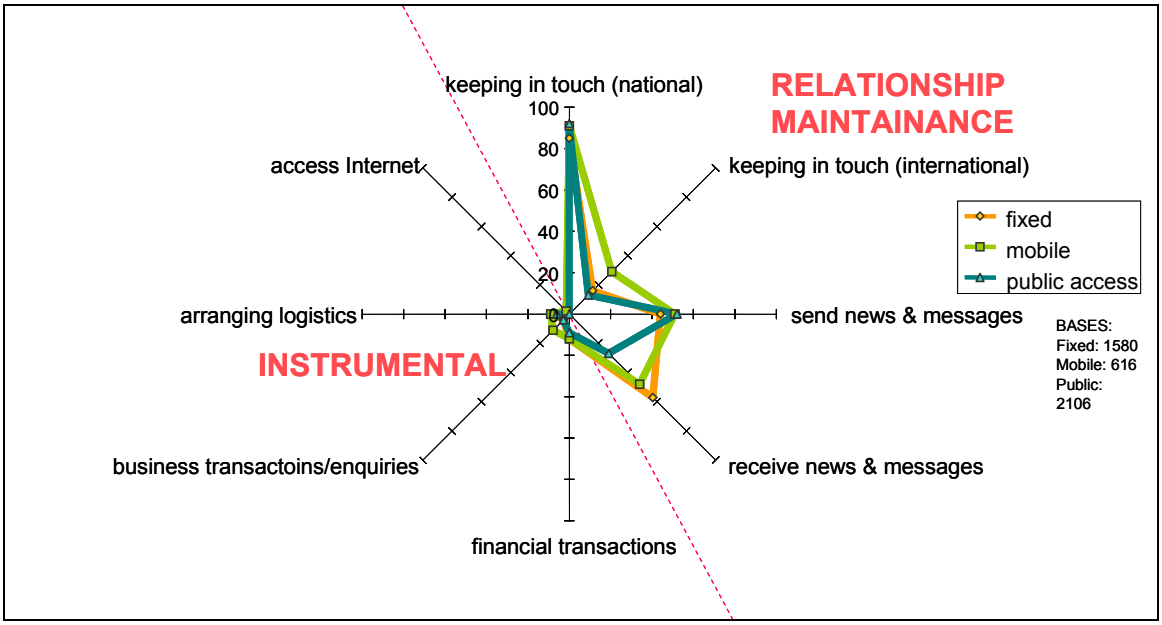

Figure 6: What fixed, mobile and public access users use the phone for: relationship maintenance versus instrumental purposes (percentage of users of a mode of access who selected that reason)

Respondents are using telecom services primarily for 'keeping in touch' and sending and receiving messages, what Moyal (1992) describes as 'relationship maintenance'; this is the case in all three modes. There is practically no use of telephones for what Moyal termed 'instrumental' purposes, except for a small percentage of mobile users undertaking business transactions and making business enquiries.

This agrees with the findings of some other recent studies of telecom use in the developing world. Research in India, Mozambique and Tanzania found that the second most important use of telephones in the three countries was for 'social' purposes, such as maintaining contact with family, second only to 'communicating in emergencies.' Social use of the phone is particularly high in India (Souter et al., 2005). A separate study conducted in South Africa and Tanzania found that the benefits from mobile phones for communities include 'improved relationships' according to almost four fifths of those studied (Vodafone, 2005).

The somewhat unexpected finding that telephones are heavily used for 'social' purposes can be explained by two factors. First, it may well be that what the respondent categorizes as 'keeping in touch' might well have instrumental aspects also – for instance, a call to a relative in the city might include inquiry about his or her well-being as well as a request to send home some money, etc. As Bayes et al.(1999) correctly point out, it is difficult to ascertain the exact 'purpose' of a call,. Alternatively, as found by Souter et al.(2005), different communication methods and information sources are valued for meeting different needs. Souter et al. (2005) found that telephones are the preferred mode of communication for emergencies and family networking, especially in India; mass media (television, broadcast radio and newspapers) are preferred for general information while face-to-face communication is 'overwhelmingly' the preferred mode for obtaining specific information, relating to farming, business, education, and political or government matters.

Investing in a telephone

Ownership of telephones[13] in the sample is low; *fifty eight percent* of the respondents do not own the phone that they use. This is another surprising finding, and raises a question about the most commonly used indicator of telecom penetration, teledensity. This indicator, by definition,[14] cannot accurately portray telecom access in countries where the majority of users do not even own a phone. Amongst those in the lower income category (below USD50 per month),only 24 per cent of the Sri Lankan respondents and only 23 percent of the Indian respondents own the phone that they use, as shown in Figure 7 below.

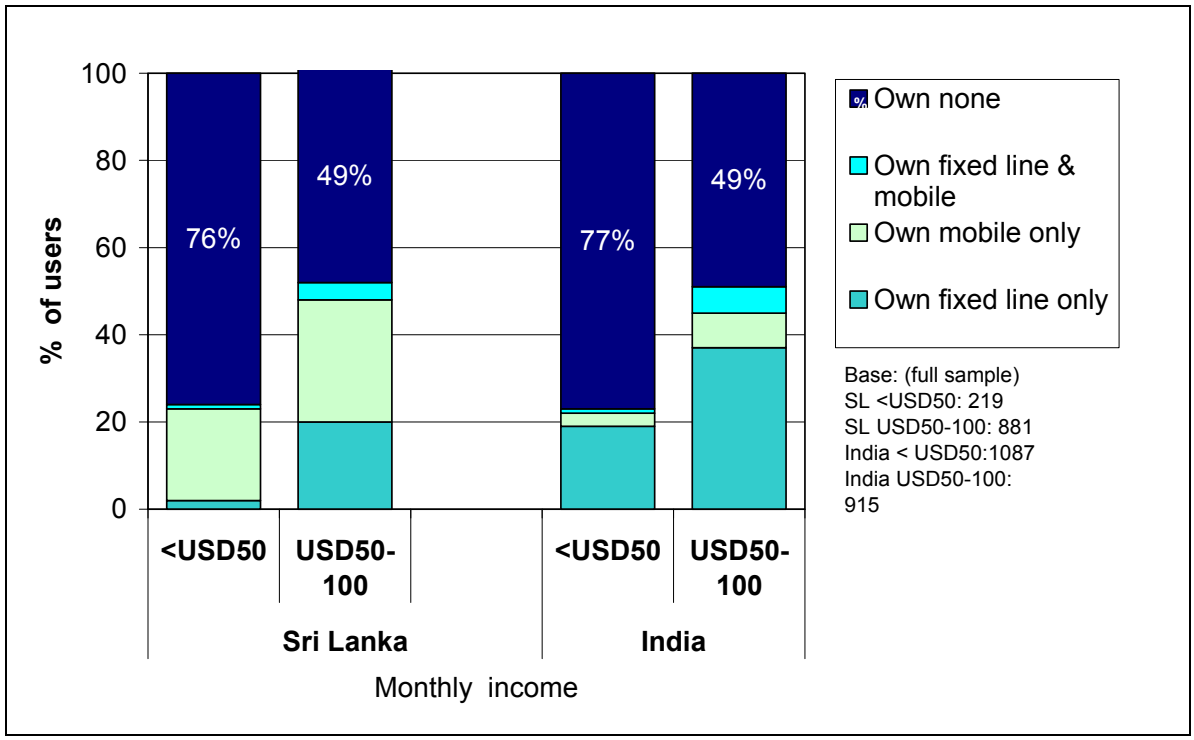

Figure 7: Ownership of a telephone that the respondent uses by monthly income

[13] Ownership of a phone defined as 'ownership by self,' 'available for the use of household members' or 'jointly own telephone with another non-family member.' There were no respondents that answered 'jointly own telephone with another non-family member' however.

[14] Number of telephone *subscribers* per one hundred inhabitants

As seen above, there is a great reliance on public access modes (public call offices, public payphones and post offices) amongst the users surveyed; sixty six per cent of those surveyed use public access modes. Amongst owners, in particular among owners of fixed phone, 31 per cent allow others to use their phones to make/receive calls, and send/receive messages. Where options are limited, for example in Jaffna (a unique post-conflict environment) there were significantly more mobile users that send and receive messages for other people using their phones at least 50 per cent of the time, a much higher percentage than in the other localities.

Even amongst those who own some kind of phone, fixed or mobile, there is still considerable reliance on public access phones; thirty four per cent of fixed phone owners and 26 per cent of mobile owners still use public access phones. This could be for several reasons, firstly cost; calls from a public access phone may be cheaper than from one's mobile (this is more likely to be applicable in Sri Lanka where there is a greater differential between fixed and mobile tariffs than in India). Secondly, public call offices for example might offer international direct dialing (IDD) facilities, that the user may not have access to on his/her own phone (as this may be an additional rental/deposit component, or may simply not be offered on the package he subscribes to). Thirdly, given that a large segment (83 per cent) of mobile users are on pre-paid mobile packages, there may be periods when they do not have sufficient credit on their phone to make calls (only 21 per cent of mobile owners recharge their pre-paid accounts immediately), in which case, a public access phone may be used.

The first and third scenarios are compatible with the notion of 'multiple communication strategies,' where users utilize whatever medium of communication is available based on convenience and disposable income at that moment (Gillwald, 2005, p.18). All modes are used, in different combinations at different times, depending on the need and ability to pay at that moment in time.

Contrary to expectation, it was found that joint-ownership of mobile phones[15] was not common. However, amongst mobile users, 11 per cent described the ownership of the mobile that they use as that of the household, that is, a 'house' mobile phone that is available for the use of household members. This was more the case with Indian users (15 percent) than with Sri Lankan users (7 per cent).

Financing the initial connection may have been the barrier that kept the majority of the non-owner users in that state. Among those who owned the phone, 88 per cent of fixed and 82 per cent of mobile owners, had financed the initial connection from household resources. However, when the Sri Lankan and Indian samples are compared, there were significantly more Sri Lankan fixed owners who relied on installment plans (17 per cent), compared to the Indian sample (4 per cent). This is reflective of the costs of getting connected to a fixed line in the countries; in Sri Lanka, a fixed connection can cost around USD 100 (new entrants) or even USD 180 (incumbent), whereas in India, a connection may cost around USD16 (incumbent).

Less people had the money readily available (or available within the household) when it came to obtaining a mobile phone. While more than 70 per cent of mobile owners bought their handsets new, close to one third of Indian mobile owners had bought their handsets second hand. Some people had received their handsets free or as gifts (10 per cent). The top reason for investing in a mobile was for the convenience of mobility (61 per cent). Fifty six per cent mentioned the absence of waiting time as a factor.

[15] with people *other than* household members

When deciding which communication mode to use, and whether or not to invest in it, the lower income groups tended to opt for shared modes, rather than investing in their own telephone. For the majority of these users, other options were available, and so this behavior could be considered 'strategic.' But financially constrained people were also concerned with non-cost factors such as convenience.

3.3 'SHORT TERM' STRATEGIES

This subsection looks at the use of such 'strategies' which may have been used by users in order to reduce communication costs. The kinds of strategies that were tested include (but were not limited to):

- capping telecom use at certain level of expenditure or call duration
- restricting calls to a defined group of contacts
- making calls at off-peak times
- use of SMS (short message service) as a substitute
- making calls on one phone and receiving on another (to avoid higher incoming costs)
- using the phone to request someone to call back
- switching mobiles off to avoid incoming calls

While more strategies were tested in mobile use than fixed (including public access), there still appears to be greater use of strategies in general in the use of mobile communication,[16] seen in Figures 8 and 9. There appears to be concern for keeping local, national and international calls short, on both fixed and mobile, with

[16] 'use' of a strategy is considered if the user states that he/she uses it more than 50% of the time.

respectively 21 and 17 per cent of fixed and mobile respondents disconnecting their phones if a certain amount of call charges or time is exceeded.

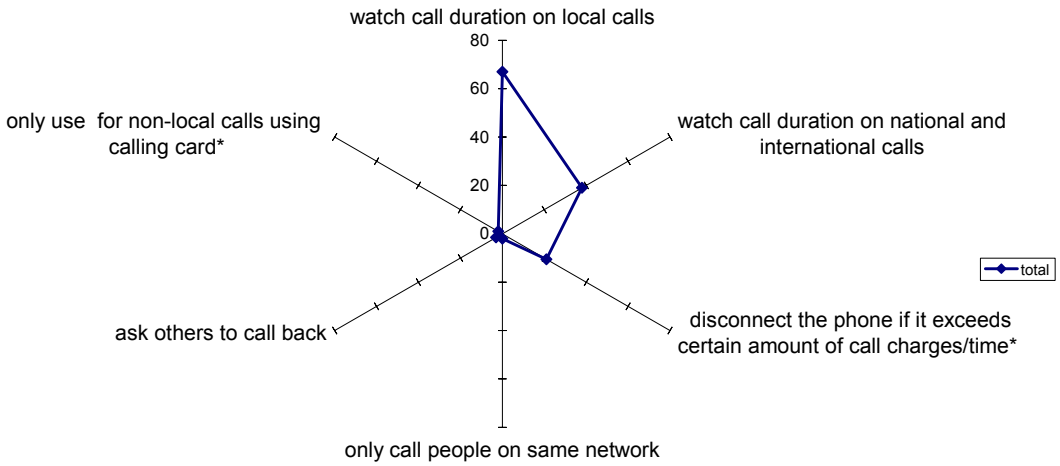

Figure 8 : Use of strategies amongst fixed line (including public access) users

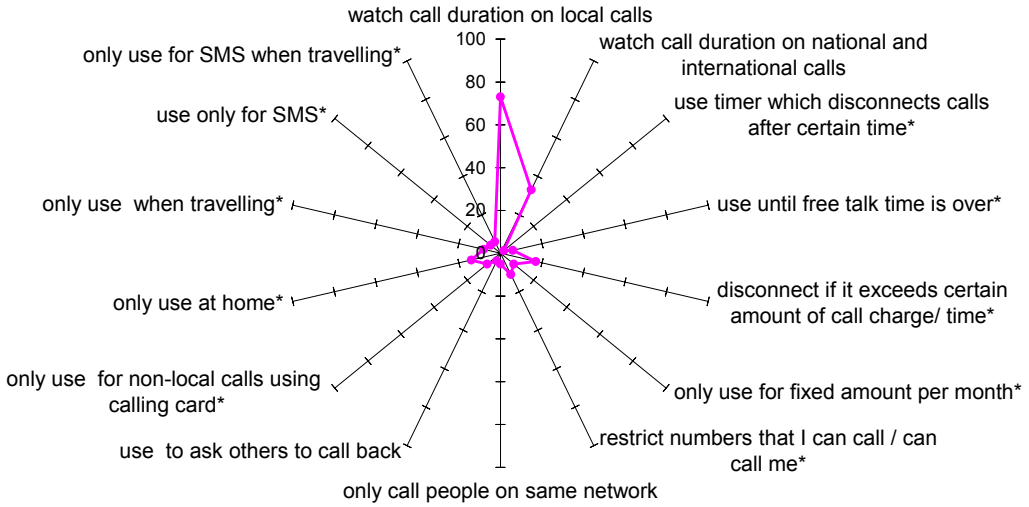

Figure 9: Use of strategies amongst mobile users

* percentage reported for owners only

These cost-saving strategies are the most straight forward ways to reduce costs, that is, by reducing the amount one 'consumes.'

In an environment where incoming calls are charged (or, in an RPP environment, as in Sri Lanka), one may expect to see a lot of people[17] seeking to control their incoming call costs by finding ways to avoid incoming calls on their mobiles. People may choose to receive calls on fixed lines only, as it is free. Another way to avoid incoming charges is by not answering calls on one's mobile, or screening calls based on calling line identification (CLI). Another way is by receiving messages on one's mobile and calling back the concerned party on a fixed phone. Another 'strategy' that has become very widespread in Africa, especially Uganda, is what is known as 'beeping,' where a caller dials a recipient's number, and disconnects the call once it starts ringing before the callee picks up the call (Donner, 2005)

Figure 10 shows that such strategies are rarely used by the financially constrained. Returning calls through a fixed line in response to messages received on a mobile was the most commonly used strategy of this nature, with 19 per cent of mobile users who have access to more than one mode using it. However, this relatively high number is driven by the Sri Lankan sample, with 38 per cent of eligible respondents using it, compared to 4 per cent in the Indian sample, perhaps a result of the

[17] amongst people who have access to a mobile as well as a fixed and/or public modes, in this case, a sub-sample consisting of 8% of the total sample.

differential between mobile and fixed call rates in Sri Lanka. It must be emphasized however, that this strategy is available only to those have access to mobiles as well as one or more other modes, which constitutes 8 per cent of the total sample.

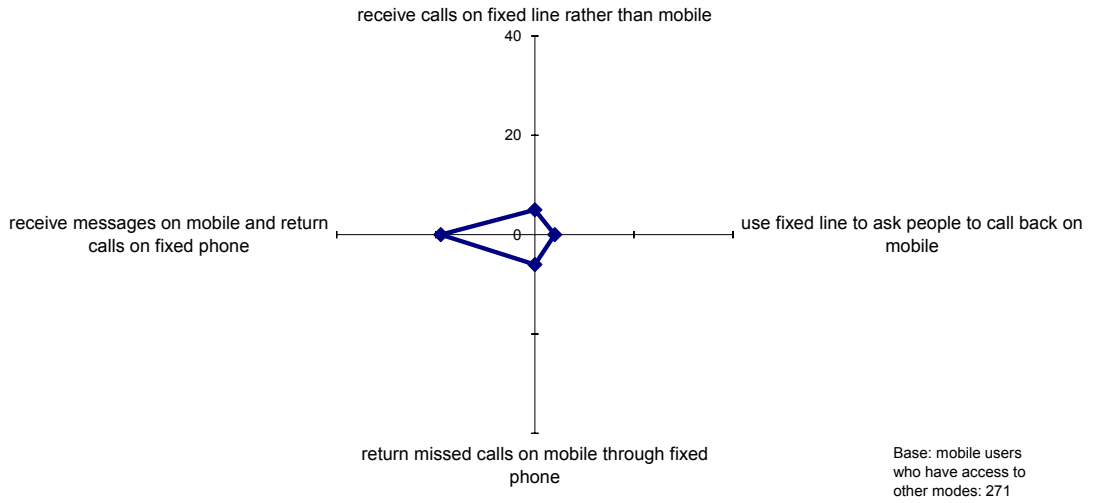

Figure 10: the use of multiple-mode strategies amongst mobile users with access to other modes

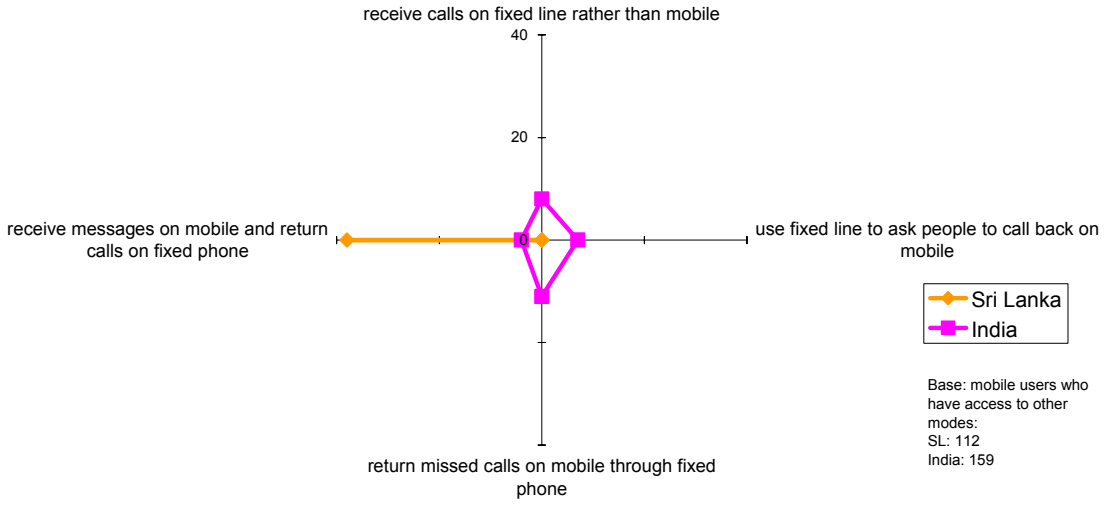

Figure 11: the use of multiple-mode strategies amongst mobile users with access to other modes

Interestingly, Figure 11 shows that this cluster of strategies is being used more in India (other than for receiving messages on a mobile and returning the call on a fixed phone); this is peculiar, because RPP was replaced with CPP in 2003 (Malik, 2004). This kind of behavior is more appropriate for Sri Lanka, where the large majority of mobile users are prepaid users who face relatively high incoming call charges.[18]

The low use of short-term strategies is surprising; even amongst the lower income group,[19] where the incentives to cut down on communications costs would be higher, strategic use is low.

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[18] At the time of survey, a pre-paid customer on Dialog Telekom (largest operator) may have faced charges of up to approximately USD 0.06 per minute on calls from other networks at peak hours, with only the first 30 seconds incoming free; this is in contrast to a post-paid customer who may get the first three minutes on an incoming call free, and then be charged at a rate of approximately USD 0.03 per minute for the same call.

[19] 'Low income' being the groups of respondents with monthly household incomes below approximately USD50 (that is, INR2,500 for Indian respondents and LKR5,000 for Sri Lankan respondents) and 'high income' being the groups of respondents with incomes between approximately USD50 and USD100 (that is, INR5,000 for Indian respondents and LKR10,000 for Sri Lankan respondents)

Looking at short-term strategic use from a regional angle (Figures 12 & 13), respondents in Southern India appear behave differently from those in Northern India and Sri Lanka, using a greater variety of strategies but still at a low level.

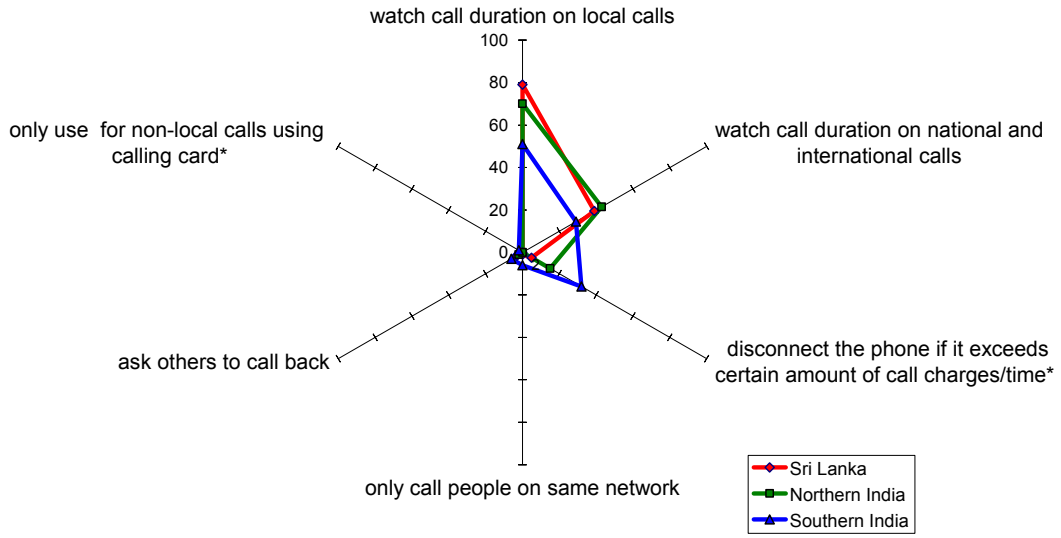

Figure 12: The use of strategies on fixed phones (including public access phones) in Sri Lanka, Northern India and Southern India

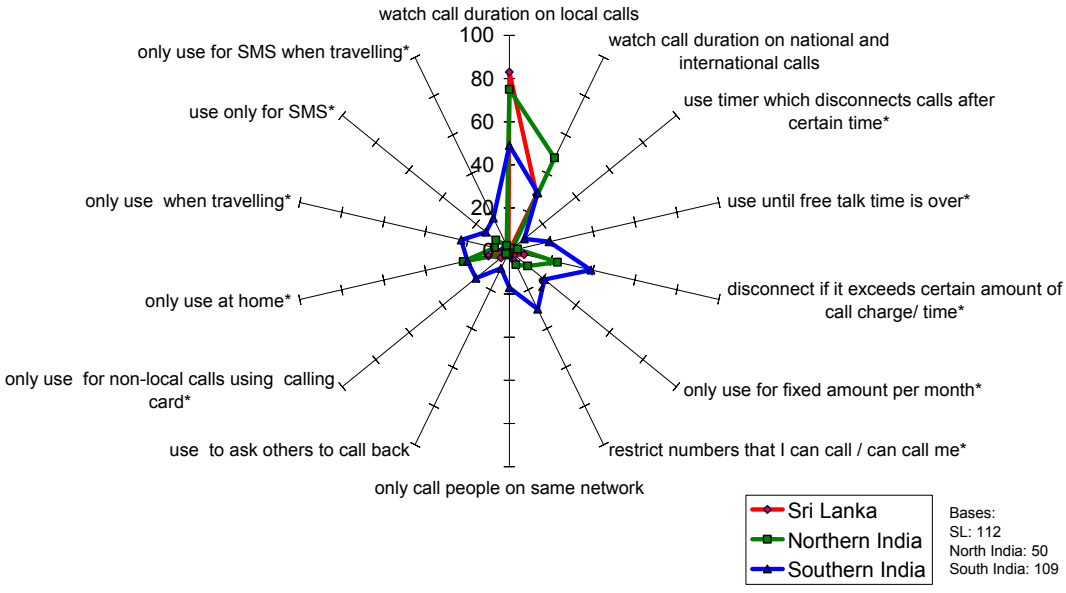

Figure 13: The use of strategies on mobile phones in Sri Lanka, Northern India and Southern India

Respondents were asked about the time of day, as well as the days of the week that they typically make their calls on. Of the fixed users sampled, 81 per cent indicated that they do not make their calls on any special day (weekends or public holidays as opposed to weekdays), while 77 per cent indicated that they do not make their calls at any special time of the day.

A similar trend was seen amongst mobile users in Sri Lanka,[20] but on a lower scale; people tend to be more careful about the time of day when making their calls. Seventy-three per cent of Sri Lankan respondents do not make their calls on any special day and 58 per cent make no distinction in the time of day when making their calls.

There was greater concern for the time of day in South India, possibly as a result of greater international communication taking place in this region (seen in the data). Care is taken to make calls to different time zones at a more convenient times.

There was greater concern for the day of the week and the time of day that calls were made amongst fixed owners. Concern was found amongst mobile owners with regard to the day of the week only (however, the number of mobile users who were also owners was low). That non-owners (particularly fixed) are less likely to make their calls at a specific day of the week or time of day, is a result of constrained discretion. Those who have access to the phone all the time (i.e., owners) are able to

[20] There are no peak/off peak differentials on mobile phones in India

exercise discretion in their use of the phone, whereas those who do not own the phone do not have that luxury to select the time that they make a call; whenever they can access a phone (for example when they go to the town center to run other errands), they must make the call.

Another short-term strategy to minimize costs related to mobile communication, particularly in a RPP framework, is switching off one's mobile phone. This way, one avoids incoming calls, and the costs associated with it, perhaps keeping it switched on only at off-peak calling hours, or just when one wants to make a call, or is expecting a call. The user is able to restrict incoming calls and therefore cost. The phone is used more like a calling device, as opposed to a calling *and* receiving device.

Mobile owner respondents were asked about the times that they switch their mobile phones off; 43 percent of owners said that they switch their mobiles off at certain times, with no significant differences between the corresponding percentages of respondents in Sri Lanka (RPP regime) and India (CPP regime). The reasons for switching off are as given in Figure 14. Contrary to expectation, this strategy is mostly used to conserve the battery of the mobile or to avoid being disturbed, rather than minimize cost. Cost concerns appear to only be secondary, with less than 30 per cent of owners stating it as a reason.

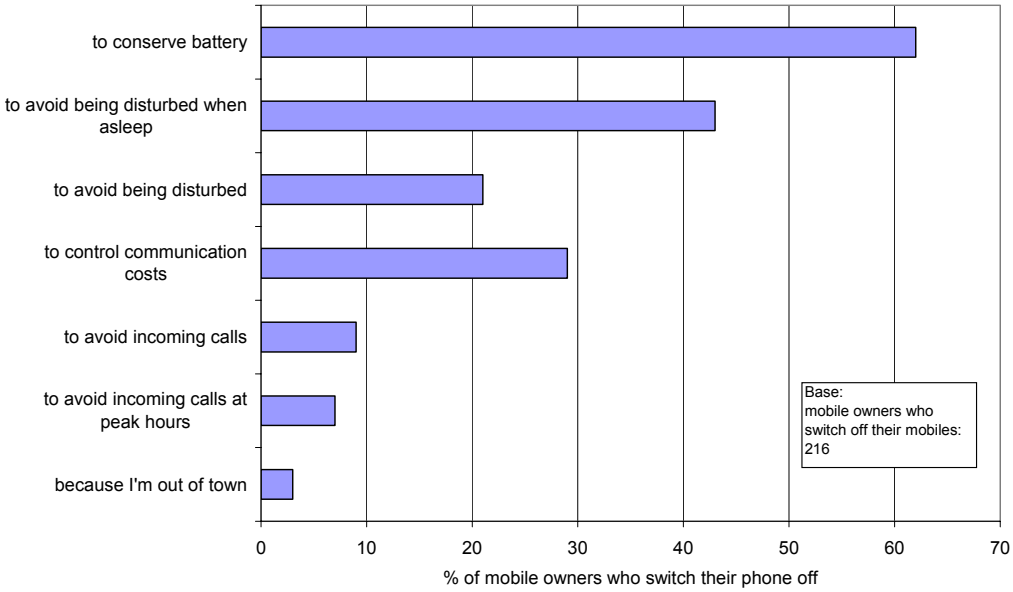

Figure 14: Reasons for switching mobiles off

While controlling communication costs was of greater concern in Sri Lankan localities than Indian ones, interestingly, the incidence of switching off mobiles specifically for the sake of avoiding incoming calls, and avoiding incoming calls at peak hours was greater in the Indian localities. This inverts what one may expect in a CPP/RPP comparison.

The use of the short message service (SMS) facility was tested; an SMS is often a lower cost way of communicating than a call. This was confirmed in the data: of those who use SMS (40 percent of mobile users), eighty-eight per cent described their use of SMS as a means to 'minimize communication expenditure' (Figure 15).

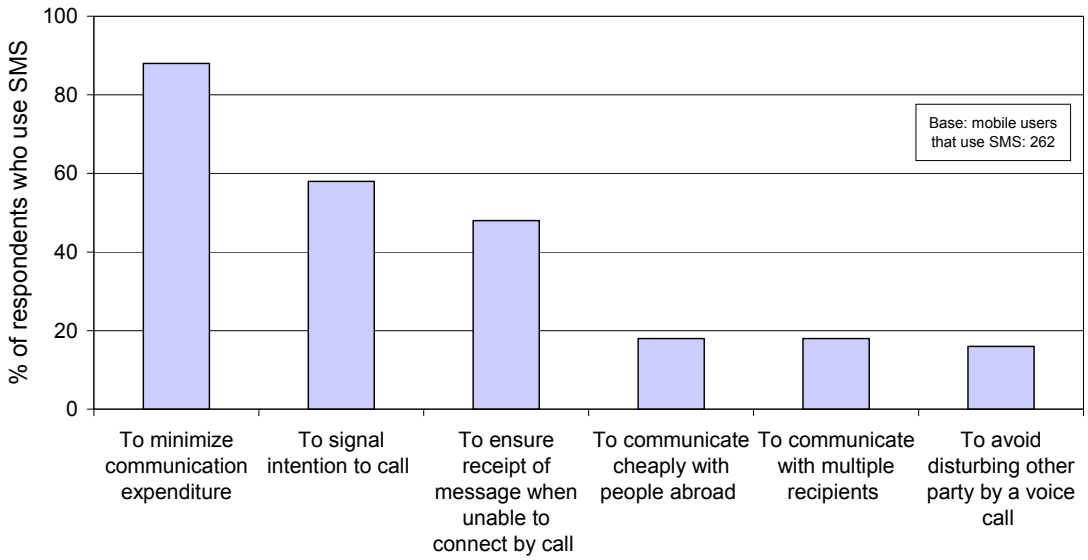

Figure 15: The reasons for SMS use

SMS is concentrated on national and local use, with very little use to communicate internationally, similar to calling patterns. The majority of SMS users tend to send less than 5 SMS per day. Use is mostly for personal communication (80 per cent cite this as what they use SMS for), with some emergency communication (37 per cent) and very little for business use (7 per cent).

4.0 Concluding remarks

Financially constrained users appear to exhibit strategic behavior in deciding which mode(s) to use, and whether or not to invest in a phone. Not investing in a phone and using a shared phone could be considered 'long-term strategies' that reduce costs, though at the expense of utility. This is what one would expect of people on low incomes, although convenience factors also play a significant role in the decision of which mode(s) to use. There are, nevertheless a group of users who 'opt' for shared phones by default, as there are no other options.

In contrast, once the mode is chosen; short-term strategies, more akin to tactics, are only moderately used. This is a surprising finding because these users, who spend a considerably high proportion of their income on telecom every month perceive the costs as 'high.'[21]

This low use of short-term strategies could be driven by several factors. Firstly, the majority of users do not even own the phone that they use, considerably constraining their ability to behave strategically. A non-owner does not have the luxury of choosing the time at which to make a call, for example; when or wherever the phone is accessible to them, they must use it.

Secondly, these 'shoestring' users make relatively few calls, many or all of which may be non-discretionary. The urgency of making the call and the difficulties of

[21] Findings relating to cost perceptions and expenditure on telecom services are reported in another paper, by Avanti Moonesinghe & Harsha de Silva; draft report not yet available.

reaching callees, who may be similarly positioned in not owning the phone instrument, reduces the ability to use strategies.

Thirdly, related to the first factor, many do not have the option to use strategies as they only have one option; less than one third of users had access to more than one mode. Therefore, short-term strategies such as making calls on one mode, and receiving on another are available only to a limited group of users. Similarly, SMS is only accessible (as a means to reduce communications cost) to those who are familiar with the Latin script; SMS use might have been higher in countries like the Philippines or Indonesia where the national languages use the Latin script.

That the majority of users do not own the phone that they use has larger implications for policy makers than the inability of users to use 'strategies' to reduce their costs; the decision not to invest in a telephone is likely to be a result of either the cost of doing so being too high, or simply that the service is not available. Furthermore, such users are not accounted for in the conventional indicator used to gauge telecom access, teledensity –the number of telecom subscribers per one hundred inhabitants. This has compelling implications for operators, given that users who are not yet owners constitute the next logical extension of the market.

It is plausible that the financially *unconstrained* might display more strategic behavior, as they have more discretion in the greater number of calls that they make and receive and have greater flexibility in mixing and matching different modes. Similarly, the question remains whether usage patterns and strategies are any different to those of the 'financially constrained' in more developed markets. Thus there is much scope for further research into these areas, the results of which can have significant implications for policy as well as operators' marketing strategies.

References:

Bayes, A., von Braun, J. & Akhter, R. (1999). Village pay phones and poverty reduction: Insights from a Grameen Bank initiative in Bangladesh. *Information and Communication Technologies and Economic Development*. Vol.8 ZEF Discussion Papers on Development Policy No. 8. 31 May-1 June. Bonn: Center for Development Research (ZEF).

CBSL. (2005) Annual Report 2004: Central Bank of Sri Lanka. Colombo: Central Bank of Sri Lanka Printing Press

Chakraborty, D. (2004). *The Case of Mobile Phones in Sitakund*. Retrieved January, 10, 2006, from www.i4donline.net/issue/may04/sitakund_full.htm.

Donner, Jonathan. (2005). *The rules of beeping: exchanging messages using missed calls on mobile phones in sub-Saharan Africa*. Presented at the 55th Annual Conference of the International Communication Association, New York. Retrieved: August, 10, 2005, from http://www.columbia.edu/%7Ejd2210/donner-beeping.pdf.

Gillwald, Alison (Ed.) (2005). Towards on African e-Index: Household and individual ICT access and usage across 10 African countries. Research ICT Africa!

GSMA. (2005). Tax and the digital divide: How new approaches to mobile taxation can connect the unconnected. London: GSMA

Intelecon. (2005). Nigerian Demand Study: Highlights Report, with eShekels for the Nigerian Communications Commission, supported by World Bank. Retrieved January, 26, 2006, from http://www.inteleconresearch.com/pages/news.html.

Intven, Hank (Ed.) (2000). *Telecommunications Regulation Handbook* module 6, p.6.6. Washington DC: infoDev

ITU. (2004). *The Portable Internet*. Geneva: ITU.

Kishore, J.V.S. (2003, December), Paan-power. *Avant garde*, 1(9). Retrieved January, 30, 2006 from http://www.iitk.ac.in/ime/MBA_IITK/avantgarde/Archive/paan.htm.

Malik, Payal. (2004). Regulation and Investment: Case Study of the Indian Telecommunications Industry. In A.K. Mahan & W.H. Melody (Eds.), *Report on the World Dialogue on Regulation - Stimulating Investment in Network Development: Roles for Regulators* (pp. 177-226). Lyngby: WDR.

Moyal, Ann. (1992). The Gendered Use of the Telephone: An Australian Case Study. *Media, Culture and Society* 14:51-72.

NOKIA. (2005). New insights into non-users point to new potential, *New Horizons Newsletter* Q3 2005.p.3. Retrieved September, 22, 2005 from http://www.nokia.com/nokia/0,,56489,00.html.

Prahalad, C.K. (2004). *The fortune at the bottom of the pyramid: Eradicating poverty through profit*. Upper Saddle River, New Jersey: Wharton School Publishing.

Samarasinghe, Anjana. (January, 19 2005). Special focus on differently-abled: TRC allocates Rs. 2.5m for eNABLE project, new ICT centres. *Ceylon Daily News*. Retrieved February, 2, 2006 from http://www.dailynews.lk/2006/01/19/

Souter D., Scott, N., Garforth C., Jain R., Mascarenhas O., & McKemey K. (2005). *The economic impact of telecommunications on rural livelihoods and poverty reduction: a study of rural communities in India (Gujarat), Mozambique and Tanzania*. (Commonwealth Telecommunications Organisation for UK Department for International Development, 2005). Retrieved January, 30, 2006, from http://www.iimahd.ernet.in/ctps/pdf/The%20Economic%20Impact%20of%20Telecommunication%20on%20Rural%20Livelihoods-Teleafrica%20Report.pdf.

Telecom Regulatory Authority of India. (2005). *The Indian Telecom Services Performance Indicators July – September 2005*. Retrieved February, 1, 2006 from http://www.trai.gov.in/report27dec05part1.pdf

Vodafone. (2005). Africa: The Impact of Mobile Phones in the Developing World. *Moving the debate forward*: The Vodafone Policy Paper Series, No. 3, March 2005. Retrieved: November, 02, 2005, from http://www.vodafone.com/assets/files/en/SIM_Project_download_2.pdf.

World Bank. (1999) *The World Development Report 1999: Knowledge for Development*, Oxford: Oxford University Press.