

The Future of the Public Phone:

Findings from a six-country Asian study of telecom use at the BOP

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Abstract

Public phones, such as traditional payphone booths have been in use since the 19th century. However, with the emergence of mobile telephony, the demand for public phones has experienced a decline in recent years both in developed and developing markets. Growing telephone ownership, particularly mobile phone ownership has meant a declining role for public phones in connecting people. The paper draws on findings from two consecutive quantitative studies of 6,000 – 10,000 low-income telecom users in 2006 and 2008 in six emerging Asian countries, supplemented by qualitative research. Findings reveal a significant decline in public phone use since 2006, particularly in India, Pakistan and Sri Lanka, the three countries which displayed the highest level of use in 2006. This decline has corresponded with an increase in phone ownership, particularly that of mobile. The likely welfare and policy implications arising from this emerging phenomenon for users, public phone providers and policymakers are explored.

Keywords: *access, connectivity, emerging markets, indicators*



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1. Introduction

Public phones, such as traditional payphone booths have been in use since the 19th century (American Public Communications Council, n.d.). However, with the emergence of mobile telephony, the demand for public phones has experienced a decline in recent years both in developed and developing markets. The public phone, in this paper, is defined as any type of phone available for public consumption, in exchange for a fee. This can include, but not be limited to, the traditional payphone booths (manned or automated, and payment by either coin or card), public call offices or PCOs, and phones available at telecommunication centers² and other shops. These could either be privately or publicly owned.

This paper will explore the use of public phones at the bottom of the pyramid (BOP) in six emerging Asian countries, Bangladesh, Pakistan, India, Sri Lanka, the Philippines and Thailand, in particular, changes in use between 2006 and 2008. The paper draws on both quantitative and qualitative findings from two consecutive sample studies of over 6,000 and 10,000 low-income telecom users in 2008 and 2006 (respectively), supplemented by qualitative research. Findings reveal a significant decline in public phone use since 2006, particular among the South Asian countries under study. This has been accompanied by a significant increase in phone ownership, both in urban and rural areas, particularly that of mobile. However, although overall use has declined, demand for public phones still exists, even among phone owners. Phone owners use public phones when prepaid mobile credit is low, or due to lower costs.

However, unlike in developed markets, where payphone operators are responding to the decline in demand by sizing down or ceasing operations altogether, in several emerging Asian countries, the supply of public phones is, in fact, increasing. Furthermore, government policies in place actively promote the expansion of public phone services, particularly into rural areas targeting the BOP, through the provision of subsidies. Nevertheless, there is emerging trend of traditional fixed-line phone booths being replaced by wireless-based devices, which is explored in subsequent sections. It should be noted, that while some of the supply-side data available refers to traditional, free-standing payphone booths, the data from our study refers to any type of phone available for public consumption (as explained above).

The paper is structured as follows: section two explores literature on the demand and supply of public phones in different countries. Section three presents an overview of the methodology, while section four explores quantitative and qualitative findings from the study. Section five investigates welfare and policy implications for users, operators and policymakers, while section six concludes.

2. Background

² Enterprises which offer various telecommunication facilities such as photocopying, faxing and other services

Although most demand and supply-side data on public phone services is limited to that of the traditional payphone booth, it nevertheless, highlights emerging trends that are explored in greater detail in subsequent sections.

Supply

Trends in the supply of public phones differ between developed and developing markets. Figure 1 illustrates the decline in the supply of payphones in the US between 1997 and 2007. FCC statistics revealed a persistent year-on-year decline in the number of payphones in operations since 2000. The number of payphones has declined from 2.1 million in 1999 to less than one million, in 2007. Similarly, the Australian Communications Media Authority (2008) reported a 30 percent decline in the number of payphones in operation between 2003-04 and 2007-08.

Literature on public phone use in developed markets reveal that declining profit levels faced by payphone booth providers have led to many of them ceasing operations (Stern, 2003; Sey, 2003). Stern (2003) attributes this to high fixed costs incurred in setting up and maintaining such payphone booth coupled with declining revenue levels. Poor maintenance leads customers to choose other modes of telecom access, further damaging the pay phone industry and fueling a cyclical problem of demand impacting supply and vice versa.

However, in countries such as the US, measures are being taken to keep a certain number of payphones running, if it is found to provide social benefits to society. US's 1996 Telecom Act, states that state governments are to take on the responsibility of establishing and maintaining "public interest payphones", phones which "fulfills a public policy objective in health, safety, or public welfare. Qualifying phones are those found in airports, shopping centers and other public areas (Stern, 2003).

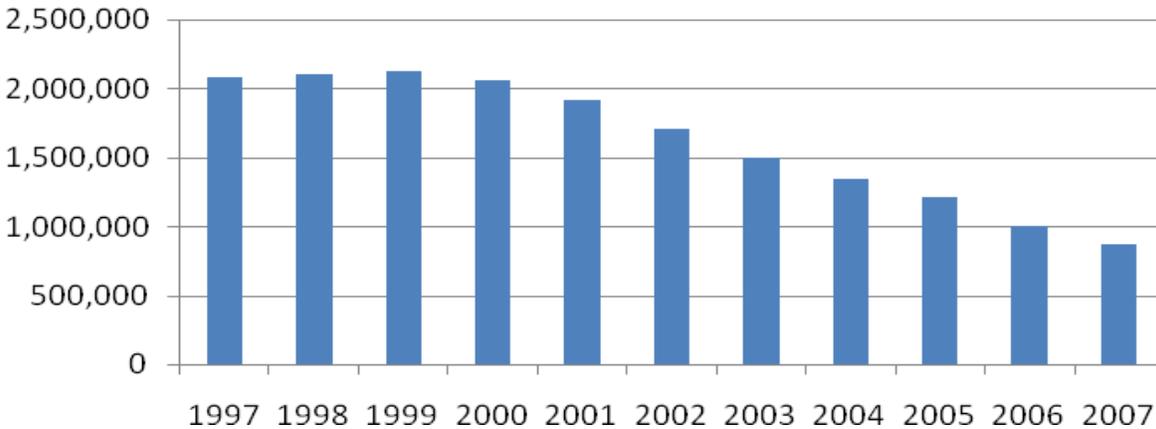
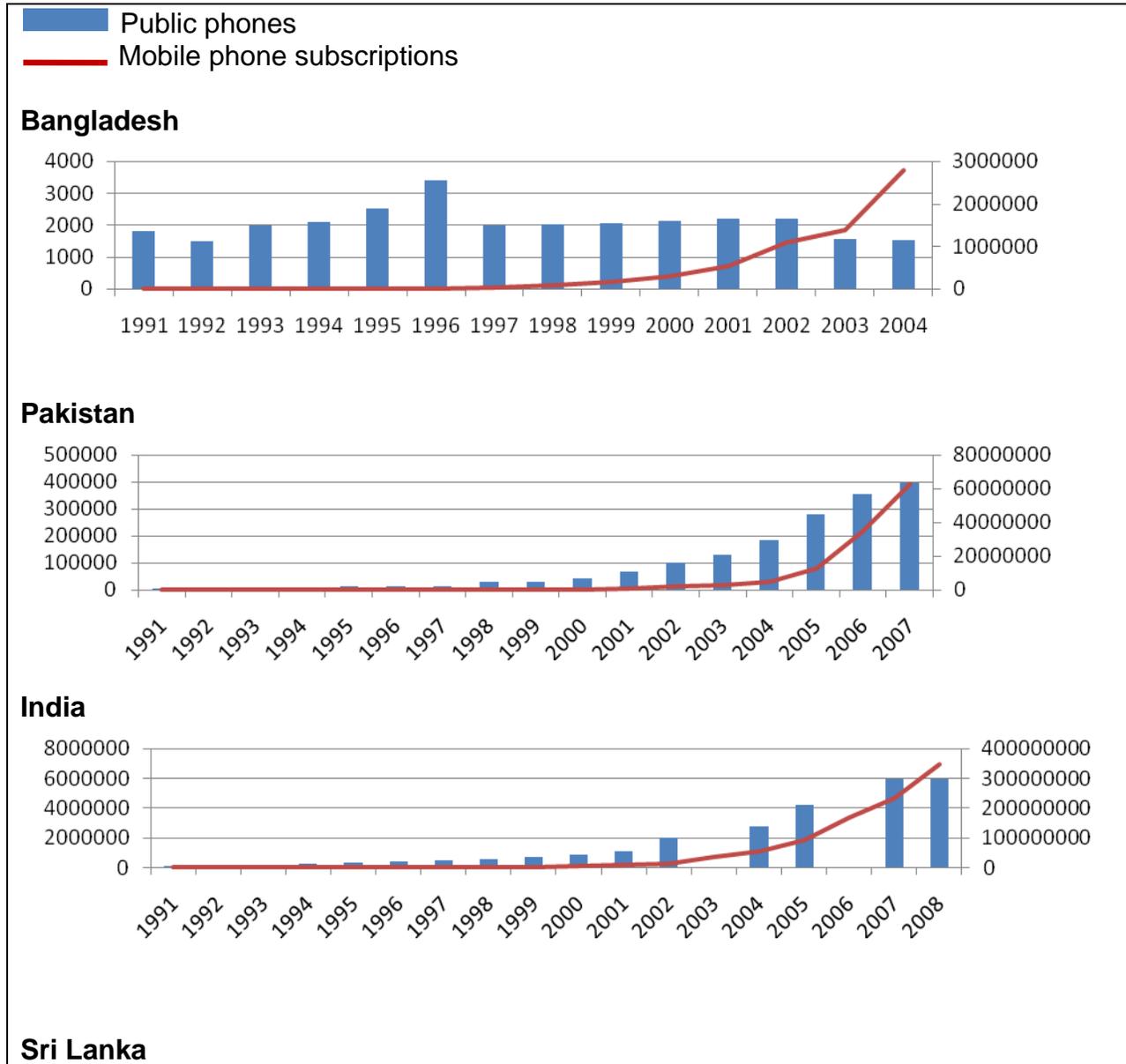


Figure 1: Number of US payphones over time (as of 31 March)
Source: FCC (2008)

However, in emerging Asia, the story is slightly different. Based on available time-series data published by national statistical organizations and the International Telecommunications Union (ITU)³, with the exception of Bangladesh and Thailand, all countries have experienced an overall increase in the number of public phones in operation.



³ The ITU's definition of public telephones includes coin and card-operated phones, as well as public phones in call offices and private places, as well as mobile public telephones. All public telephones regardless of capacity are counted.

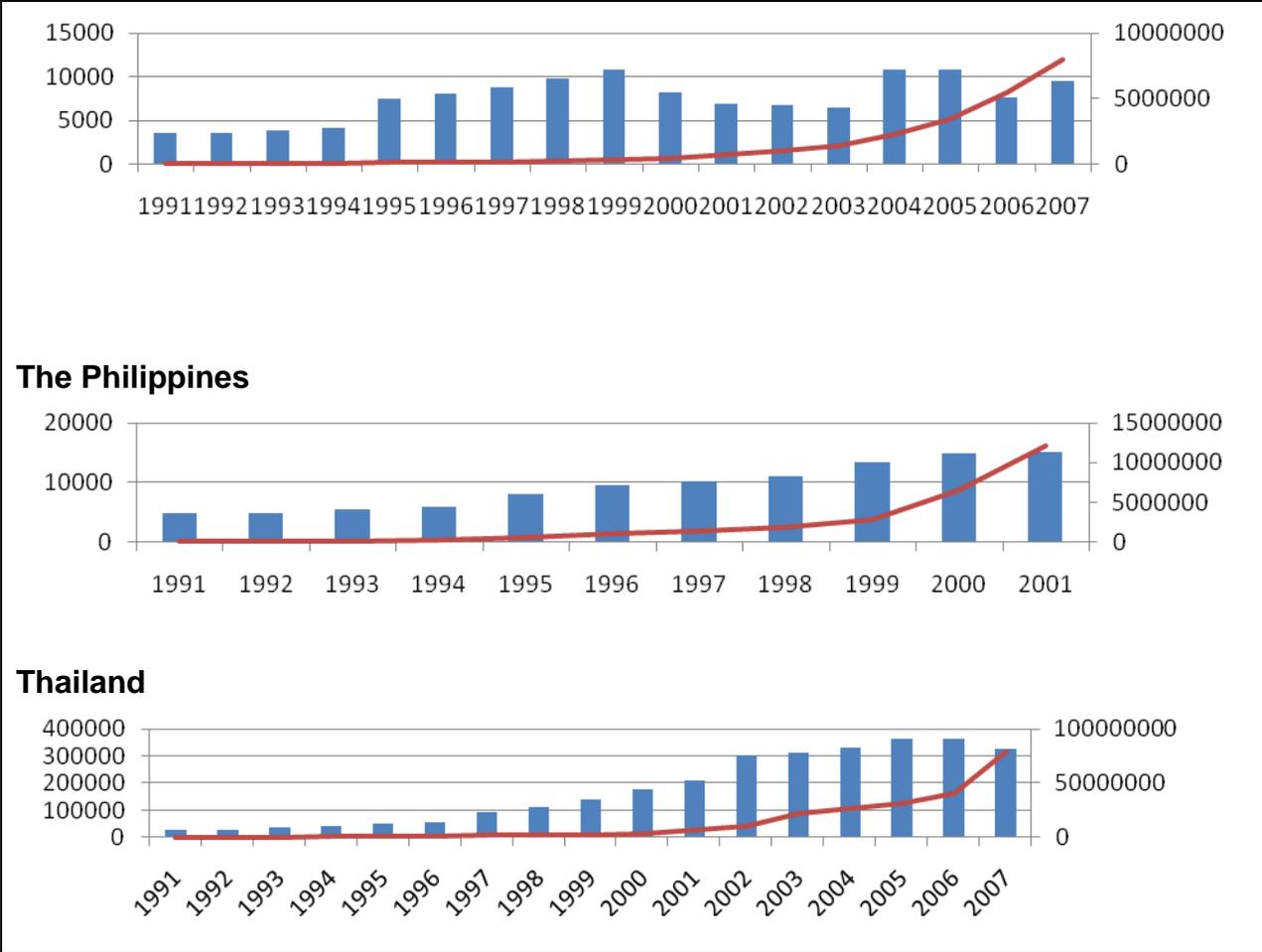


Figure 2: The number of public phones and mobile phone SIMs over time
 Source: International Telecommunications Union

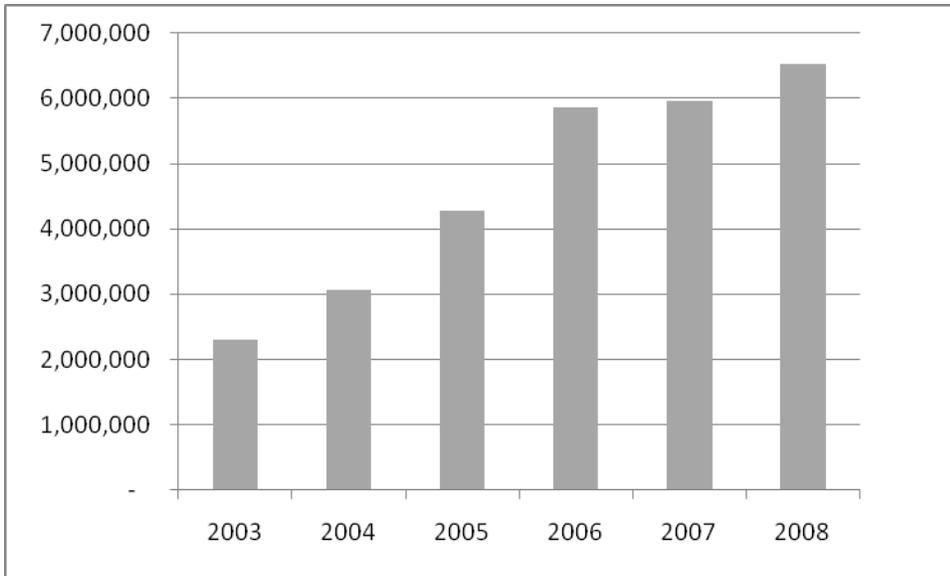


Figure 3: Number of public phones over time
 Source: *The Telecom Regulatory Authority of India*

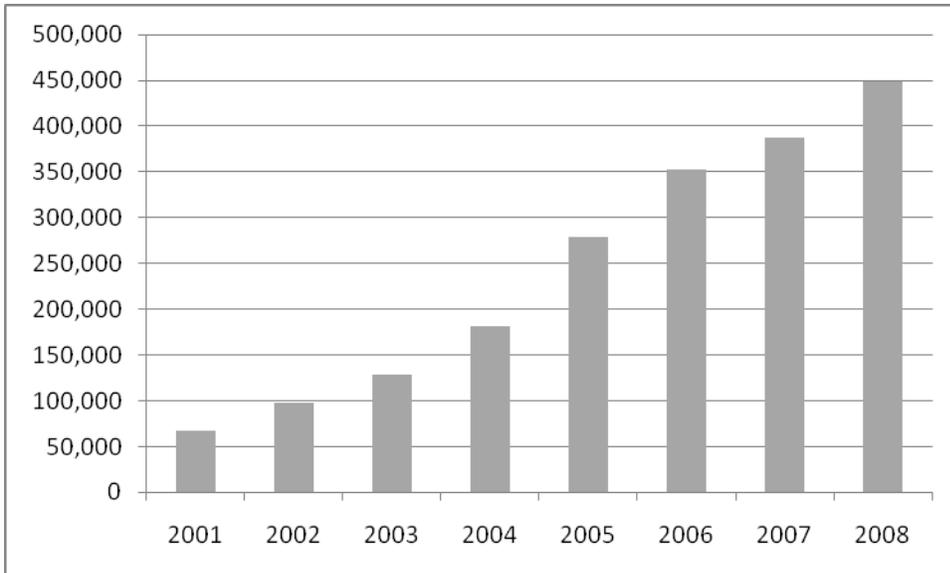


Figure 4: Number of public phones over time
 Source: *The Pakistan Telecommunications Authority*

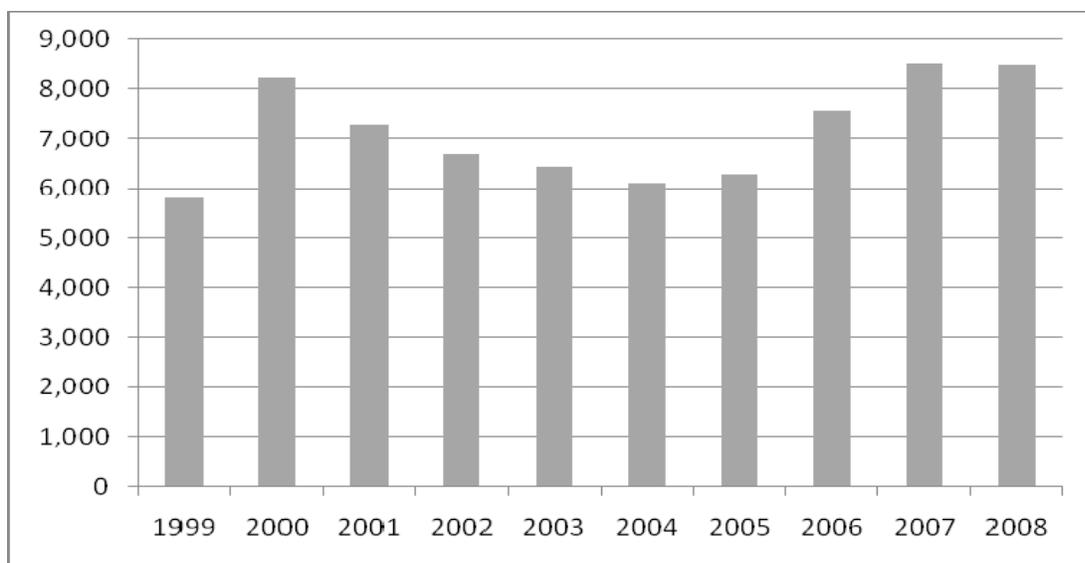


Figure 5: Number of public phones over time

Source: *The Telecommunications Regulatory Commission of Sri Lanka*

Based on statistics reported by each country's telecom regulatory authority, the number of public phones (both PCOs and Village Public Telephones (VPTs)) in India grew at a compound average growth rate (CAGR) of 19 percent between 2003 and 2008, although overall year-on-year growth is on the decline. Similarly, Pakistan and Sri Lanka experienced growth rates of 27 percent and 4 percent, respectively. In Sri Lanka, for example, Tritel, the largest private payphone operator announced it would be adding 2,000 solar-powered CDMA telephone booths to its existing 5,500 units throughout the country, investing approximately LKR 500 million (approximately USD 4.35 million⁴) in the first stage of the program, in June 2009 (Perera, 2009).

Several of these governments actively support the expansion of services across the country, particularly in rural areas, through the provision of subsidies. India's Universal Service Obligations Fund (USOF) was set up in April 2002, with the main aim of funding the replacement of outdated village phones and the provision of rural private phones in unconnected villages (Department of Telecommunications, Ministry of Communications and IT, Government of India, n.d.; Souter, Scott, Garforth, Jain, Mascarenhas & McKemey, 2005; Every village to have public phone service, 2008). The fund was established following India's New Telecom Policy of 1999 which mandated access to basic telecom services to all at affordable and reasonable prices, including increasing rural teledensity from 0.4 to 4 by the year 2010. Similarly, Pakistan's Universal Service Fund (USF) also provides subsidies to providers of PCOs and telecenters, based on a method of proven net project cost (NPV) (Government of Pakistan, Ministry of Information Technology, IT & Telecommunications Division, 2005). Sri Lanka's Rural Payphone Subsidy Scheme offers a subsidy of Rs 75000 (approximately USD 653⁵) for existing and prospective payphone operators for each incremental rural payphone

⁴ At exchange rates published on September 13, 2009, via <http://www.oanda.com>

⁵ Using exchange rates published on September 13, 2009, via <http://www.oanda.com>

installation outside of municipal council and urban areas (Telecommunications Regulatory Commission of Sri Lanka, n.d).

On the other side of the spectrum, private operators have introduced innovative forms of “public-access” phones that extend beyond that of the traditional payphone. Bangladesh’s Grameen Village Phone Program was a unique initiative, established in 1997, with the aim of providing telecommunication facilities in rural areas of the country through public-access mobile phones run by local, grassroots entrepreneurs. Such Village Phone Operators or VPPs, are provided microfinance loans to purchase “Village Phone Businesses”, which allow them to rent the purchased mobile phone(s) to the community on a per-call basis. The profits VPPs earn from this investment are used to repay initial loans and have proven a boost to incomes, raising their standard of living (Grameen Foundation, n.d.; Bayes, Braun & Akhtar, 1999). However, according to Grameen Telecom, the Grameenphone affiliate that manages the program, profits per operator have been declining for years and in 2006 averaged less than \$70 (Shaffer, 2007). This could, in large part, be due to the fact that, while such innovative schemes may have initially profited from substantial levels of “consumer surplus” from a previously untapped market segment, this has likely eroded in the face of increased competition from similar operators and “budget” telecom service providers targeting lower-income groups. A similar “shared mobile payphone” community service project, termed, apnaPCO, was introduced by Pakistan’s Telenor, in 2007. Launched in collaboration with the National Rural Support Program (NRSP), the project aimed to bring access to the most disadvantaged communities in the country, through the provision of supervised mobile payphones (Telenor Group, n.d.)

Demand

Much literature exists on the decline in demand for public phones in developed markets. In Australia, for example, the number of calls made from payphones between 2001-02 and 2005-06 declined by 41 percent (Australian Communications and Media Authority, 2008), while in 2008, the UK’s BT reported a 50 percent decline in public phone calls in the last three years (The Highland Council, 2008). Similarly, USA’s AT&T announced its decision to exit their 129-year-old payphone business by the end of 2008, due to the rise in wireless phone ownership (AT&T, 2007).

However, demand-side data on the use of public phones in emerging markets, particularly among those on lower incomes (the beneficiaries which most government expansion strategies target) is limited. One of the few large-scale studies conducted is that by Gillwald and Stork (2008) in 17 countries in Africa, which found that in some countries, public phone⁶ use was low, while in others, relatively high. Fewer than 30 percent of respondents in Botswana, Kenya, South Africa and Ghana had used a public phone in the last three months; in particular, in Ghana, only six percent had used a public phones, while 60 percent owned mobile phones. However, in Tanzania and Zambia, levels of use were over 90 percent and 70 percent, respectively. The study found that in countries where public phones were reasonably well-provisioned or where

⁶ Referred to in the study as any phone available for publicly access by payment, whether traditional incumbent pay phones, mobile public phone kiosks or telecentres

penetration levels were low, public phones continued to be a major form of telecom access. Findings on the frequency of public phone use also differed by country. 25 percent of users in Tanzania made or received public phone calls more than once a day, while in Senegal, Rwanda and Kenya, the majority of respondents used public phones only once a month. Gillwald and Stork also found that the average expenditure on public phones was very small and much lower than expenditure on low-cost mobile telephonic services proposed for such users.

3. Methodology

This paper is based on data from a multi-country study of ICT use at the “bottom of the pyramid” (BOP) in emerging Asia conducted by LIRNEasia. The study has been conducted three times since 2005, the last of which was conducted between 2008 and 2009 among those who had used a telephone (not necessarily owned) in the previous three months⁷. The most recent study was conducted in Bangladesh, India, Pakistan, the Philippines, Sri Lanka and Thailand.

For the purpose of the study, BOP was defined as the two lowest socioeconomic groups (SEC)⁸, D and E, with the exception of the Philippines, where only SEC group E was considered⁹. Telecom users between the ages of 15 and 60, in rural and urban locations were studied. Quantitative as well as qualitative methods were used.

The quantitative component of the 2008 study constituted 9,540 face-to-face interviews using a structured questionnaire. Both households and respondents were randomly selected. The sample was designed to represent the BOP in each country so that the findings could be projected back to this segment.

With the exception of India (where the majority of states were covered) all regions of each country were covered. Multi-stage stratified random sampling was undertaken, whereby primary sampling units (regions) were randomly selected. Within each selected region urban and rural centers were randomly selected. Within selected urban and rural centers, starting points were randomly selected with a fixed number of interviews conducted around each starting point. The number of starting points selected from each centre was determined in proportion to the population of the selected centre.

One respondent was selected per household; in households with more than one eligible respondent, the Kish grid (random number chart) was used to randomly select the

⁷ Phone use in the previous three months included making or receiving a telephone call (but not SMS) on any phone whether owned or not.

⁸ SEC categorizes people in to groups A to E based on the education and occupational (as well as a few other parameters in certain countries) of the chief wage earner of the household. SEC is closely correlated to an income level of around USD 2 a day in five of the six countries studied, thereby allowing for cross-country comparisons. SEC was used to define the BOP rather than income levels due to the problems generated by spatial and temporal cost of living adjustments, which would make cross-country comparisons difficult. In addition, problems of over or under reporting could affect the correct classification of BOP respondents.

⁹ The SEC D and E population of the Philippines constitutes 92 percent of the population, whereas the SEC E population, constitutes 38 percent, corresponding with the population living on USD 2 per day.

respondent. Within each country, data was re-weighted to reflect the correct SEC D and E population mix in urban and rural areas¹⁰.

In addition, a diary (log sheet) was placed among half the sample¹¹ in which the users were requested to record their phone usage (calls, SMS and missed calls) for a period of one week.¹² An overview of the sample size and composition is given in Figure 3.

	All BOP	Urban BOP	Rural BOP	Margin of error @ 95 % CL (percent)
Bangladesh	2,050	1,719	331	2.8 %
Pakistan ¹³	1,814	899	915	2.3 %
India	3,152	773	2,379	1.7 %
Sri Lanka ¹⁴	924	320	604	3.3 %
Philippines	800	468	332	3.1 %
Thailand ¹⁵	800	400	400	3.5 %
Total	9,540	4,579	4,961	

Figure 6: Sample size and composition

The qualitative component constituted of 60 protocols among urban and rural respondents (approximately 200 in total) in the six countries, including focused group discussions¹⁶, home visits with media mapping¹⁷ and user mini-ethnographies.¹⁸ An overview of the sample size and composition is given in Figure 4.

Country	Location	Focused group discussions	Home visits with media mapping	User mini-ethnographies
India	Urban	2	0	2

¹⁰ Urban areas were oversampled in proportion to its population, in order to address the higher levels of heterogeneity in urban areas and homogeneity in rural areas.

¹¹ Among those that were willing to use it for the given period

¹² The diary technique while imperfect is a work-around implemented first in 2006 in a similar survey to capture usage patterns at the BOP. While much telecom use research in the developed world is based on billing records, in developing countries where the majority share phones and almost the entirety use pre-paid mobiles, it is not possible to obtain bill details, and thus alternative methods have to be relied on, such as the respondent's recall, mobile call logs or other more sophisticated and costly real-time measures. See Samarajiva, Hameed and Zainudeen (2008) as well as Cohen and Lemish (2003) for further discussion.

¹³ Excludes tribal regions

¹⁴ Excludes the North and East regions

¹⁵ Sample excludes Bangkok because the SEC D and E population in Bangkok is small

¹⁶ Constituting eight respondents per session; in certain locations, some focused group discussions were replaced with two mini-group discussions (four respondents each) to ensure representation of the different kinds of respondents that needed to be studied.

¹⁷ Depth interviews conducted at the respondent's home to understand and document their media and social networks in their actual contexts

¹⁸ An observational research method to understand the context of the users from their own perspective over a period of three hours during their daily activities

	Peri-urban	0	4	4
	Rural	4	2	2
Bangladesh	Urban	2	2	2
	Rural	1	2	1
Pakistan	Urban	2	2	2
	Rural	1	2	1
Sri Lanka	Urban	2	2	2
	Rural	1	2	1
Philippines ¹⁹	Urban	1	1	1
	Rural	1	1	1
Thailand	Urban	1	1	1
	Rural	1	1	1
Total		19	22	21

Figure 7: Teleuse@BOP3 Qualitative sample

4. Findings

The highest use of public phones was seen in Bangladesh and India which reported levels of close to 50 percent; these figures exceeded that of personal and household phone use (Figure 8). Public phone users were defined as those who had either made or received a call from a public phone in the last three months.

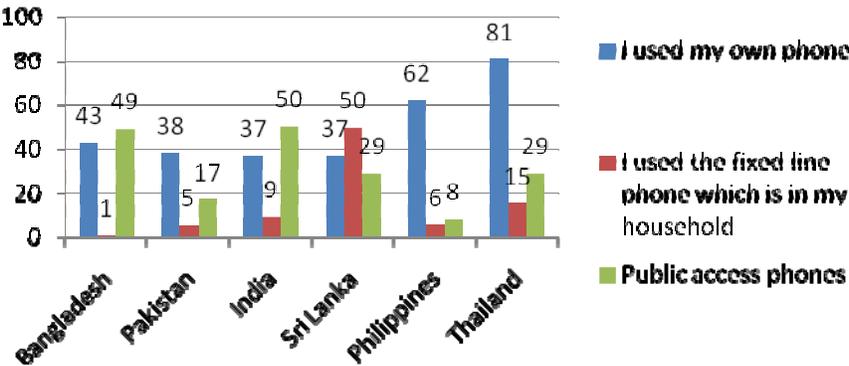


Figure 8: Modes telecommunication access at the BOP, 2008

What is, perhaps, of more interest here, though, is the change in the percentage of respondents citing the public phone as their most frequently used phone, since 2006. With the exception of Thailand, each country experienced a significant decline (at the 95 percent confidence interval) in the percentage of respondents citing the public phone as their most frequently used phone between 2006 and 2008 (Figure 9)²⁰. In fact,

¹⁹ SEC E only

²⁰ Respondents from Bangladesh were not interviewed in the 2006 study

differences in Bangladesh, Pakistan and India were significant even at the 0.1 percent confidence interval and Sri Lanka at the one percent confidence interval. The greatest decline was seen in India, which reported a decline of 37 percent, with Pakistan and Sri Lanka also experiencing a decline of over 20 percent. Interestingly, the greatest decline in use was seen in countries which had the highest level of public phone dependence in 2006. These declines were accompanied by a corresponding increase in the percentage of users citing their own phone as their most frequently used phone, and correspondingly, mobile ownership levels (see figure 10). Interestingly, similar levels of decline in public phone use and increases in the use of a respondent's own phone were seen both in urban and rural regions (see figure 11).

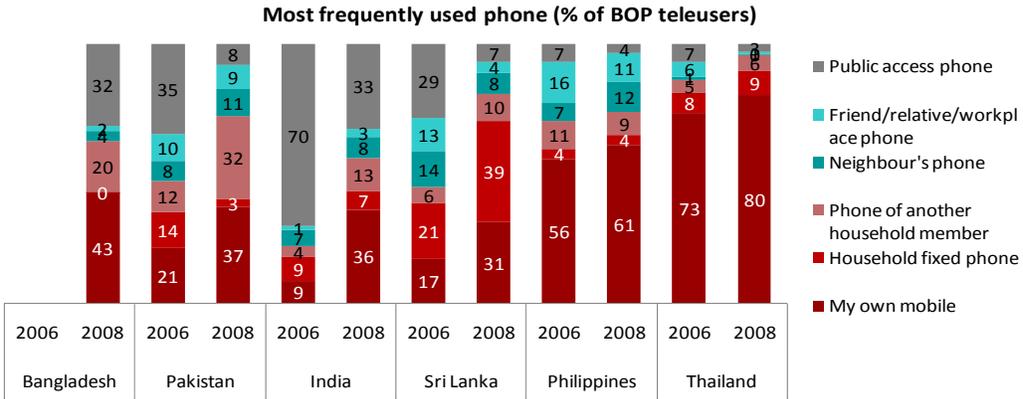


Figure 9: Comparison of most frequently used modes of telecommunication at the BOP between 2006 and 2008.

Figure 10: Mobile phone ownership at the BOP (percentage of all respondents)

	Bangladesh ²¹	Pakistan	India	Sri Lanka	The Philippines	Thailand
2008	43	38	40	36	63	90
2006		23	9	22	60	76

²¹ The study was not conducted in Bangladesh in 2006.

Most frequently used phone - 2008 (% of BOP teleusers)

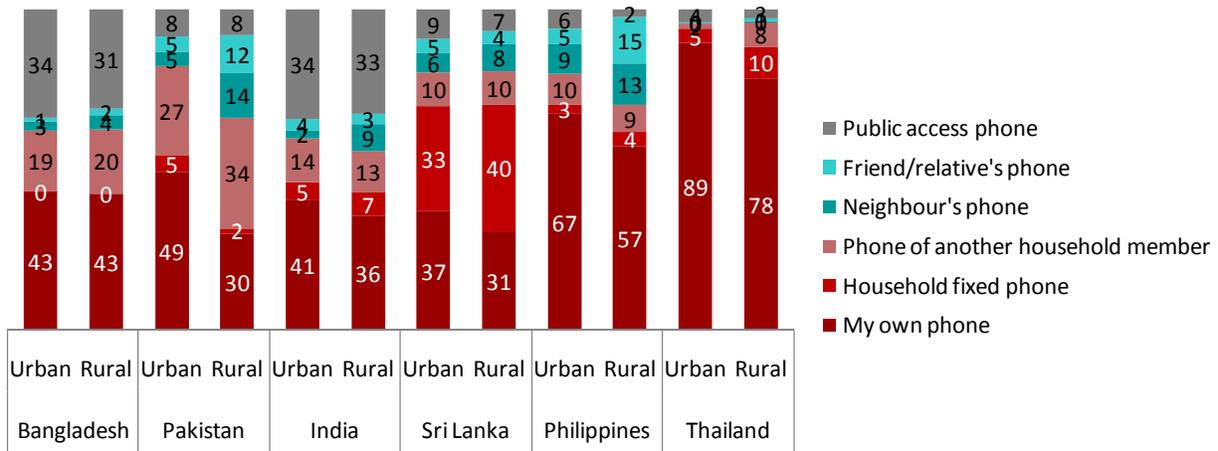


Figure 11: Comparison of most frequently used modes of telecommunication between urban and rural BOP users between 2006 and 2008.

A significantly higher percentage of men compared to women (at the 95 percent confidence interval) used public phones in Bangladesh and Pakistan, in particular (Figure 12). This is mostly likely due to cultural factors, explained in greater detail in subsequent sections.

Figure 12: Use of public phones as a most frequently used method of telecommunication access (percentage of all respondents)²²

	Bangladesh	Pakistan	India	Sri Lanka
Male	34	12	33	8
Female	29	4	33	6

Interestingly, all respondents in Bangladesh and more than 30 percents of respondents in India cited that their most frequently used type of public phone was a mobile phone (Figure 13). This is, perhaps, not surprising given the proliferation of the Village Payphone Program (VPP) in Bangladesh which runs solely on mobile technology. Other studies also point to an emerging trend of traditional fixed-line public phones being replaced by phones running on mobile and Wireless Local Loop (WLL) technology (Sey, 2008; CKS Consulting, 2009), due to the latter being more economically viable.

²² Respondents from the Philippines and Thailand were dropped from the analysis to due to the low incidence of respondents citing the public phone as their most frequently used mode of telecommunication in these countries.

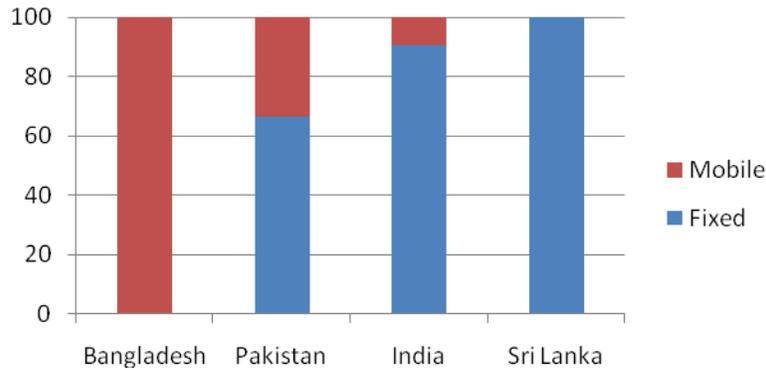


Figure 13: Type of most frequently used public phone used

However, although dependence on public phones (defined here as the percentage of respondents citing the public phone as their most frequently used mode of telecommunication) is declining, there still exists a considerable demand for public phone use among non-owners. As Figure 14a indicates, over 50 percent of respondents in Bangladesh, Pakistan and Sri Lanka still do not own any type of phone. From them, 67 percent of non-phone owners in Bangladesh and India, and 49 percent in Sri Lanka had used a public phone in the last three months (see figure 15). Furthermore, 55 percent of these respondents in Bangladesh and India used public phones more frequently than other modes of communication (Figure 16). However, among other countries studied, respondents preferred using a phone of another household member or acquaintance (friend, relative or neighbor). These findings could depend on whether respondents had access to other types of phones such as a household member's phone. For instance, only 17 percent of respondents in India and 20 percent in Bangladesh (both owners and non-owners) had household members who also owned phones (Figure 14b); unsurprisingly, these two countries also reported the highest use of public phones among non-owners.

Figure 14a: Phone ownership (percentage of all respondents at the BOP)						
	Bangladesh	Pakistan	India	Sri Lanka	The Philippines	Thailand
Own nothing	57	59	55	27	37	9
Mobile Only	42	35	37	22	63	84
Fixed Only	0	3	5	37	0	1
Both Mobile and fixed	1	3	3	14	1	6
Figure 14b: Percentage of all respondents whose household members owned phones						
	20	20	17	22	32	54

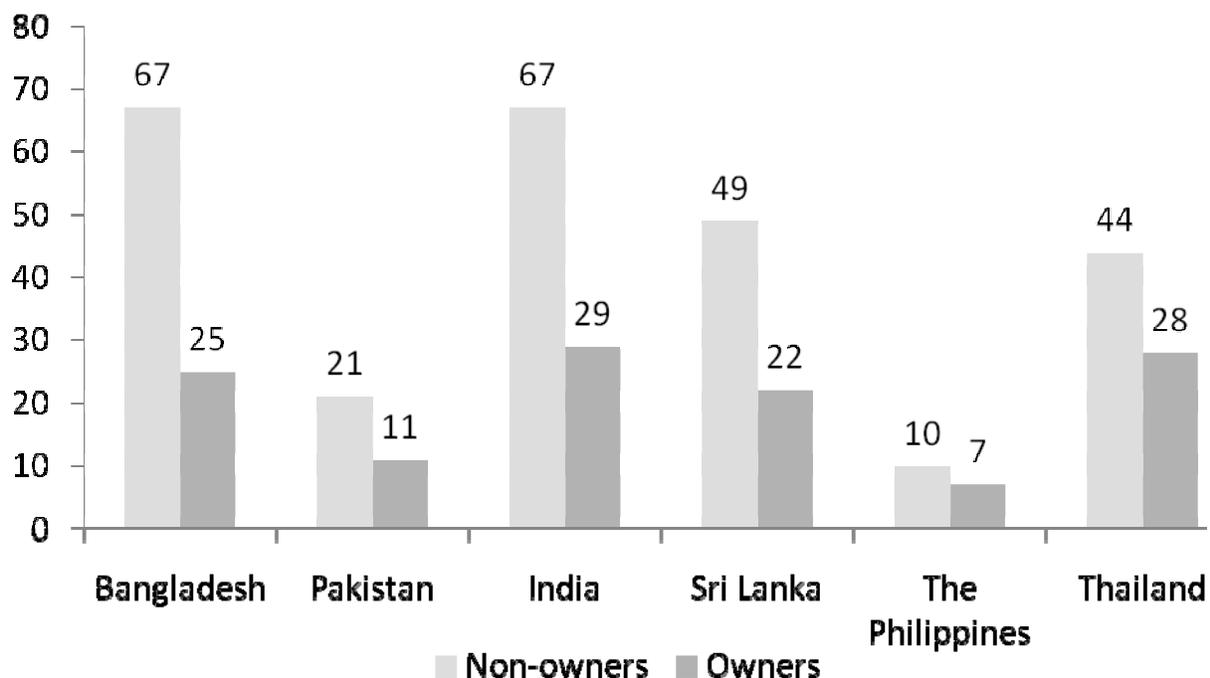


Figure 15: Incidence of public phone use among non-phone owners and owners, respectively (%)

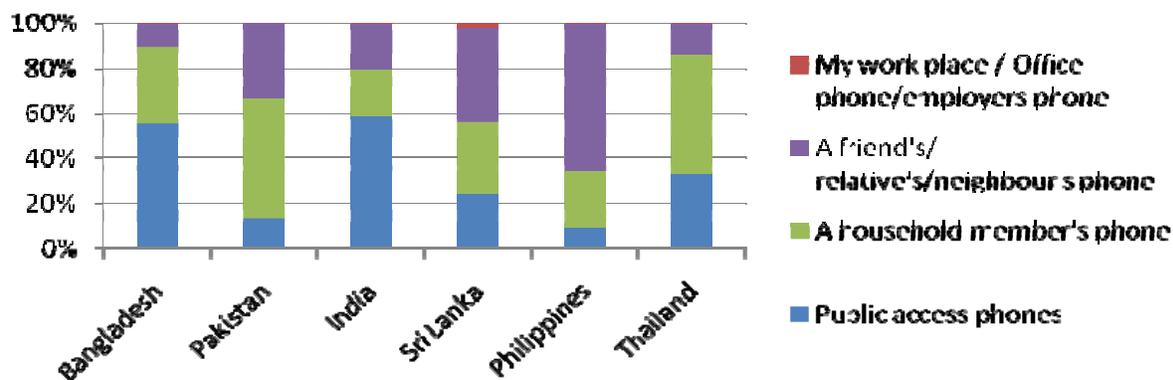


Figure 16: Most frequently used phone among non-owners of telephony (percentage of BOP non-owners)

In addition, demand for public phones exists even among phone owners. Over 20 percent of such respondents in each country, excluding Pakistan and the Philippines, had used a public phone in the last three months (figure 15).

What drives use?

Findings reveal that the main reasons driving the use of public phones among those citing it as their most frequently used mode of communication was due to a lack of other

options available and lower costs (Figure 16). The latter was most apparent in the Philippines where close to 70 percent of users cited lower costs as the main motivating factor; this finding is intuitive given relatively higher mobile voice tariffs in the Philippines, compared with other countries in the Asian region (Figure 17). The qualitative study also revealed similar findings with respondents in the Philippines stating they used public phones when making long-distance calls to a fixed-line phone, since it was cheaper to make calls from one landline to another (CKS Consulting, 2009). However, the opposite seems true in some countries in Africa, where it was found that 55 percent of respondents in Rwanda and 48 percent in Tanzania said they didn't use public phones as it was too expensive to afford (Gillwald and Stork, 2008).

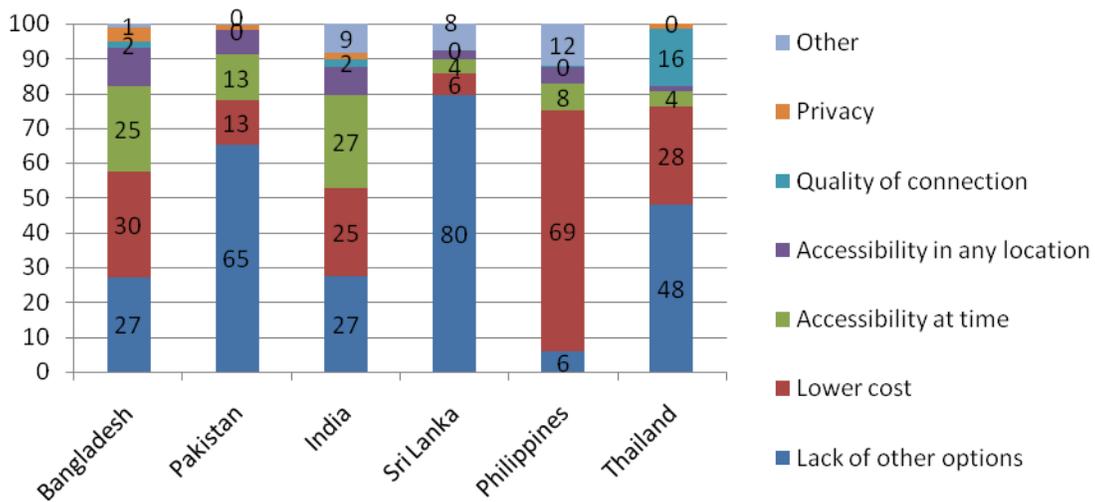


Figure 16: Main reason behind using public phones (percentage of respondents at the BOP citing a public phone as their most frequently used mode of telecommunication)

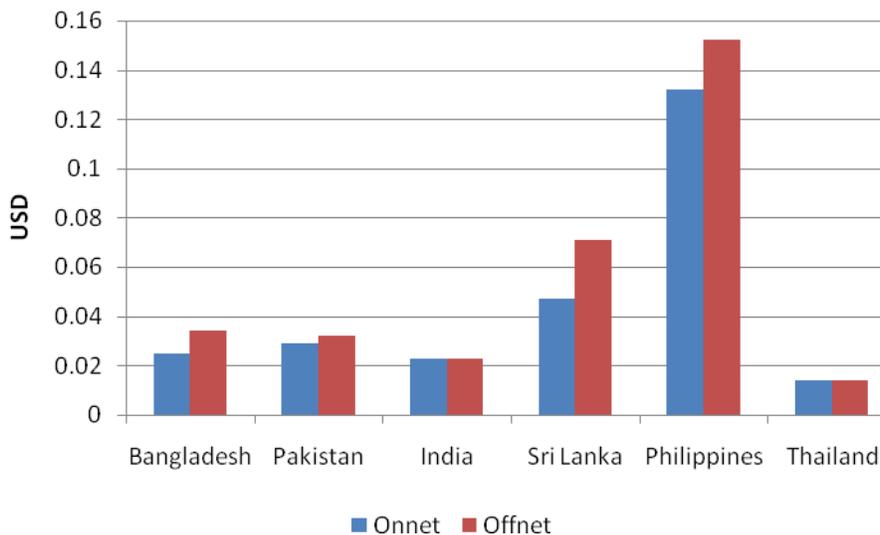


Figure 17: Prepaid mobile tariffs per minute (based on mobile operator with highest subscriber market share), February 2009

Source: LIRNEasia (2009)

Among phone owners, the main reasons cited for using public phones was when prepaid credit on their mobile was low and to reduce costs (Figure 18). Respondents from group discussions also cited the use of public phones when they ran out of credit on their phone. These findings imply that the public phone is often seen as a back-up option that could be used when their mobile phone is not available.

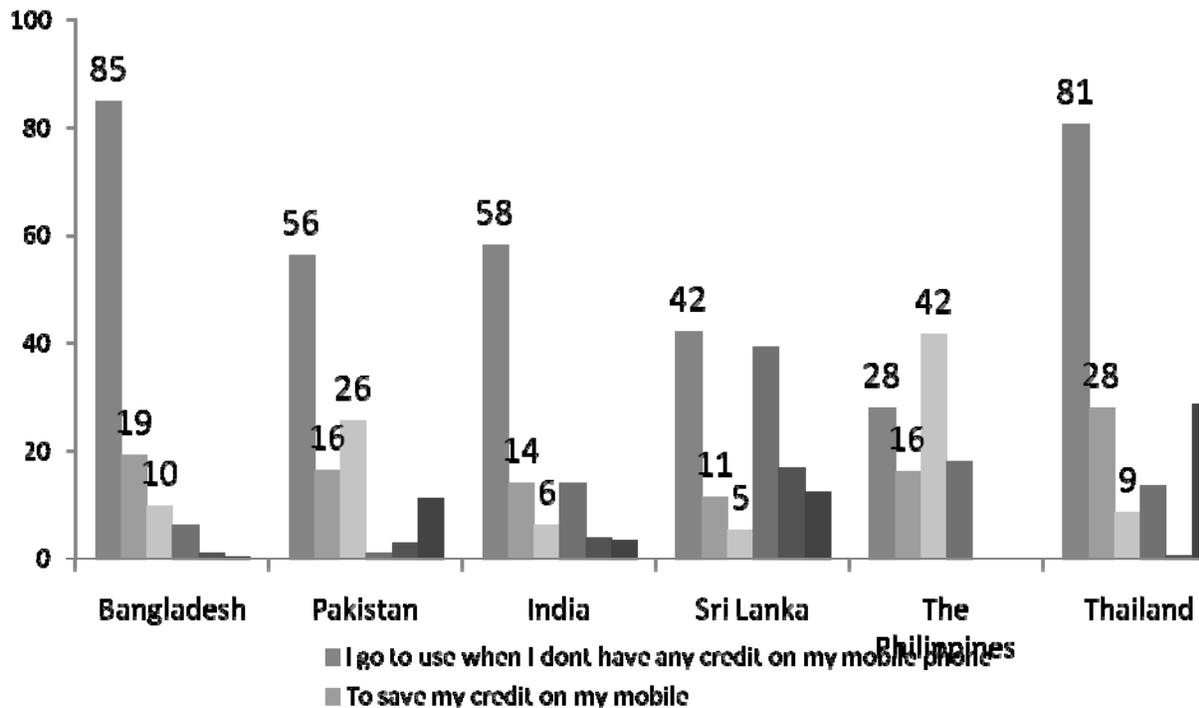


Figure 18: Reasons for using public phones among phone owners (% of BOP)

Gillwald and Stork (2008)'s study in Africa also found that the primary reason behind using payphones was due to a lack of other options available. However, in countries with high mobile tariffs such as Cameroon, Namibia, Nigeria, South Africa and Zambia, more than 50 percent of respondents cited cost factors as the main factor driving their use of public phones. A significant percentage of respondents also used pay phones when they had difficulty charging their phones. Proximity to a particular public phone outlet was also a determining factor in Kenya, South Africa and Botswana.

Reasons for decline in use

This sub-section explores possible reasons behind the decline in use of public phone in greater detail.

Mobile Substitution

As noted earlier, strong evidence from both the current study as well as other research shows that one of the main factors behind the declining dependence on public phones is the increase in ownership of mobile phones in the recent past. As Figure 10 (above) shows, in 2006, mobile ownership was under 25 percent in India (9 percent), Sri Lanka (22 percent) and Pakistan (23 percent). This has rapidly increased to over 35 percent in just two years. In particular, India, which had experienced the greatest decline in public phone dependence (a decline of 37 percent), also recorded the greatest increase in mobile ownership levels (an increase of 36 percent). These findings are intuitive, and corroborate findings that one of the main factors driving non-owners to use public phones as their most frequent method of communication was a lack of other options available. This implies that respondents would shift to another more favorable option if able to, of which a personal mobile phone would most likely top the list.

The qualitative component of the study also revealed similar findings with rural phone booth owners in India, for example, reporting a decline in demand for their services, due to the ownership of personal mobile phones (CKS Consulting, 2009).

Gillwald and Stork (2008) also found that mobile substitution was one of the major reasons given for not using payphones in the African region. Over 56 percent of respondents in Botswana and Ghana, and 47 percent in Kenya gave this as the reason. As Stern (2003) notes, as technology has improved over the last three decades, mobile phones have become smaller and more manageable in size. Additionally, the cost of subscribing to cellular service has decreased with technology improvements, which has led to higher mobile adoption rates, and declining demand for public phones.

The trend is likely to continue, as mobile tariffs and cost of handsets continue to fall (Nokia, 2009; LIRNEasia, 2009). Several new reports published as early as 2003 had reported on the shrinking Indian PCO industry, in the face of mobile price wars that were pushing tariffs down to levels even lower than that offered by PCOs (Kurup, 2008; Patnaik, 2003). Furthermore, more mobile operators are extending their network coverage to previously unconnected areas in recognition of the earning potential that could exist at the BOP (Prahalad, 2002). In early 2009, India's Bharti Airtel, in a move to expand its network into rural areas, announced it had begun setting up "Rural Airtel Service Centers", run by a locally-appointed Bharti agents, who had the task of selling, activating and recharging mobile connections (McCormick, 2009; Bharti Airtel Rural Coverage, 2009). Similarly, in August 2009, Sri Lanka's largest mobile service provider, Dialog Telekom, announced it had expanded services to cover parts of the Northern Province that were previously unconnected due to the ravages of civil war (Dialog Telekom, 2009).

Convenience

Another qualitative respondent also indicated that with the growth in mobile telephony, people were growing out of the habit of collecting coins to make calls. As a result, even if payphone booths were in closer proximity to telecommunication centers and other shops, they often ending up making calls from the latter (CKS Consulting, 2009). Furthermore, a decline in availability of public phones (described in the next sub-

section) may also have contributed to the decline in demand (and vice versa). For instance, several female qualitative respondents in urban Pakistan pointed out that the public phones were rather far from their homes, which in turn, affected their use of the same. Similarly, respondents belonging to particular villages in Sri Lanka, the Philippines and Thailand indicated that they had to travel about 1.5 to two miles to reach the nearest public phone booth while the distance to the nearest mobile reload shop was only about one mile (CKS Consulting, 2009). Respondents also cited poor maintenance of traditional payphone booths as another reason for the decline in demand for public phones. Gillwald and Stork (2008) also found that over 40 percent of respondents in Tanzania and South Africa did not use public phones as it was too inconvenient for them, while over 20 percent respondents in the same two countries also stated it was not safe to use at night.

Other factors

Qualitative findings reveal that cultural factors, particularly in Pakistan and Bangladesh, also have an impact on the demand for public phones, particularly with respect to women's use. In both these countries, female respondents claimed to have been subject to verbal harassment, if they were seen visiting public phone shops too frequently. Family members of these respondents in Pakistan did not encourage the use of public phones in general unless in cases of emergency, and often accompanied them to the booths if such calls had to be made. In Bangladesh, for example, one female respondent explained that repeated harassment had led her to make calls from other reload shops within the neighborhood. However, in other countries, such as India, female respondents said they did not face any restrictions in making calls from public phones, and often preferred doing so as it gave them more privacy than making calls from their own homes (CKS Consulting, 2009).

Interestingly, most respondents in Bangladesh were not aware of any government-installed public phone in place, and were of the opinion that it was individual booth owners who were the pioneers of such services. Such perceptions suggest that the concept of the public phone may be changing to one broader than that of the traditional payphone booth.

5. Implications

In light of the preceding discussion, this section discusses the implications of the declining demand together with a decline in supply on the welfare of if users, as well as on policy.

Implications for users

From a user-perspective, a decline demand coupled with the threat of a decline in supply, implies present users are likely to experience a decline in public-access options available. In the best case scenario, this would mean a longer walk incurred in reaching a phone, and in the worst case, no phone available at all. Studies such as Stern's 2003 study analyze the welfare effects of technological advancements in the mobile phone industry on present public phone users. She argues that, conceptually speaking, "every

individual who switches from using pay phones to cellular phones contributes to a negative externality affecting all pay phone users.” However, when looking at the overall welfare implications, society, as a whole, may be better off. The welfare gains associated with users switching from public phones to mobiles such as lower opportunity costs (in terms of time and money spent on locating a payphone/public phone compared with a mobile which is potentially available anytime and anywhere) and a growing number of services available on a mobile (e.g. health, disaster-warning and other services), may offset the former negative welfare effects. In addition, if more public phone providers (particularly small enterprises such as grocery shops, etc.) are led to innovate in the face of growing competition with mobile operators, this would lead to more (and possibly, more competitively-priced) services being made available, contributing to a positive effect on welfare.

Implications for public phone providers

As noted in preceding sections, a decline in demand and revenue for public phone services in developed markets have forced many to downsize operations or close down altogether in the face of mounting losses (Sey, 2008, Stern, 2003). However, qualitative findings among public phone owners reveal that many have found other ways of retaining revenue and profits, in the face of changing demand. Discussions with rural booth owners in India revealed that many have taken note of emerging trends of mobile ownership, and have started offering other services as mobile reloads, in addition to public phone services. As Thomas (2005) also argues, the fact that some public phone access centers, such as telecommunication shops and PCOs are still able to survive in an increasingly mobile-dependent market environment, is, in large part, due to their active stance in implementing business diversification strategies, that allow them to tap into other new sources of revenue, in the face of declining call revenues (Thomas, 2005). Even government policies, such as India’s Telecom Policy of 1999 recommend the conversion of PCOs, wherever justified, “into Public Teleinfo centres having multimedia capability like ISDN services, remote database access, government and community information systems etc.” (Telecom Regulatory Authority of India, n.d.)

Furthermore, an increasingly larger number of telecommunication centers and PCOs are replacing their traditional fixed-line phones with mobiles phones (Sey, 2008), the latter which is more economically deployable. One such shop owner from the qualitative study revealed such a switch had lowered overhead costs incurred in maintaining his shop since he could now operate within a smaller square-foot area; he could also earn money from home, due to the flexibility offered in using mobile phones which otherwise would have been located at the shop itself. Furthermore, in situations where calls were made to other mobile phones, mobile-mobile tariffs were often cheaper than fixed-mobile tariffs, enabling public phone providers to offer a more cost-effective service to their customers (CKS Consulting, 2009). A Pakistan Telecom Authority (PTA) report estimates that between 2007 and 2008, the share of PCOs running on local fixed loop connections in Pakistan had fallen by 4 percent to 27 percent, with the rest running on Wireless Local Loop (WLL) and mobile technology (Pakistan Telecommunications Authority, 2008). As such, given high set-up and maintenance costs of the traditional payphone booths, the provision of public phones such as those found in

telecommunication centers and shops can serve to meet this demand, at an arguably lower per-unit cost.

Aside from this, telecommunication centers can also offer other facilities, such as Internet facilities, that traditional payphones cannot provide. Given low computer ownership and Internet use levels among the BOP (Figure 19 and 20) in the present context, such telecommunication centers and kiosks can serve an important role in filling this lacuna, at least in the short to medium term. As other studies note, public access points serve an important role in connecting users to the Internet, particularly among the developing world. A 2007 UN study on global internet use reported that 32 percent of respondents in Brazil used “community or commercial access” Internet facilities, compared with only 9 percent and 12 percent in Japan and Europe, respectively (United Nations, 2008; Nokia Siemens Networks, 2008).

Figure 19: Ownership of computers (% of BOP respondents)

	Bangladesh	Pakistan	India	Sri Lanka	The Philippines	Thailand
	0.5	3.6	0.7	4.5	1.1	15.3

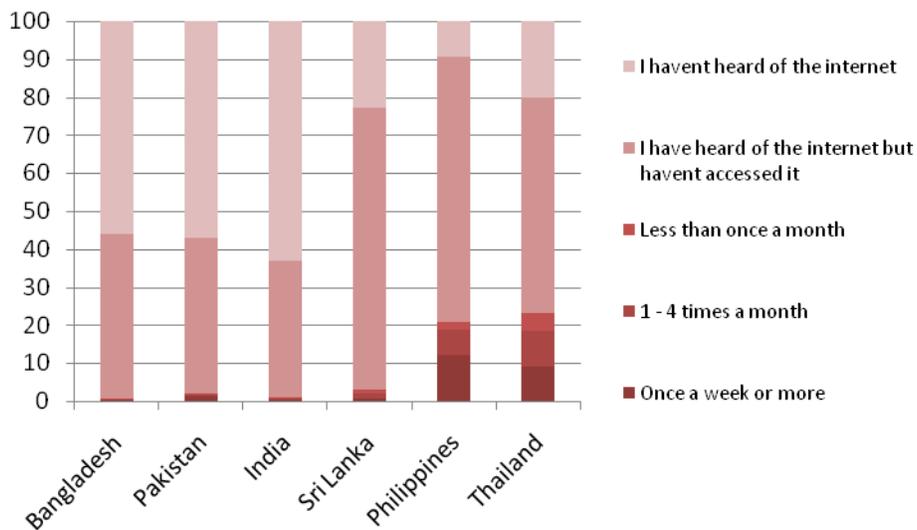


Figure 20: Use of the Internet (% of total BOP respondents)

Given the above, it is likely that the payphone booth may lose its appeal faster than the public phone center, the latter which is able to offer other complementary services, and also because of a fading “coin culture” (CKS Consulting, 2009)

Implications for policy

As discussed in the preceding sections, it is empirically clear that while current policies actively promote the expansion of public phone services to rural areas, targeting the BOP, demand for such phones is on the decline. This trend is only likely to continue, as the cost of purchase and use of mobiles declines (Nokia, 2009; Sey, 2008). In light of this, the need for continued expansion of public phone services is questionable. It is

recommended that governments rethink the scale of present public phone strategies, and acknowledge the need for empirical evidence to support such decisions.

Nevertheless, given that mobile ownership levels among BOP in the South Asian countries under study are still under 45 percent, some government assistance may still be needed, at least in the present context, to ensure access to the most marginalized communities. If governments are to provide subsidies, it is recommended that funds be targeted at communication centers that offer a broad range of services, including Internet facilities. Such businesses are more likely to retain profitability than the traditional payphone booth, and maintain profitability in the face of changing demand.

Furthermore, public phone providers should be encouraged to deploy other forms of technology, going beyond that of traditional fixed wireless, in order to compete effectively, both in terms of quality and cost, with other alternative modes of access. For instance, Pakistan's PCO industry, which initially experienced stagnation in growth (after the telecom industry was deregulated and cellular mobile operators allowed to enter), regained momentum once mobile and WLL operators were allowed to enter (Pakistan Telecommunications Authority, 2008).

6. Concluding Remarks

This paper has shown that dependence on public phones as a frequently used mode of communication among the BOP has significantly declined between 2006 and 2008, particularly in South Asia. This is, in large part, due to a rise in mobile ownership levels, driven by increasing affordability of mobile phone subscriptions and handsets (Nokia, 2009; LIRNEasia, 2009). However, although dependency on public phones is falling, they still play a role at the BOP even among phone owners, when prepaid mobile credit is low and due to lower costs. In response to this changing demand, public phone providers are finding new ways of keeping their business profitable through the provision of other services such as mobile reload facilities (CKS Consulting, 2009). An increasing percentage of public phone providers are also replacing their fixed-line phones with mobiles in a bid to lower costs and compete more effectively with their mobile service provider counterparts (CKS Consulting, 2009; Sey, 2008).

However, despite the decline in demand, governments in emerging markets, particularly in South Asia, such as in India, Pakistan and Sri Lanka, continue to support the expansion of services, particularly in rural areas, through the provision of subsidies. In light of changing demand, the present policy stance is questionable. It can be argued that some government assistance may be needed to ensure that at least a basic number of public phones are available to the most marginalized communities. If the government *is* to intervene in the market, it is recommended that funds be targeted at communication centers that offer a broad range of services, and thus are more likely to retain profitability than the traditional payphone booth. Furthermore, steps should be taken (as they already have been) to allow for all providers, irrespective of the type of technology used (fixed wireline, fixed wireline and mobile), to enter the market and engage in competition. Nevertheless, the need for government intervention and

assistance is likely to decline in the future as mobile phone subscriptions and handsets become more affordable and accessible to all.

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