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## Telecom use on a Shoestring: Expenditure and perceptions of costs amongst the financially constrained

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# **Telecom use on a Shoestring: Expenditure and perceptions of costs amongst the financially constrained**

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## **Introduction**

It is often claimed that access to telecommunication facilities is a propeller of economic prosperity in developing countries. Mobile phones in particular are considered pivotal in encouraging growth. Prahalad (2004), in *Fortune at the Bottom of the Pyramid* asserts that defining change in the world's poorest economies will be led by access to communications and not through the evolution of IT as was the case in the advanced countries of the world. A study by the London Business School has also found that, in a typical developing country, an increase of 10 mobile phones per 100 people would boost GDP growth by 0.6 percentage points (Waverman et al., 2005). However, despite the positive benefits of telephony, many people in developing nations are held back by a diverse set of factors – such as connectivity in rural locations, duties and taxes imposed by governments, the costs of handsets and the cost of services. Once the hurdle of access to communication is overcome, people in developing nations still have to contend with the costs of services. Usage costs can play a large role in determining the purposes for which, and the frequency with which, people use their phones.

This paper examines perceptions of affordability amongst low income telecommunication users in India and Sri Lanka and the effects of changes in service costs on their usage patterns.

Affordability is a problematic term, and Milne (2003) points out that though “intuitively we all know what affordability means, it is hard to pin down objectively because of variations in people's needs as well as resources and poor correlation between affordability and acquisition. Affordability includes elements of ability to pay a price

without suffering hardship and the degree of need for what is bought. It is widely accepted that basic telecoms should be affordable, but what this means in practice is rarely defined (far less measured)”.

The findings are based on a survey conducted in India and Sri Lanka, and use the above definition of affordability. This survey focused on a number of telecommunication related issues pertaining to the ‘financially constrained’ – here defined as those earning less than approximately USD 100 a month. The survey was targeted only at people who had used a telephone within a period of three months prior to the launch of the survey. Therefore, access to telecommunications was assumed in all of the respondents – either through a self/family owned phone or through a third party’s phone. Responses were obtained from users of all three major forms of communication – public access phones,<sup>1</sup> fixed lines and mobile phones. This paper examines the results of two questions that were included in the survey –

a) How expensive do you find the cost of using the phone that you use in general?

Respondents were asked to indicate whether the costs were (i) extremely high, (ii) very high, (iii) high or (iv) affordable

b) If the cost of using the phone that you are using was reduced by half, how would you change the usage of your phone in general?

Respondents were asked to indicate whether they would (i) make twice as many calls, (ii) spend twice as much time talking, (iii) make twice as many calls and spend twice as much time talking, (iv) increase usage in general or (v) not change usage.

In order to understand the responses to these two questions, this paper considers the following aspects:

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<sup>1</sup> Including public call offices (PCO’s), public payphone booths, communication bureaus and post offices.

- a) The modes of communication used by the respondents
- b) The benefits received through access
- c) Respondents' monthly communication expenditure

## Background and Methodology

This paper draws 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) using a purposive sample in April and May of 2005. Seven localities were surveyed in India and four in Sri Lanka (See Table 1). With the exceptions of Mumbai (India) and 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
<b>India</b>	Mumbai (Maharashtra) : Urban	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
<b>Sri Lanka</b>	Colombo (Western Province) : Urban	206
	Jaffna (Northern Province) : Urban, Rural	282
	Hambantota (Southern Province): Urban, Rural	301
	Badulla (Uva Province): Urban, Rural	311

<b>Total</b>	<b>3199</b>
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For the purposes of this study, the ‘financially-constrained’ were defined by two parameters; firstly, those with household income levels of approximately USD 100<sup>2</sup> or less; secondly, through a measure of socio-economic classification. In Sri Lanka, those belonging to either socio-economic classification<sup>3</sup>, or ‘SEC’ group ‘B,’ ‘C,’ ‘D’ or ‘E’ were included in the sample. In the Indian sample, a different, but comparable socio-economic classification is 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 chosen from selected households<sup>4</sup> based on KISH sampling techniques<sup>5</sup> to ensure random sampling as well as adequate representation of gender and age groups as in their actually existing ratios<sup>6</sup>.

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. It was hoped that this study might bring out the differences, if any, in the use of telecommunications amongst ‘financially-constrained’ users in the two environments.

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<sup>2</sup> INR 5,000 in India and LKR 10,000 in Sri Lanka.

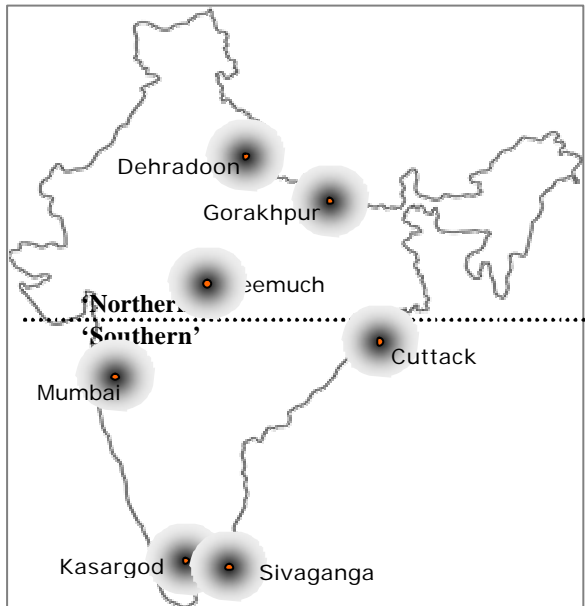
<sup>3</sup> This is a standard classification, based on occupation and education level of the chief wage earner.

<sup>4</sup> A maximum of five households were selected: starting from one ‘starting’ household that was randomly selected from the electoral list.

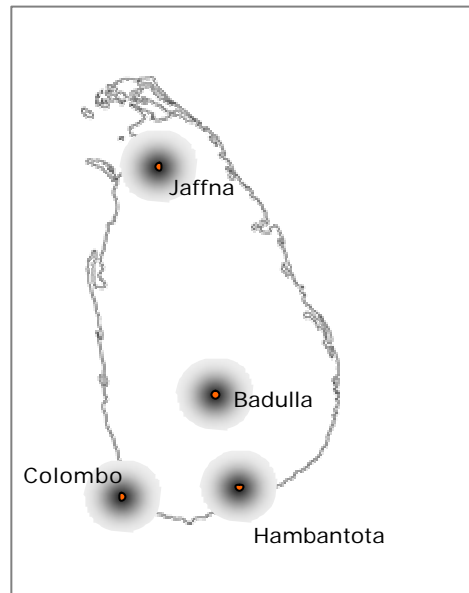
<sup>5</sup> The KISH grid is a random sampling technique to select one respondent from many eligible respondents in a household. In this case, names, gender and ages of all household members using phones (in the preceding 3 months) were recorded (in descending order of age). Based on the number of eligible respondents in household and the household contact number (n<sup>th</sup> 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.

<sup>6</sup> Only respondents over 18 years of age were interviewed.

The seven different localities in India and the four in Sri Lanka were selected, not to obtain a representative sample of either of the two countries, but to capture the diversity *within* the two countries, taking snapshots of ‘financially constrained’ users in eleven very different markets, in terms of telecommunications access, economy, population and geography. For this purpose, the ‘Indian’ sample was further divided into two ‘regions’ for some of the analysis: ‘Northern’ India (Dehradun, Gorakhpur and Neemuch) and ‘Southern’ India (Cuttack, Mumbai, Kasargod, and Sivaganga). The rationale for grouping the locations in this manner was the broad similarities 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.



**Figure 1 Indian localities**



**Figure 2 Sri Lankan localities**

### *Limitations*

It must be emphasized that the findings from this study are *not* meant to be representative of India and Sri Lanka as wholes. As stated above, eleven different localities were purposively selected to capture some of the diversity that exists within these two countries. A true representation would only be obtained through a pure random sampling according to the natural distribution of the population in the countries, rather than purposive sampling which was undertaken to cover a priori heterogeneous locations.



Respondents were asked to indicate their monthly income for the purpose of analysis, including income from all sources, which means that the income reported is that for the household. 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. For instance, remittances, which can account for substantial portions of income in developing country households, may not have been included.

It is recognized that considering the information that this survey sought to reveal, 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 would not have been a practical approach. For this reason, most of the questions were closed-ended, but respondents were given many non-exclusive options to choose from.

The analysis shows an over representation of ‘unemployed’ persons and ‘housewives’ which could not have been avoided unless a quota sampling was adopted by occupation categories.

One significant weakness of this study is that it does not study the financially ‘unconstrained’. Conclusions about the behavior of the financially-constrained will be validated only if the financially-‘unconstrained’ are studied in comparison, that is, through a sample which also covers the SEC A’s and those with monthly household incomes over USD 100 per month. 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.

Another limitation is that the present study does not look at non-users among the financially-constrained, in particular, how far their non-use (or low levels of use) is associated with financial constraints.

Despite these limitations, 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 LIRNEasia research network. In addition to providing a rich source of information, contributing to the understanding of use of telecom services by the ‘financially-constrained’ in South Asia, this first phase also serves as a pilot study. This pilot has drawn attention to areas where modifications and improvements to the study design can be made, which may not have been apparent if a first round of research were not carried out.

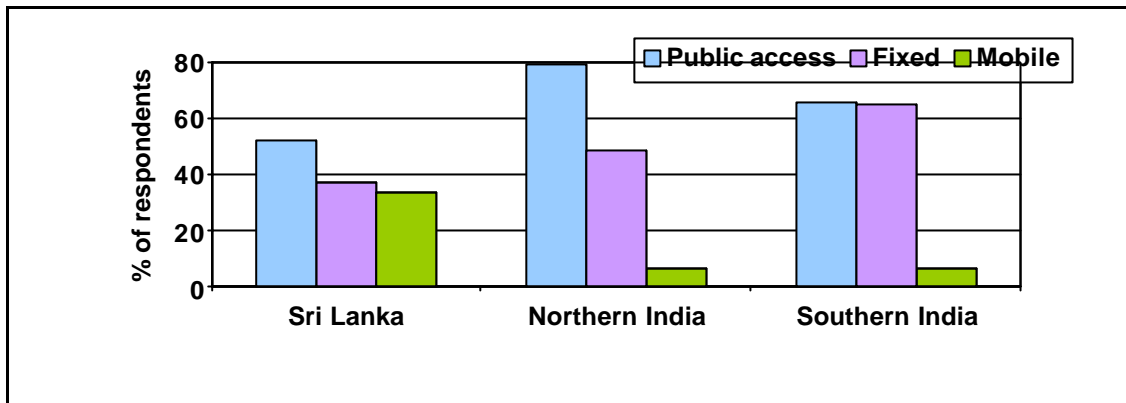
### **Forms of Telecommunications Access**

While access to communication is a given in the developed world, half the world’s population are beyond the reach of any form of telecommunication. According to *The Economist*(2004), in the last 25 years, telephone penetration has been growing faster in low and middle-income countries in comparison to high-income countries, mostly due to saturation in developed country markets. In India the number of mainline phones per 100 people as at September 2005 was 4.07 (ITU, 2004; pp.A8-A9), while mobile penetration per 100 was 5.96 (Telecom Regulatory Authority of India, 2005); as at September in Sri Lanka there were 5.14 main line phones per 100 people (ITU, 2004; pp.A8-A9) and mobile penetration was 15.85 per 100 (Samarasinghe, 2005; CBSL, 2005; Special Statistical Appendix: Table 1).<sup>7</sup>

The survey’s results reflected these patterns, with greater mobile access in Sri Lanka than in India, but both countries demonstrated greater fixed phone access amongst the respondents than indicated by the above statistics, as seen in Figure 3 below.

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<sup>7</sup> The statistics quoted are the most recently available ones for a comparable time period; by the time of publication of this paper, the numbers will have changed by far, however this study was implemented in the months of April and May of 2005.

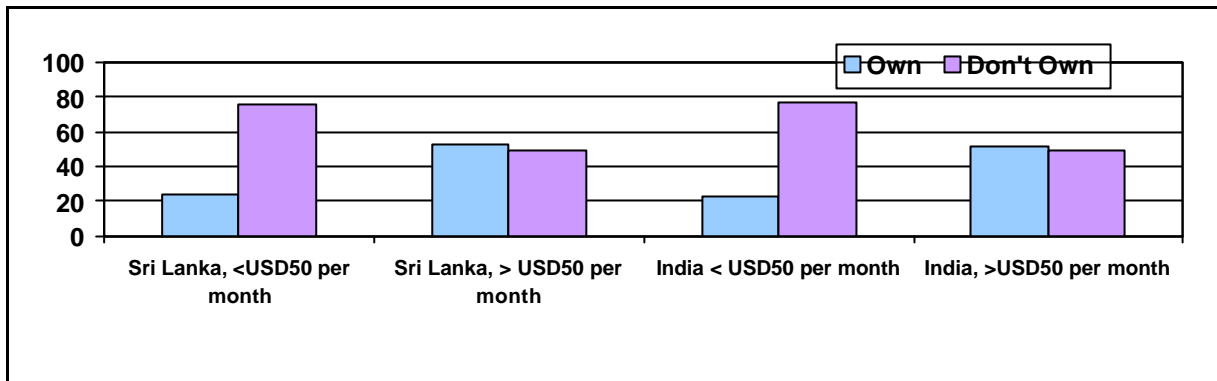


**Figure 3 - Access to public access phones, fixed phones and mobile phones in Sri Lanka, Northern India and Southern India**

It is evident from Figure 3 that respondents accessed more than one form of telephony – with public access being the most common mode of communication and fixed phones coming in second. In Sri Lanka, mobile phone usage lagged behind public access and fixed phones, yet mobile phones were used significantly more as a percentage by respondents in Sri Lanka than those in either Northern or Southern India. However, as shown in Table 2 there appears to be a shift away from public access phones to fixed phones and mobile phones amongst respondents whose household income was between USD 50 – 100 a month (the lower income category). The trend towards greater fixed phone and mobile usage can be explained as the result of greater ownership of telephony by those in the higher income category. Mobile phones were also used by a larger number of respondents living in urban areas of the two countries than in the rural areas. There could be a number of reasons for this discrepancy, such as lack of mobile service in rural areas, relatively high cost of handsets as well as that of usage, poor understanding of mobile phones or the lack of advertising by mobile operators in these areas.

**Table 2 – access patterns for different modes of telecommunications based on household income category.**

	Sri Lanka		Northern India		Southern India	
Monthly income	USD < 50	USD > 50	USD < 50	USD > 50	USD < 50	USD > 50
Base	219	881	625	474	462	441
Public access	63	49	83	74	75	56
Fixed	26	40	48	56	61	69
Mobile	31	35	4	8	9	26



**Figure 4 – Phone ownership by household income group in Sri Lanka and India**

Phone ownership differences between the two income groups amongst users are significant. Amongst those whose household income was less than USD 50 a month, 76% and 77% of the survey's respondents in Sri Lanka and India respectively did not own phones. However, across the next income group, USD 50 – 100, the percentage of those who didn't own phones fell to 49% in both countries. Ownership of phones in the USD 50 – 100 group was more than double that of the lower income segment. The preferred form of telephony, however, differed between the two countries. In Sri Lanka phone owners in both income categories marginally preferred mobile phones to fixed phones, whilst in India fixed phone ownership was more prevalent by a significant number.

### **Benefits of Telecommunications Access**

Amongst the survey participants, social networking appeared to be the single most important benefit of having access to or owning a phone. Over 80% of the group utilized their telephones to make calls locally to friends and family. Phones were also used to transmit and receive messages through a third party– especially amongst users in urban areas. Only a very small percentage of the respondents indicated using their phones for business purposes. This result also lends itself to the interpretation that, amongst this income group, “business” transactions may be interlinked to, and overlapping with,

telephone communications with family and friends. Therefore, a “social” call may also involve some degree of communications relating to work-related or business dealings. On the one hand, this may be construed as the result of the over representation of housewives and unemployed persons in the survey group because, approximately a quarter of the Southern Indian urban users of mobiles and fixed phones also undertook and arranged financial transactions over their phones. On the other hand, a user survey in Gujarat also demonstrated that business use is confined to a small minority (among the poorest segment), even with a larger and more balanced sample (Souter *et al* 2005: 14). But the results of the current study should be viewed with some degree of caution, recognizing the limitations in the sample and the difficulties of recording and recalling telephone habits.

### **Expenditure on Telecommunications**

A majority of the survey respondents spent approximately USD 1 – USD 4 a month on their communication. Expenditure figures, however, were not ascertained from phone bills but based on the respondents’ ability to recall their monthly phone costs, and therefore, the figures stated should be treated with a degree of caution. Additionally, in the case of fixed and mobile owners, monthly expenditure may include the use by other people within the household, especially in the case of fixed phones (which tend to be used less as an individual phone; furthermore, monthly expenditure reported is likely to be the average monthly bill). In the case of public access users, expenditure reported is more likely to be on an individual basis. Thus caution must be taken in comparing expenditure figures.

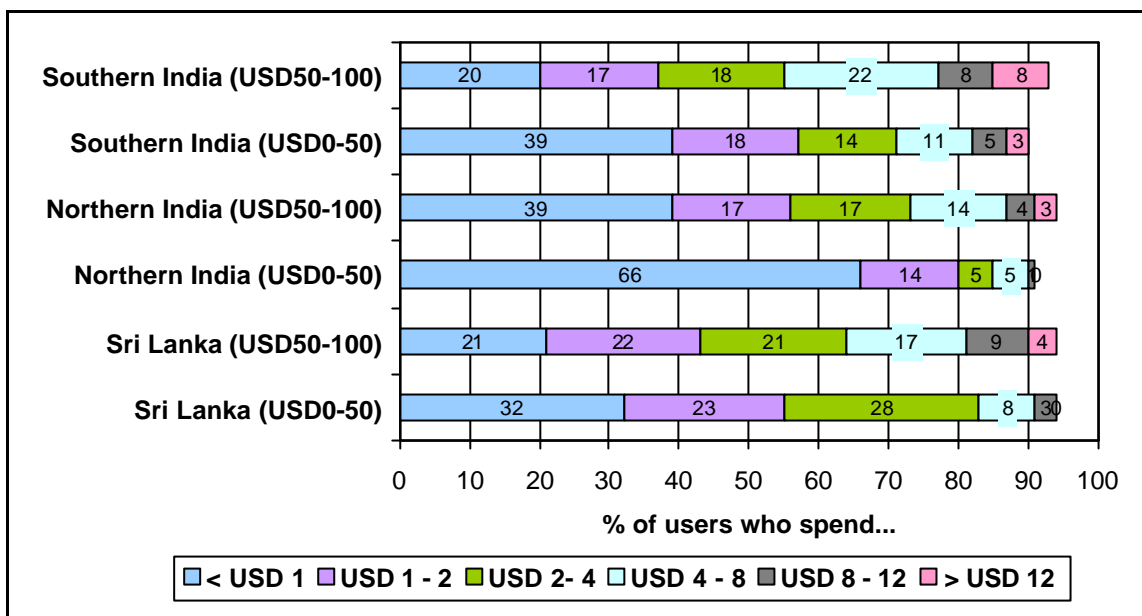


Figure 5 – Monthly Expenditure (USD) on telecom services by fixed and public access phone users

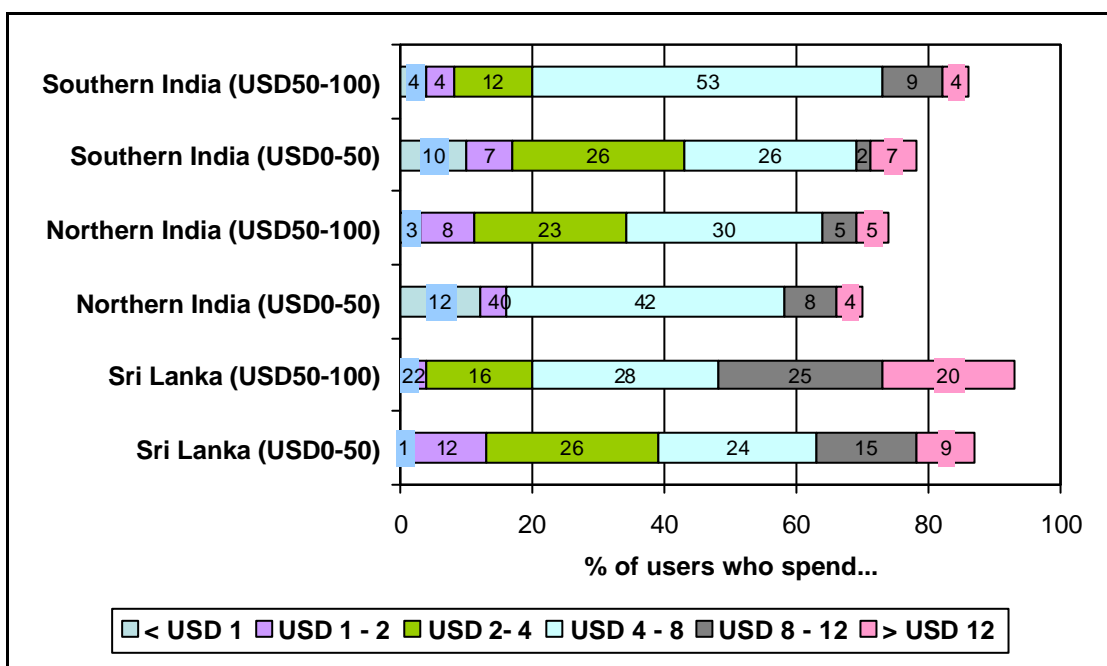


Figure 6 - Monthly Expenditure (USD) on telecom services by mobile phone users

Over a fifth of fixed and public access users whose monthly household income was between USD 50 – 100, spent at least USD 4 a month on their phone calls; if the entire household expenditure were to be considered, this expenditure might constitute a

minimum of 4% of the household's monthly income. Over 35% of the survey's mobile phone users spent at least USD 4 a month; again if the entire household expenditure were to be considered, for those in the lower income bracket of less than USD 50 this would constitute at least 8% of household income. On average around the world, it has been demonstrated that people spend approximately 2% -3% of their incomes on telecommunications. This figure is held true for whole countries, regions, cities, and on average to households (Intven, 2000:14, Milne, 2006). In the current study, the lower income segment, there was a greater percentage of people spending more than USD 4 a month in comparison to the higher income segment, which would imply the household as a whole spending more than 8% of its household income on telecom services. New research around the developing world is uncovering similar findings. A recent demand study in Nigeria has indicated that on average, Nigerians could be expected to spend 8% of their household income on telecom services (Intelecon, 2005; p. 2). Similarly, a recent ten country study by *Research ICTs Africa!* finds that on average, communications costs in Africa amount to up to 10% of income (Gillwald, 2005; p.13). Souter et al (2005) find that in Tanzania, amongst the lower income categories, expenditure on telecom services to be in the range of 9.5-13.9 % of household income; however the same study finds expenditure by the lower income categories in Gujarat (India) and Mozambique to be in the range of 2.8-5.6% of household income. The study finds that the lowest income groups in all three contexts (that is, Tanzania, Gujarat and Mozambique) spend larger shares of their incomes on telecom services, even though the higher income groups spend larger nominal amounts. Nevertheless, the authors note that these figures may not be entirely accurate, because of the complexities of identifying 'real' income in the low-income group etc. (Milne 2006), and the difficulty in relating individual expenditure to household income. Theoretically, it would be appropriate that, with the rise of income, there would be some rise in the expenditure on telephony. Further research will be required to substantiate this initial finding.

### **Affordability and Cost Related Demand**

Perceptions on telecommunication affordability and cost-usage patterns varied depending on the type of telephony accessed by the respondents. Although the questions in the survey required users to indicate if costs were ‘extremely high,’ ‘very high,’ ‘high’ or ‘affordable,’ for the purposes of easier analysis, responses that indicated that costs were in any of the high categories have been collapsed to a single response of *High*. The survey participants were next asked how their usage patterns would change if the cost of communication were halved. Once again for the sake of analysis responses indicating a change in usage patterns have been categorized into a single category – *Will Increase Usage* – to enable a better comparative analysis with those who indicate that they would not change their usage patterns.

*a. Fixed phone users*

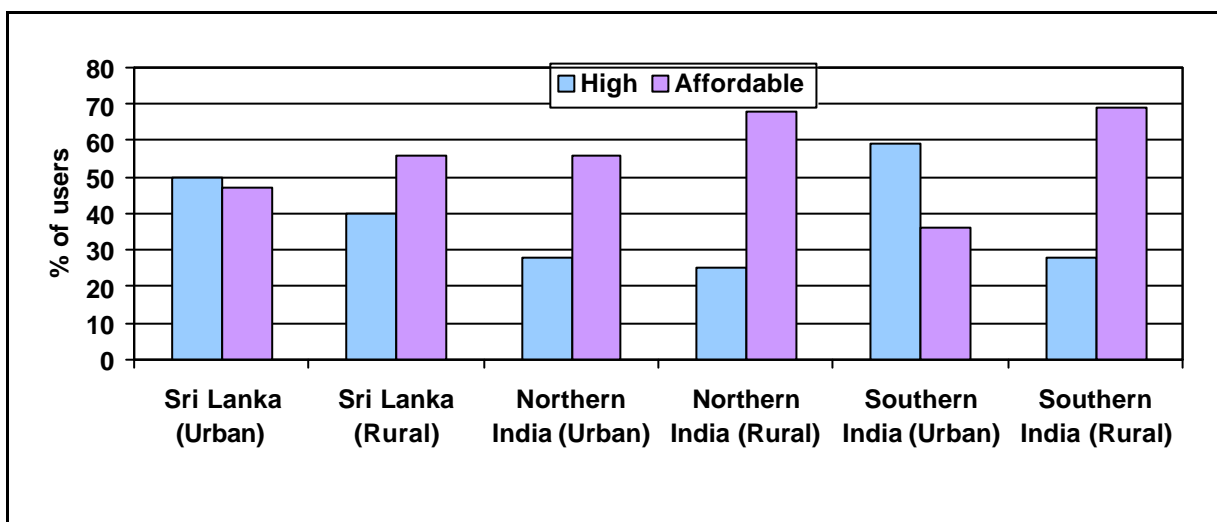
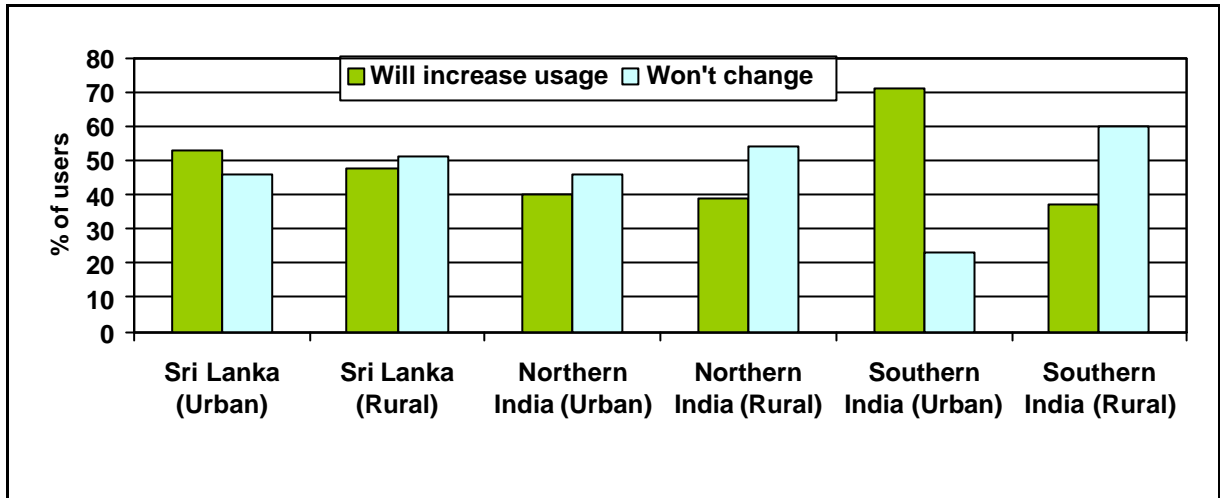


Figure 7(a) – Cost perceptions amongst fixed phone users





**Figure 7(b) – Indications of change in use if cost of service were halved, amongst fixed users**

Across the rural localities that were surveyed, a greater proportion of respondents indicated that they considered costs of fixed phones to be affordable. In both urban Sri Lanka and Southern India, a larger percentage of users found costs to be high – Northern Indian urban respondents were, however, an exception with less than 30% of this group stating that the cost was ‘high.’ In keeping with their perception of affordability, rural users in all three centers and users in urban Northern India stated that they would not consider changing their usage patterns if the cost of telephony were halved. In Sri Lanka this could be explained by the frequency of calls made by respondents in urban and rural settings. Urban users indicated a greater frequency of calls a month – between 6 – 40 calls – while most rural users make an average of 1 – 5 phone calls each month. Therefore, affordability amongst rural Sri Lankan respondents could be attributed to both a lower usage of phones for essential purposes and also an implicit telecom/transportation trade-off. In the case of India the Access Deficit Charge enabled costs of rural Indian subscribers to be subsidized by phone operators. This charge is a compensation for the difference between actual cost of providing a service and mandated lower tariffs for providing subsidized access service to a class of subscribers (Malik & de Silva, 2005).

#### *b. Mobile users*

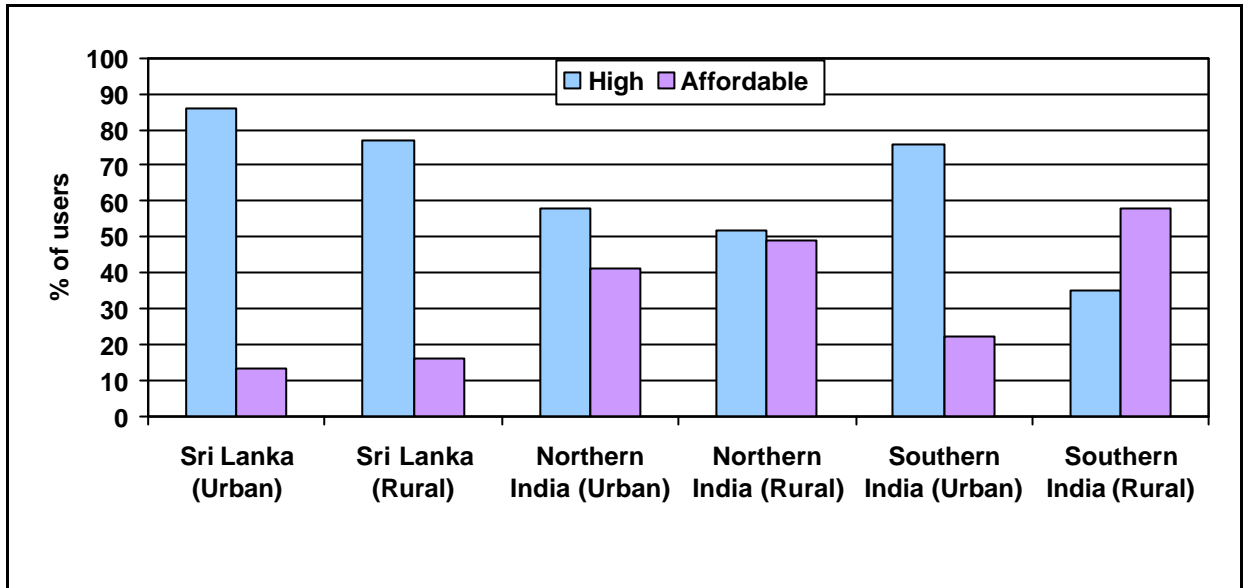


Figure 8(a) - Cost perceptions amongst mobile phone users

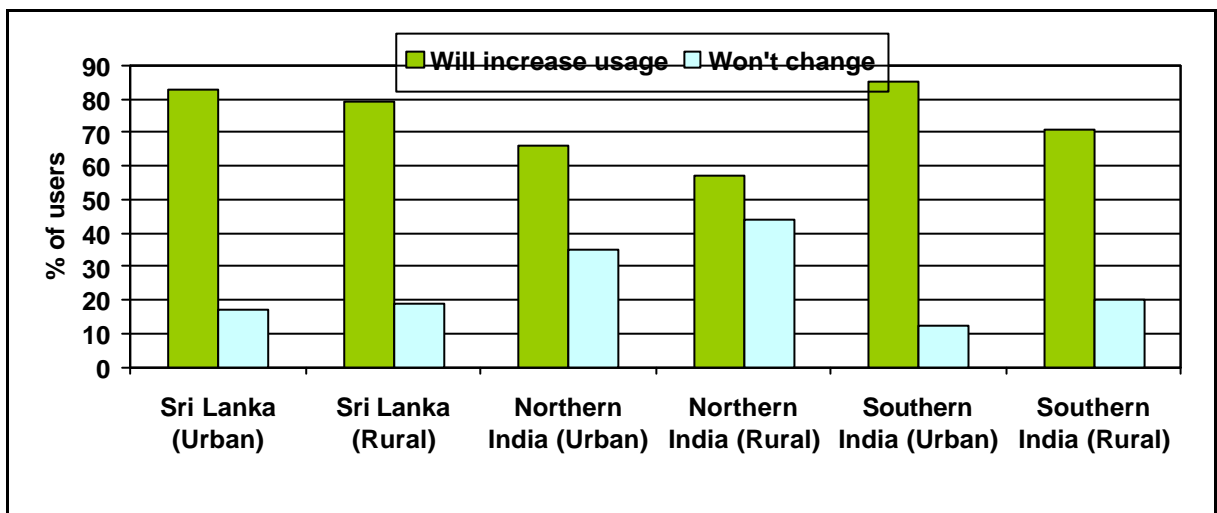


Figure 8(b) - Indications of change in use if cost of service were halved, amongst mobile users

A majority of the survey participants who use mobile phones found the cost of communication to be high – with the exception of users in rural Southern India. Most mobile owners and users who were surveyed, chose this particular mode of communication primarily for its convenience and constant availability. Those who had purchased a mobile did so because of its faster deployment time, the ability to carry it around and use it at anytime, and for its better network and connectivity (an aspect that

was valued comparatively more by the rural communities surveyed, than those living in urban areas). The cost of communication appears to have been a secondary issue for mobile users. In India – both Northern and Southern – the mobile phone appears to be viewed as a luxury item as well, since respondents indicated that using a mobile phone improved their social status and that it was considered fashionable. *The Economist* (2005) draws attention to the fact that the tendency to view a phone as a status symbol in developing countries is driven by the fact that people in poorer nations have to spend a larger proportion of their income on their handsets than those in the rich world. For instance, approximately 33% of mobile owners in India were using second hand handsets in comparison to only 4% in Sri Lanka.

Despite cost of services being a secondary consideration, respondents in both rural and urban localities in both countries indicate that they would increase usage if costs were halved. This suggests a greater elasticity of demand in terms of mobile phone usage – which suggests that mobile phones are still viewed as a luxury item as in the case of the respondents in India.

*c. Public access users*

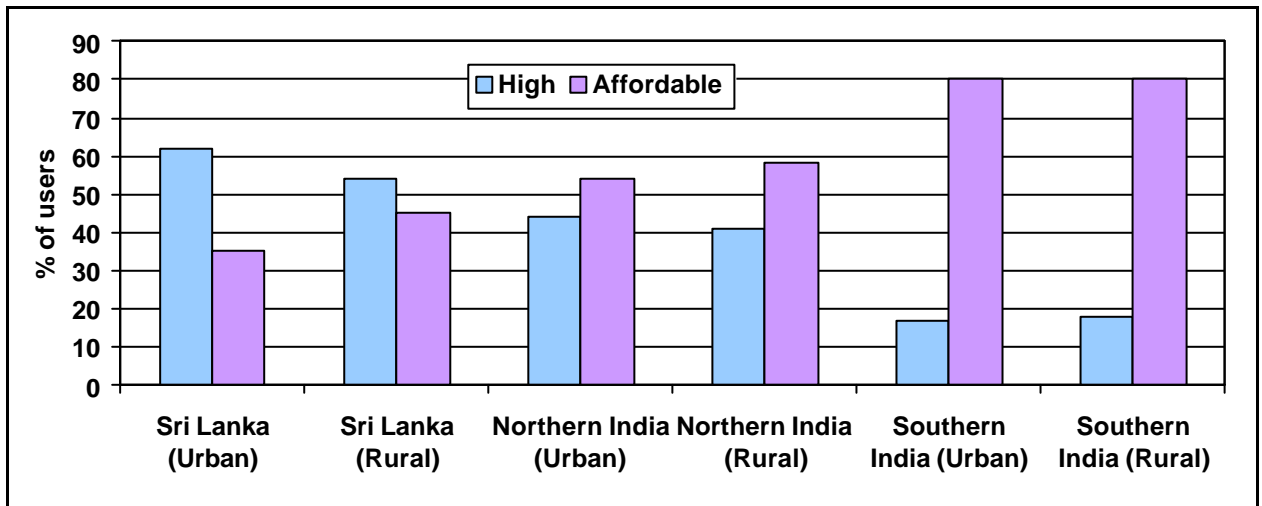
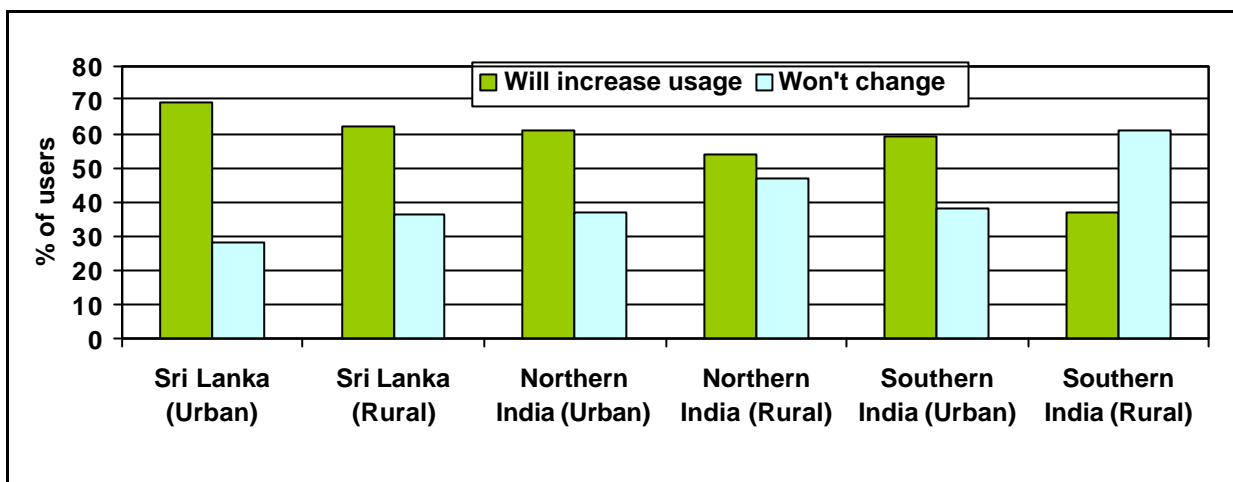


Figure 9(a) - Cost perceptions amongst public access phone users



**Figure 9(b) - Indications of change in use if cost of service were halved, amongst public access phone users**

Although the more Sri Lankan public access phone users found the cost of communication to be high, a majority of the respondents in India, in contrast, stated that public access costs were affordable. In all locations the majority of public access users stated that they would increase phone usage if costs were halved – with the exception of the Southern Indian rural respondents, who found costs to be affordable and were not inclined to increase usage even if costs were reduced.

The Sri Lankan example though, suggests that costs may be artificially maintained at a higher level by the middleman because communication bureaus (the Sri Lankan equivalent of the Indian public call office, or PCO – the most commonly used form of public access in both countries for *making* calls) have to pay normal tariffs (they get no reduced rates like in India where PCOs get discounted rates), so they charge the regular rate (that a regular fixed owner would pay) as well as their margin.<sup>8</sup> The implication that usage would increase if costs were reduced indicated that public access users in Northern India and urban Southern Indian respondents were not using this mode of communication to its optimum. A possible reason for this could be mobility issues when accessing a

<sup>8</sup> This could also have something to do with the large number of PCOs in India, and hence the greater use of PCOs in the country. As at December 2004, there were 2,531,000 PCOs in India (Singh: 2005)

public access phone or waiting times for calls – and a fall in costs could probably motivate these respondents to overcome these hurdles in order to increase the frequency of their calls.

## **Conclusion**

As Ureta notes, “communications are not a completely different kind of expenditure, but forms part of the system of products and services on which families and individuals use their incomes in everyday life, and therefore needs to be factored in to the monthly budget. Access to communications in contemporary society is no longer a luxury, but constitutes a need among other needs” (2005, 23).<sup>9</sup> Yet, the notion of affordability, as this paper has demonstrated, inevitably determines the way in which expenditure for communication is allocated.

The perception of affordability is quite divergent amongst rural and urban respondents in India and Sri Lanka, and also amongst users of different modes of telephony. In terms of tariffs, the ADC in rural India helps keep the tariff of rural PCOs low, perhaps a reason for differences in perceptions of affordability. However, in both countries, such public access phones were the main mode of communication for this income group; even though Indian users found cost of services through PCOs to be affordable, the willingness to increase usage if costs were reduced (indicated by the majority) reveals that costs are a significant factor in determining telephone usage.

However, mobile users across the board (with the exception of respondents living in rural communities in Southern India) indicated that costs of communication are high. Mobile telephony is considered to be one of the most feasible ways of bringing about universal telephone access to developing countries. For example, in India, there were approximately 34 million wireless subscribers in 2004, with numbers expected to

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<sup>9</sup> He argues that “Even in the poorest societies, as we see in the case of Nepal, families devote a certain part of their income to communications, because using them forms a compulsory part of what it means to live in contemporary societies” (2005: 23).

increase to 150 million in 2009 (Strother 2004; 7). Considering these statistics, it is significant that most mobile users within the survey population found present costs to be high.

A majority of the respondents in urban localities in both countries indicate a greater propensity to increase usage than those in rural areas – suggesting a more elastic demand curve for urban users. Rural users are most likely use the telephone to make essential phone calls, while urban survey participants may value their phones as more than a basic commodity.

Despite limitations in methodology, and the need for more in-depth surveys, as well as the inclusion of other comparison groups to validate the present conclusions, the conclusions drawn from this paper provide evidence of trajectories that are followed in two South Asian countries with regard to affordability among the low-income groups in both rural and urban centers. Although the findings are from a pilot study, the trends that emerge from the survey provide valuable information for directing further research in this area, and the possible policy interventions and implications pertaining to an important sphere of contemporary society.

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