



Session Title:

Mobile Use at the Bottom of the Pyramid

Mobile Opportunities:

Poverty and Telephony Access in Latin America and the Caribbean

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Abstract

Access to telephony for low-income groups is largely based on different strategies of use around mobile telephony. The main goal of this research project is to understand the strategies employed by the poor in Latin America and the Caribbean to access and use mobile telephony services, as well as to identify the major market and regulatory barriers for increased penetration and usage. More generally, it seeks to contribute to the discussion about how access to mobile telephony contributes to improving the livelihoods of the poor – what we call *mobile opportunities*.

Our results show that mobile telephony is highly valued by the poor as a tool for strengthening social ties and for increased personal security, and that it is beginning to prove useful for enhancing business and employment opportunities. Overall, our results suggest that the economic impact of mobile adoption by the poor is mediated by social capital variables such as the strengthening of trust networks and improved coordination of informal job markets. These findings reveal the continued need to innovate in business models that extend the market frontier for mobile telephony. They also highlight the urgent need to rethink public policies that are premised on the mobile phone as a luxury good. For the poor, mobile telephony has long become the most cost-effective and accessible alternative.

We acknowledge the valuable support of Andrea Molinari and Fernando Ramírez in the research process.

1.0 Introduction

Access to communication services and to telephony in particular has long been recognized as an important development input. In Latin America and the Caribbean, telephony penetration has grown exponentially in the past years, driven to a significant degree by mobile services. This has been particularly relevant for the poor, who for a variety of reasons have had limited access to traditional fixed telephony services. For those at the bottom of the income pyramid, access to telephony is largely based on different strategies of use around mobile telephony. Yet empirical studies aimed at understanding the patterns of mobile use by the poor, and of communication services in general, are rare.

The main goal of this research project is to understand the strategies employed by the poor in Latin America and the Caribbean to access and use mobile telephony services, as well as to identify the major market and regulatory barriers for increased penetration and usage. The project also attempts to analyze the untapped commercial opportunities associated with increased mobile penetration among low-income groups (the so-called bottom of the pyramid). More generally, it seeks to contribute to the discussion about how access to mobile telephony contributes to improving the livelihoods of the poor – what we call *mobile opportunities*.

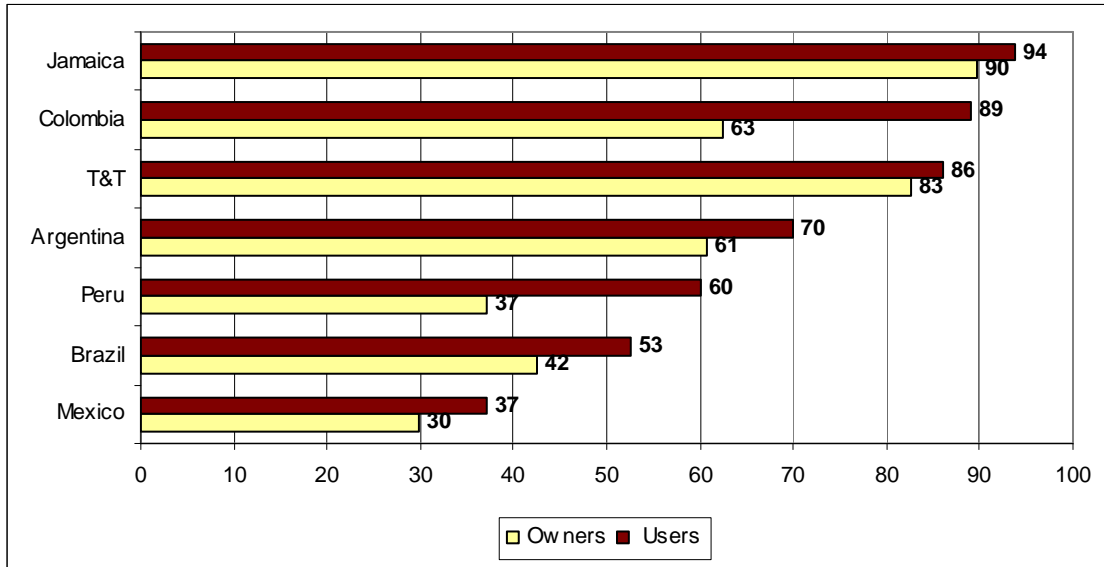
2.0 Methodology

Over 8,000 face-to-face interviews were conducted with individuals aged 13 to 70 residing in low-income households in the following countries: Argentina, Brazil, Colombia, Jamaica, Mexico, Peru, and Trinidad and Tobago. A probabilistic sample was drawn using maps from existing georeferenced data provided by the national statistics office of each country. Individual respondents were randomly selected from each household. The goal was to obtain a representative (and statistically independent) sample of low-income dwellers from urban areas in each country, although in two cases (Jamaica and Peru) semi-urban areas were also included. Fieldwork was conducted between April and June 2007.

3.0 Key results

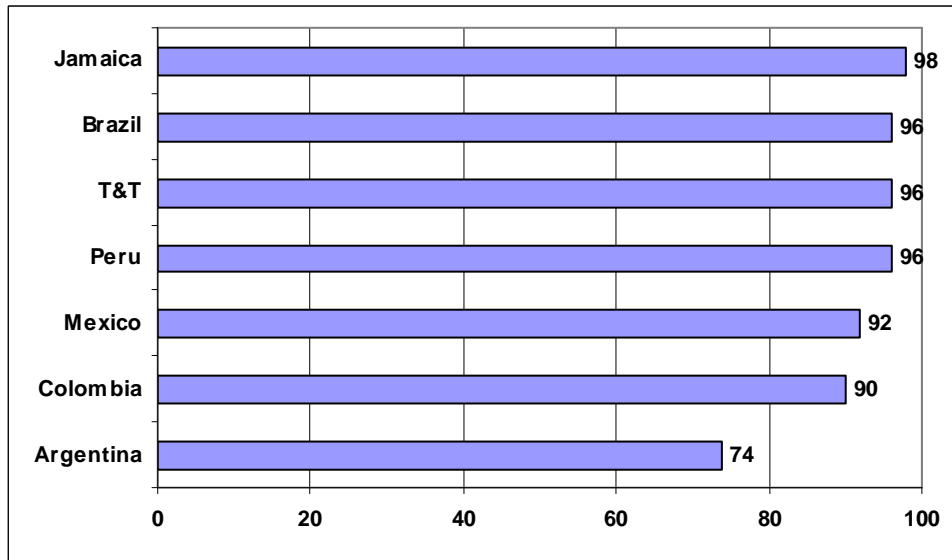
Our results show that the exponential growth in the mobile telephony market in Latin America and the Caribbean has had a significant impact on telephony access opportunities for the poor. With the exception of Mexico, the majority of respondents in the countries studied had used a mobile phone in the past three months, whether they owned a mobile handset or not (see Figure 1). Interestingly, the level of shared ownership found was relatively low: in most cases users own their own handset and service. The notable exceptions are Colombia and Peru, where a healthy service resale market in urban areas (with very competitive tariffs) reduces ownership incentives.

Figure 1 – Mobile usage and ownership (% of total)



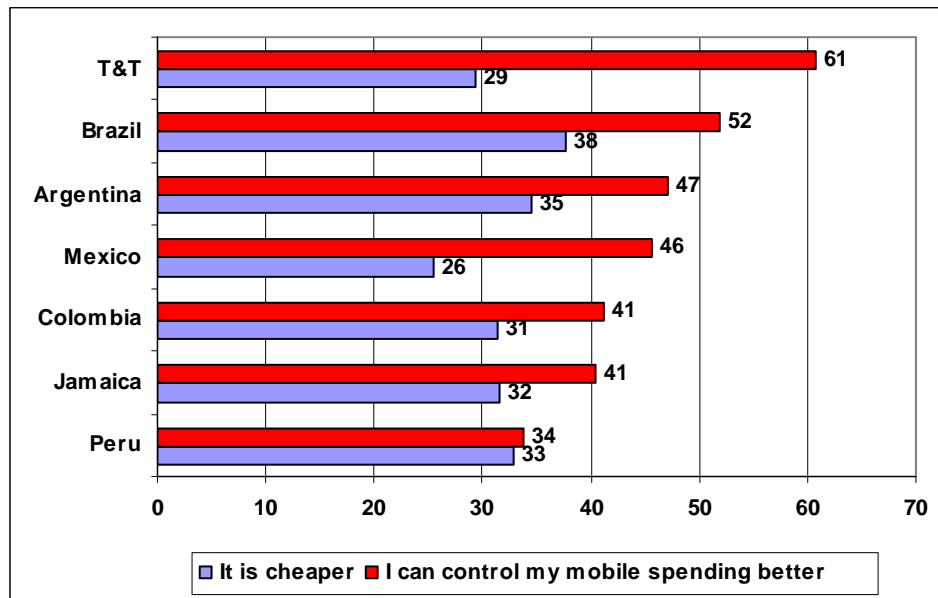
Our results also confirm the importance of prepaid service models for a population with fluctuating incomes and limited insertion in the formal economy. By and large, low-income mobile users prefer prepaid plans (see Figure 2). However, in a developed mobile market like Argentina, the solid performance of mixed plans (which combine a low fixed monthly fee with top-ups for extra credit) illustrate the potential of commercial innovations specifically targeted at the poor.

Figure 2 – Prepaid plans (% of total)



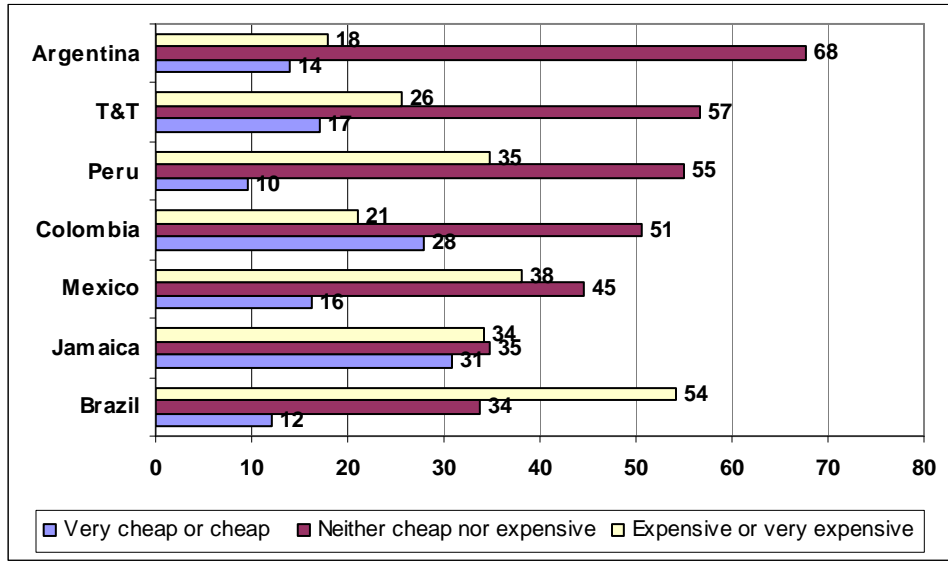
This preference for prepaid plans is based on two basic factors, as illustrated in Figure 3. The main motive is spending control: users value the ability to purchase credit when they have cash in hand, rather than committing to a fixed monthly charge. The other factor is cost: users perceive prepaid to be cheaper than postpaid plans. This counterintuitive result must be interpreted carefully. On the one hand, there seem to be information problems that prevent users from making accurate comparisons of per-minute costs between prepaid and postpaid plans. On the other hand, users are simply referring to total monthly costs based on their particular usage basket, which tends to be well below the postpaid service packages offered by the operators.

Figure 3 – Reasons for opting for prepaid mobile service (in %)



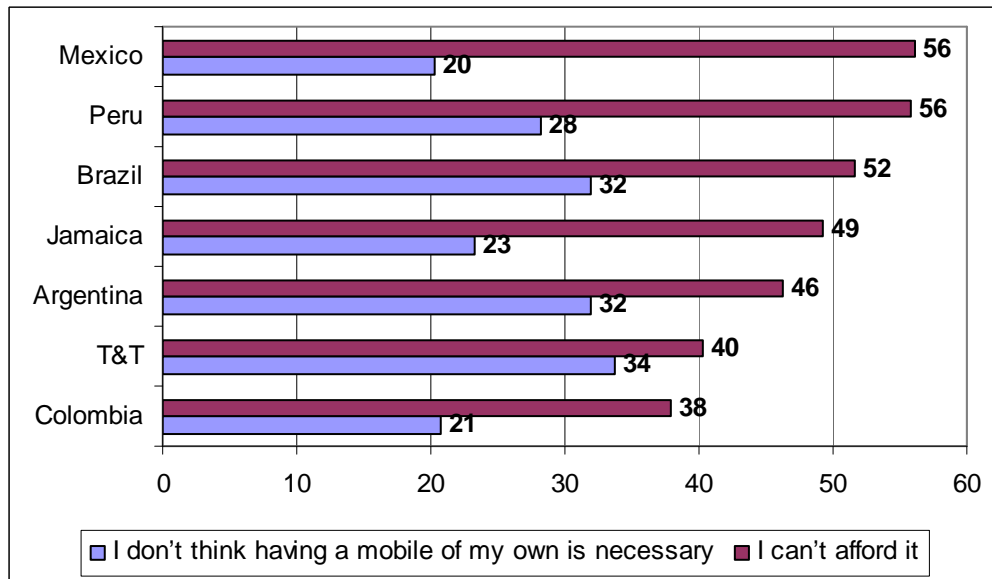
Interestingly, most users think mobile services are neither cheap nor expensive, though the percentage of users who consider the service expensive tends to be higher in markets with lower ownership rates, such as Mexico, Peru and most notably Brazil (see Figure 4).

Figure 4 – Mobile service cost perception (in %)



Service affordability remains a key barrier for increased adoption of basic as well as value-added services. This is confirmed by responses from non-users, who cite costs as the main reason for non-adoption, as shown in Figure 5.

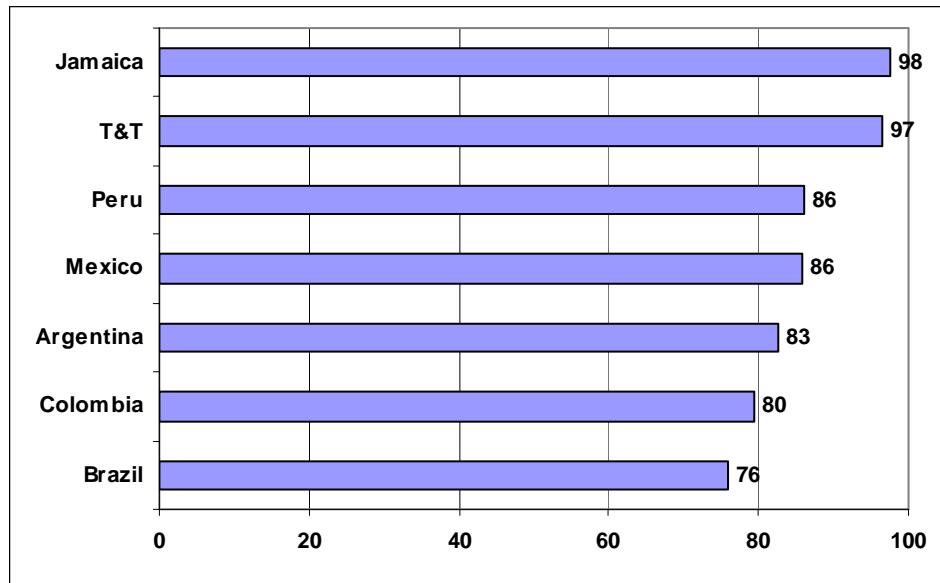
Figure 5 – Reasons for not owning a mobile phone (in %)



Generally we find that the poor highly value mobile services. This is not surprising given the lack of other alternatives, particularly traditional fixed services. Most respondents are willing to spend significant amounts on handsets, with averages ranging from USD 53 in

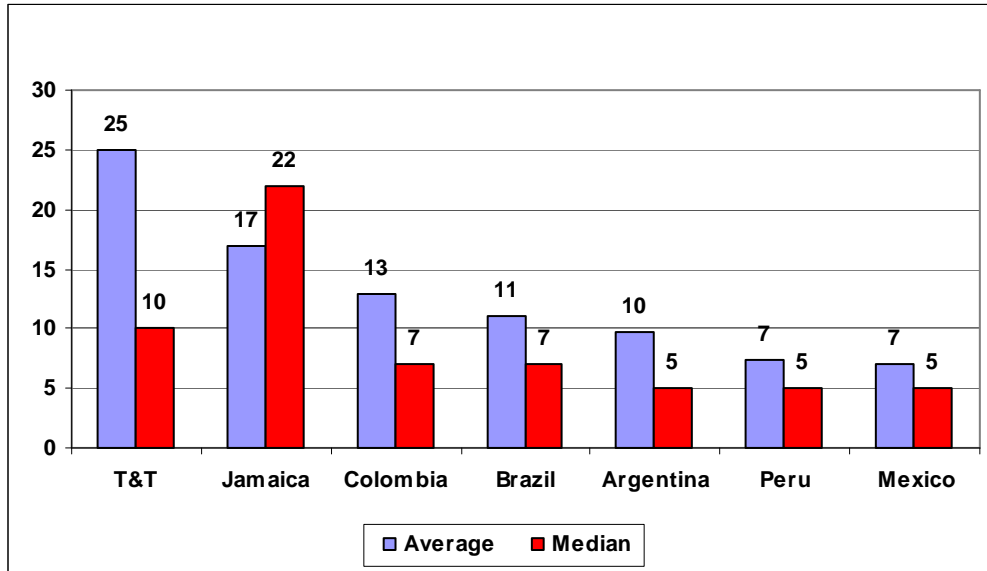
Peru to USD 68 in Argentina. In fact our results show that the informal market for second-hand handsets is relatively small (see Figure 6). Rather, the real driver of increased adoption is the trickle-down effect of handset replacement at the top of the income pyramid: in the more developed markets such as Argentina, over a third of respondents had obtained handsets as a gift from an acquaintance or family member.

Figure 6 – Owners who bought a new handset (in %)



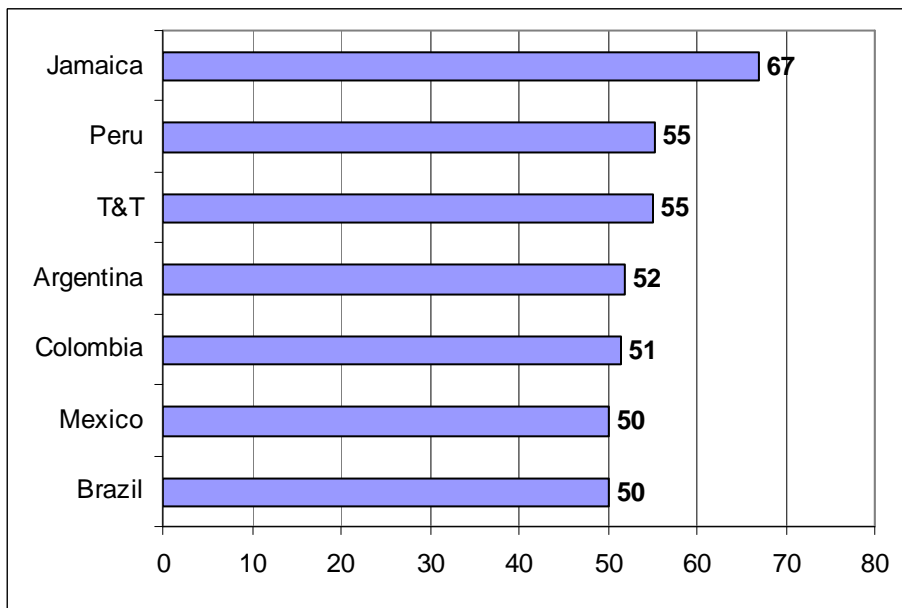
It is well known that existing tariff levels, combined with the calling party pays (CPP) system, lead low-income users to make very limited use of mobile phones for outgoing calls. Our results show that most users in Latin America make less than one call a day (see medians in Table 7), while outgoing call levels are higher in Caribbean countries because of more affordable tariffs. These results also explain the preference for prepaid plans, since most operators do not offer fixed-rate plans for such low volumes of outgoing calls.

Figure 7 – Total outgoing calls per week (average and median)



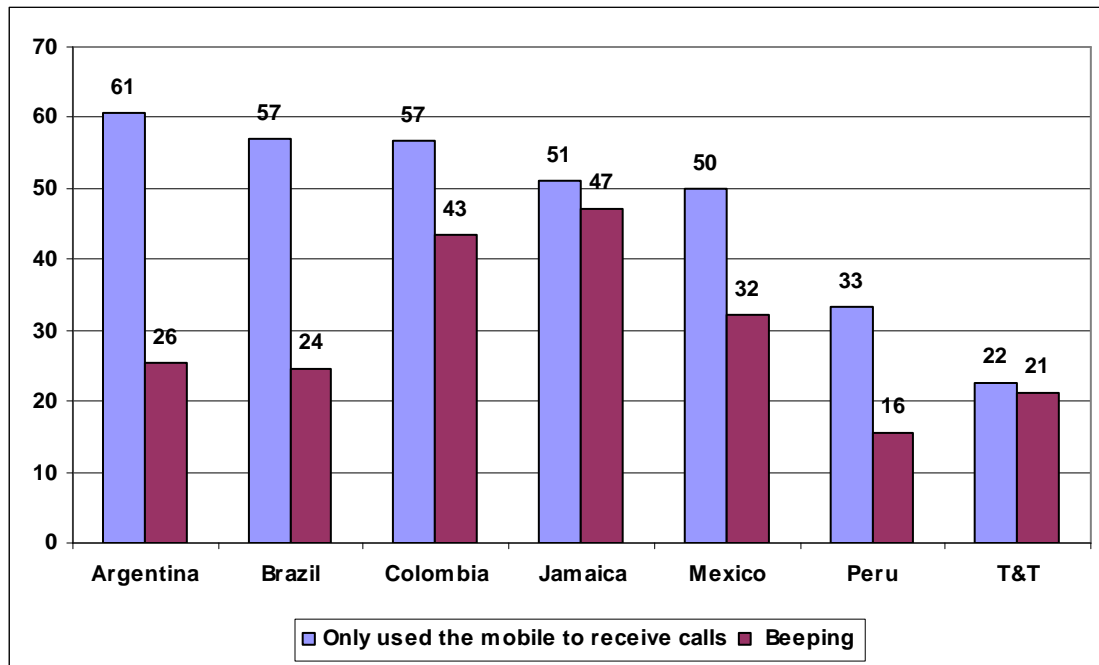
A surprising result is that the number of incoming calls is only slightly higher than outgoing calls, with the sole exception of Jamaica. Contrary to the common perception that poor users receive many calls but make very few, we find that volumes of incoming and outgoing calls tend to be closely related, as Figure 8 demonstrates.

Figure 8 – Incoming calls over total calls (in %)



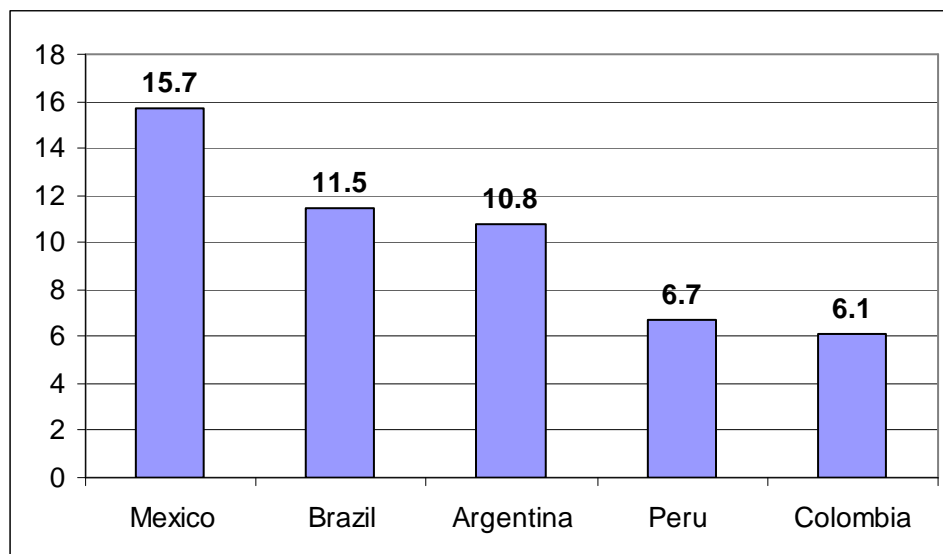
In addition to making a very limited number of outgoing calls, the poor utilize other cost-control strategies that involve so-called ‘beeping’, or simply not making outgoing calls for a period of time. In fact, in most of the countries studied, over a third of respondents had not made a single outgoing call in the last week (see Figure 9).

Figure 9 – Most common cost-reduction strategies (% of users)



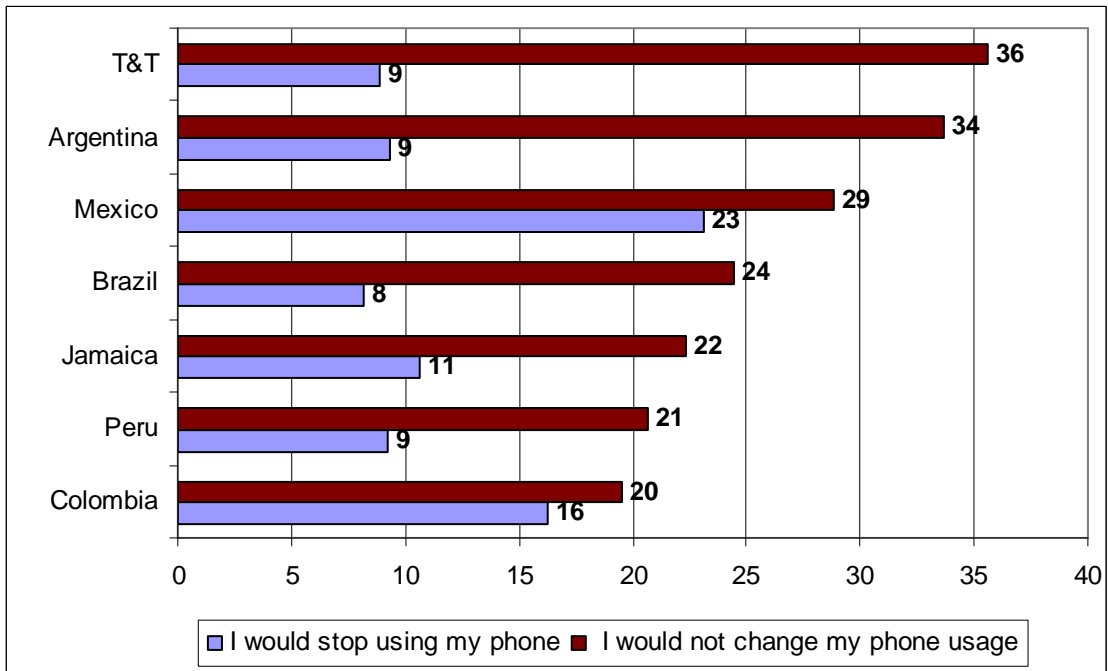
Our results reveal that the poor represent a significant market for mobile operators, with higher than expected average per capita expenditure. As shown in Figure 10, average monthly spending on mobile services in Latin America ranges from USD 6.1 in Colombia to USD 15.7 in Mexico, while in Caribbean nations expenditure levels are considerably higher.

Figure 10 – Average monthly spending on mobile telephony (USD)



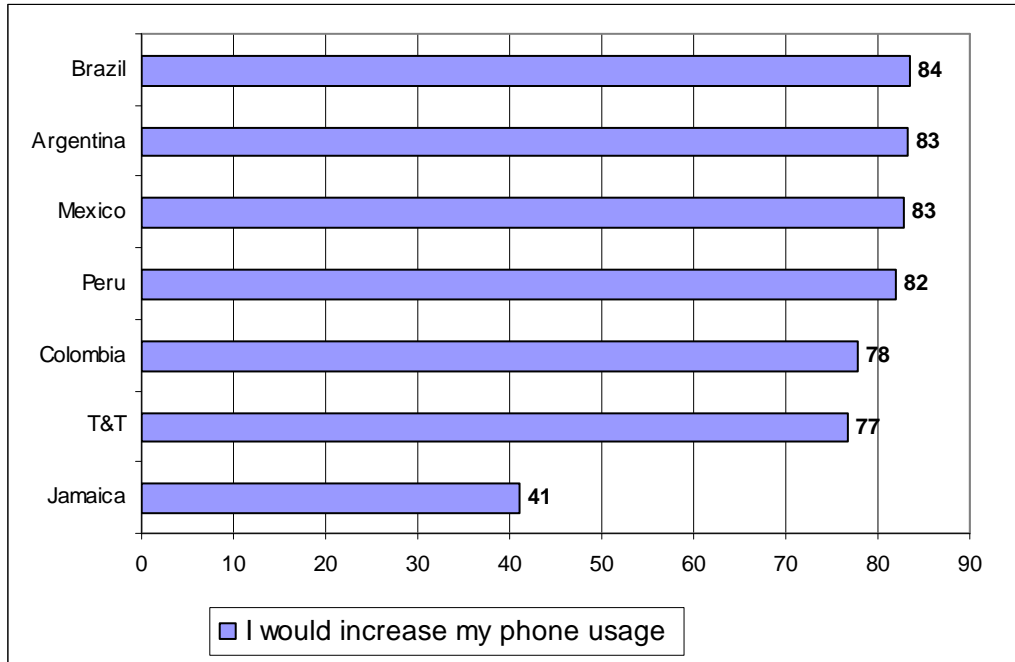
While accurate income data is difficult to obtain in this type of survey, our estimates reveal that average spending on mobile telephony as a percentage of income ranges from 3.2% in Brazil to 6.3% in Argentina, though there are indications that in some cases users can spend well above 10% of their monthly income on mobile services. We also found that demand for mobile services at the bottom of the pyramid appears to be rather inelastic to tariff variations, though price elasticity tends to rise with income levels. In general, poor users highly value the few calls they make or receive and would not significantly change usage patterns as a result of price increases. However, for some users there appears to be a threshold point after which they would simply stop using mobile services (see Figure 11).

Figure 11 – If the cost of using a mobile phone doubled... (in %)



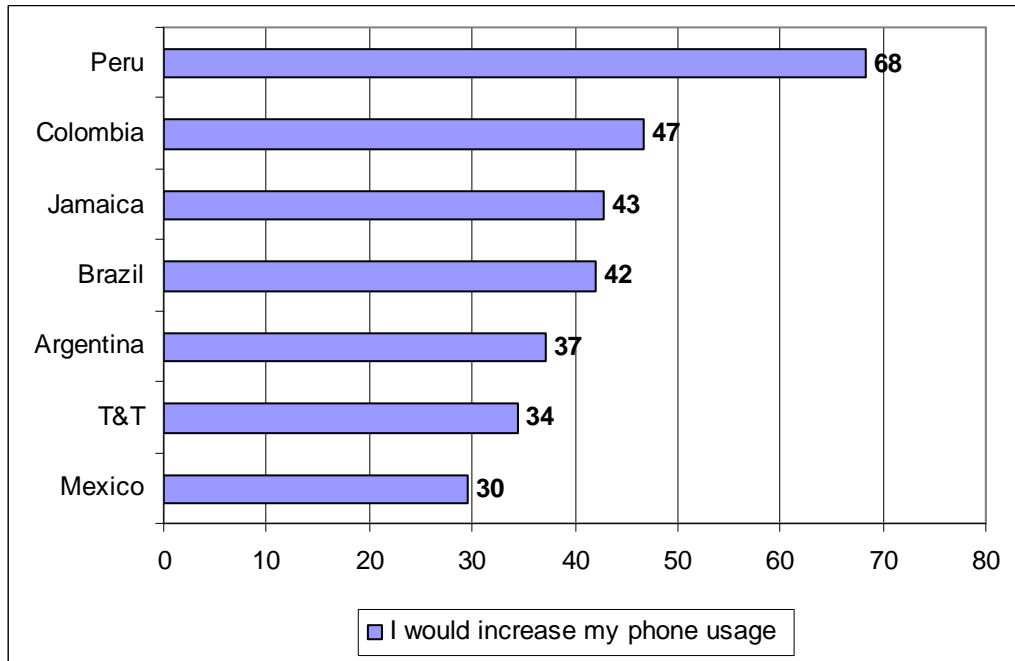
At the same time, our results confirm that current tariff levels represent a significant deterrent to use: most users would significantly increase their consumption of mobile services if the costs were reduced, as shown in Figure 12.

Figure 12 – *If the cost of using a mobile phone halved... (in %)*



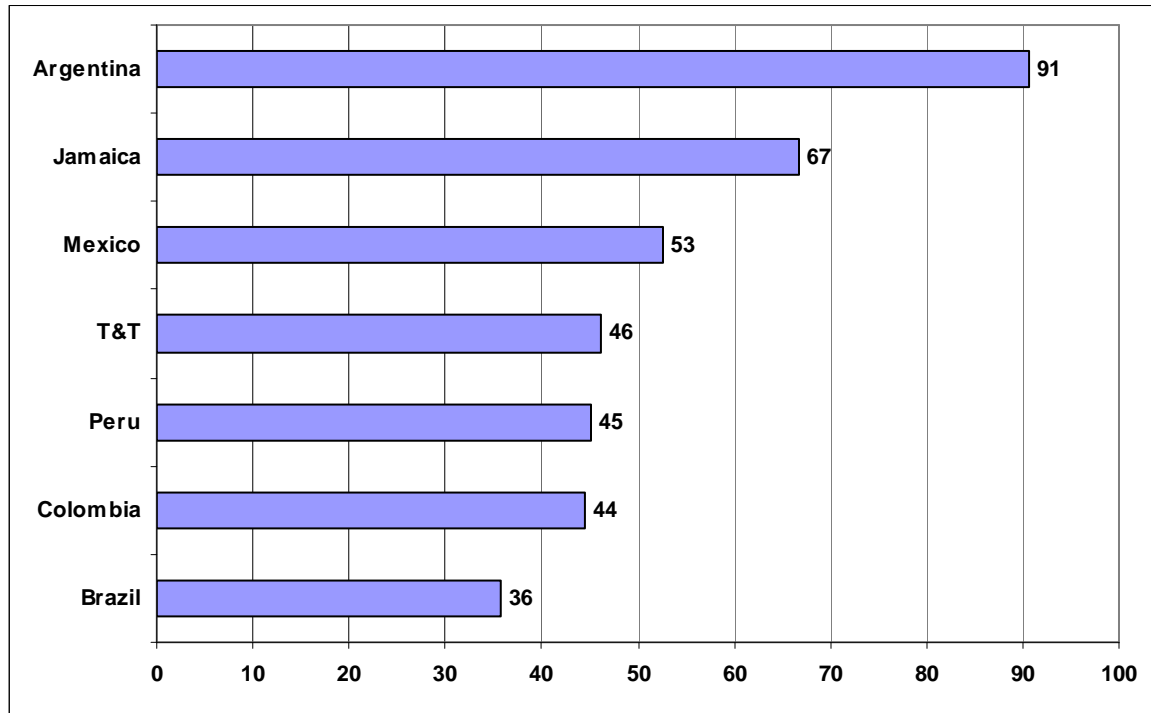
Though lower than expected, income elasticity of mobile use also appears significant in some cases such as Peru (see Figure 13).

Figure 13 – *If your income doubled... (in %)*



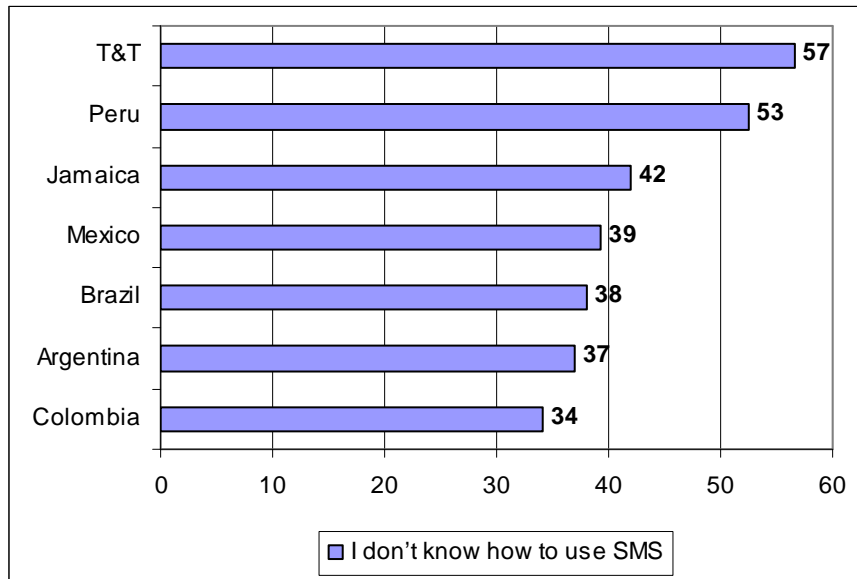
Meanwhile, despite increased adoption, users are not taking full advantage of the services enabled by the mobile platform. Text messaging (SMS) is the only service beyond voice that is gaining rapid adoption across the region. In the more developed markets such as Jamaica and Argentina, the large majority of low-income mobile users have used SMS services. However, factors such as literacy levels seem to have deterred adoption in other countries, notably Brazil (see Figure 14).

Figure 14 – SMS use among mobile users (in %)



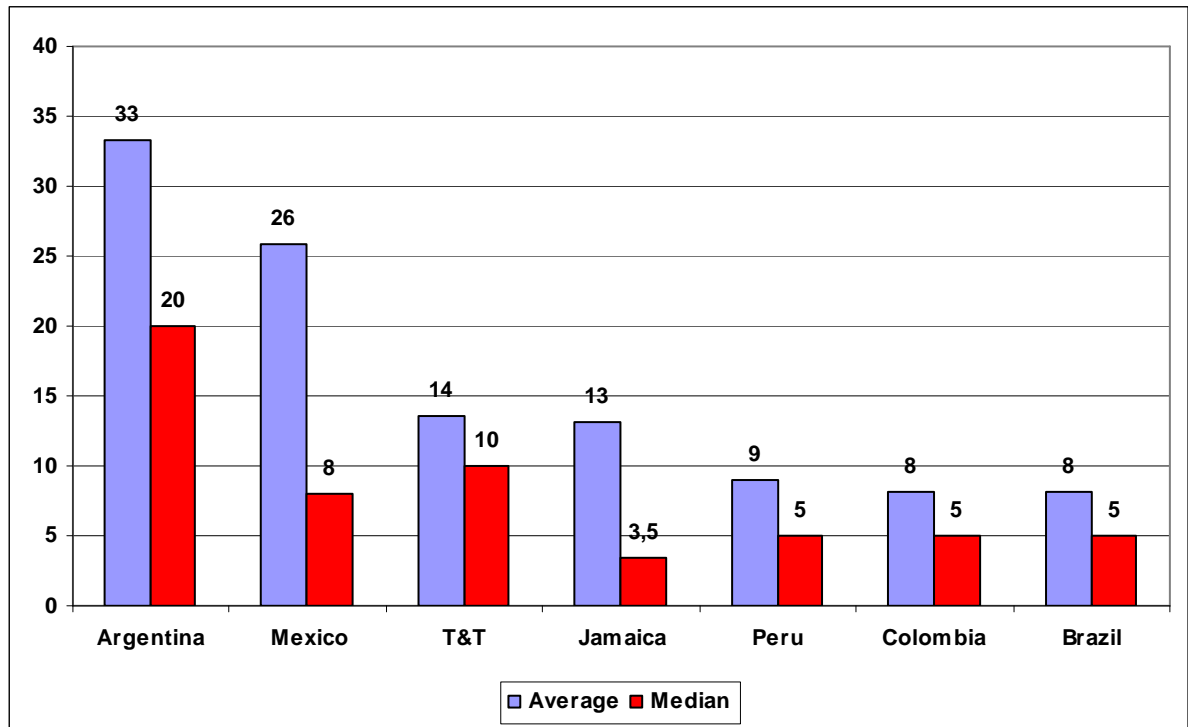
As shown in Figure 15, the main reason mentioned for not using SMS services is lack of knowledge, which is not surprising given that most respondents are relatively new users (two years or less). In fact, our results suggest that adoption of services beyond voice increases over time, as users inch up a technological learning curve.

Figure 15 – Main reason for not using SMS services



In most markets the current structure of tariffs creates incentives for intensive use of SMS as a cost-control strategy. As shown in Figure 16, the volume of SMS use is significantly higher than the volume of voice calls, particularly in markets with high SMS adoption rates such as Argentina.

Figure 16 – Total outgoing SMS per week (average and median)



Aside from text messaging, low-income users make little use of mobile services beyond voice. In the more developed mobile markets such as Jamaica and Trinidad and Tobago, there is some usage related to downloading ringtones and participating in radio/TV games, but the use of more sophisticated services such as banking and government services is practically non-existent. This represents a significant untapped opportunity for the delivery of information and transaction services by the government as well as market actors, given the relatively high level of adoption of this transaction platform among the poor.

The main perceived benefit of mobile use among the poor is improved communication with family and friends. This is consistent with the fact that most mobile calls are made to or received from friends and family, followed by business-related calls, as illustrated by Figures 17 and 18.

Figure 17 - Destination of outgoing calls (in %)

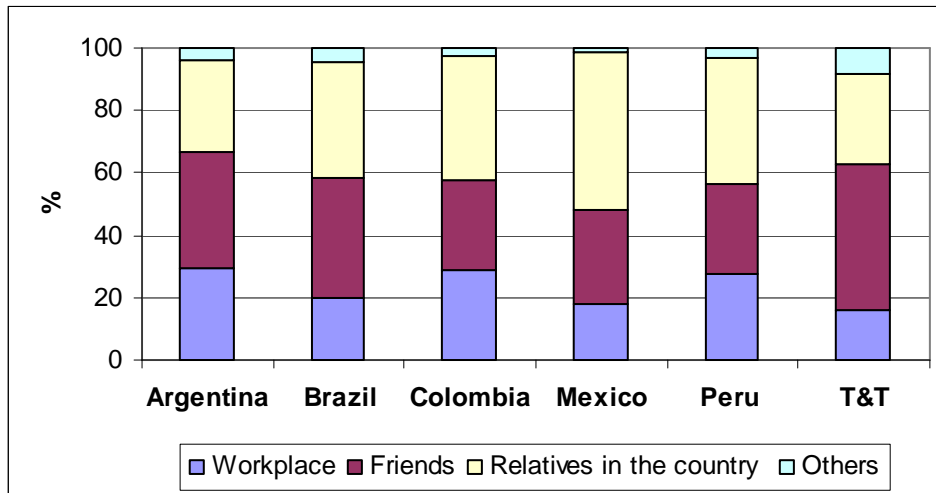
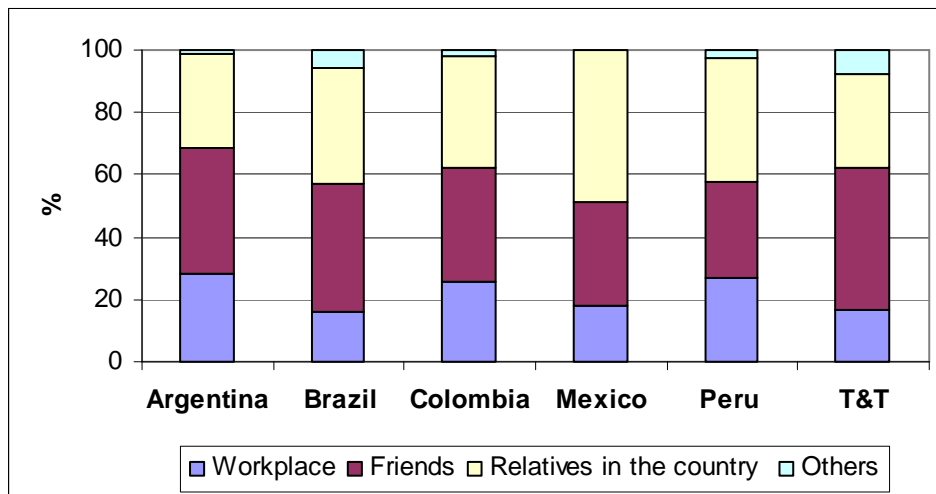
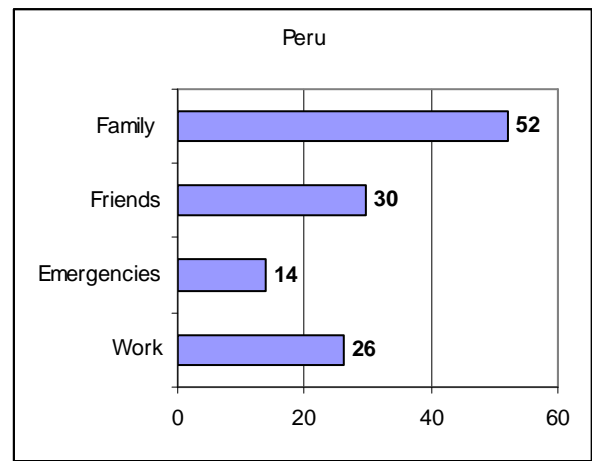
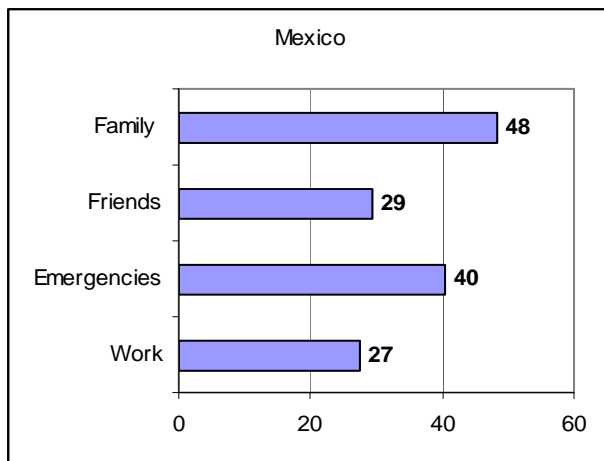
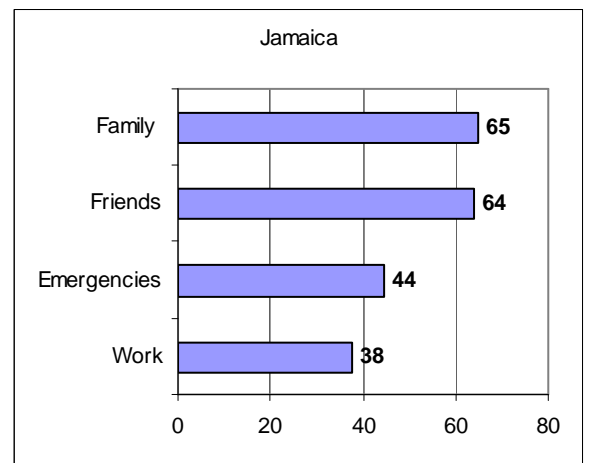
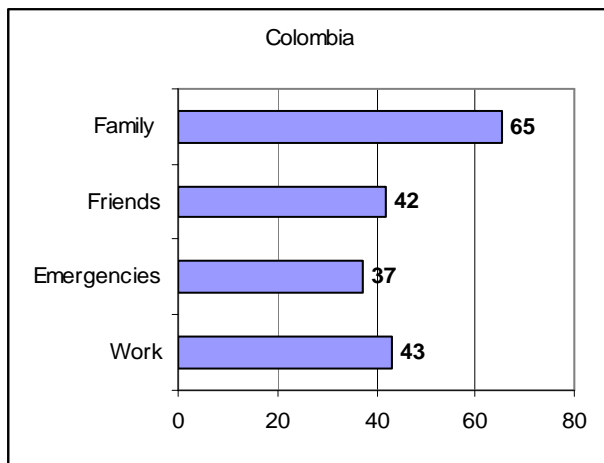
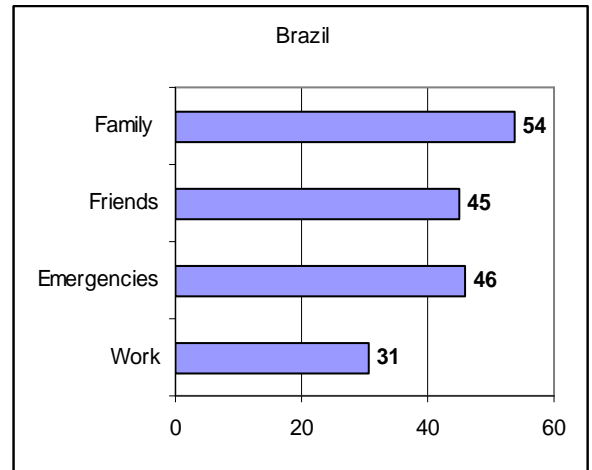
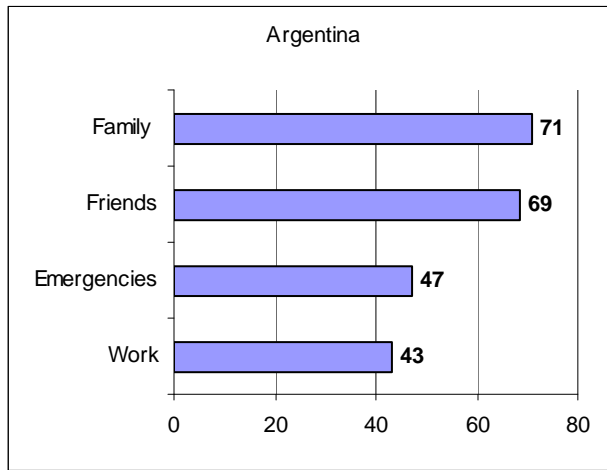


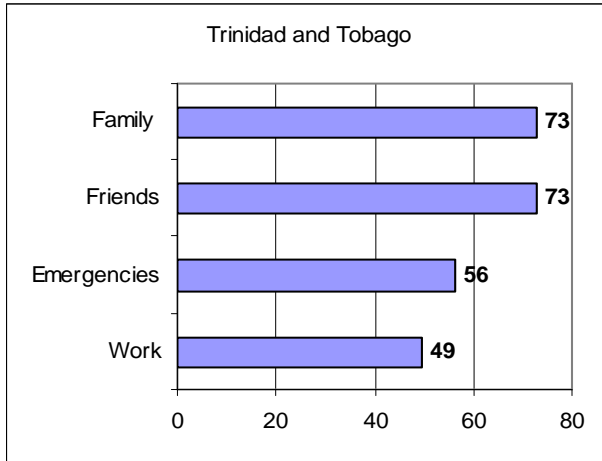
Figure 18 – Origin of incoming calls (in %)



In other words, as illustrated by Figure 19, the main value associated with mobile phones is the strengthening of existing ties, although increased personal security (in emergencies, for example) is also frequently mentioned as a major benefit. Increased business opportunities also appear to be an important factor, particularly for longer-term users. In the case of Mexico and Peru, it is interesting to note that those who use the phone for work-related reasons tend to have higher call volumes. Overall, our results suggest that the economic impact of mobile adoption by the poor is mediated by social capital variables such as the strengthening of trust networks and improved coordination of informal job markets.

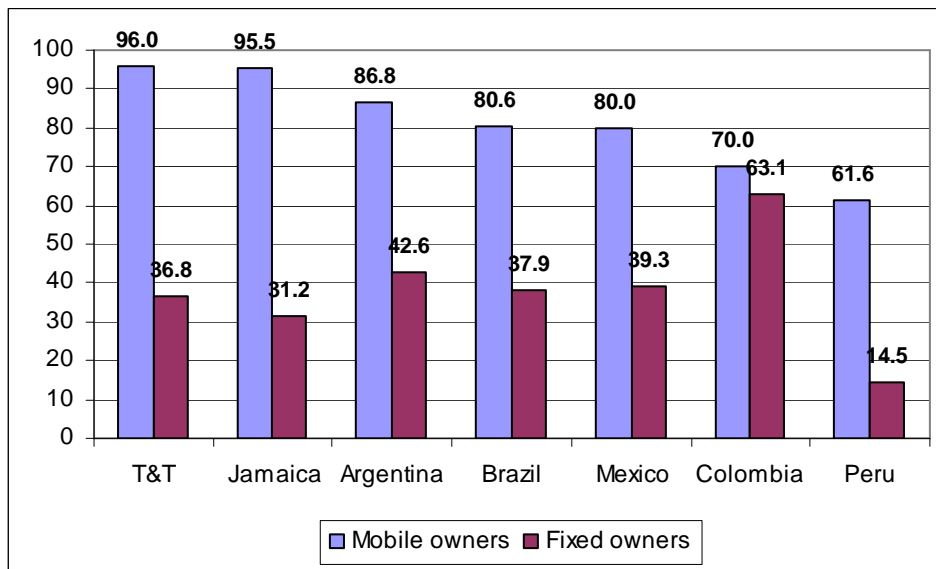
Figure 19 – Perceived benefits associated with mobile use (in %)





Finally, our results revealed that beyond mobile networks, the poor have limited access to other communication platforms (see Figure 20). With the notable exception of Colombia, most respondents lack fixed telephony services in their household, which confirms that legacy fixed networks are distributed much more unevenly than new mobile ones. When semi-urban areas are included, these differences are exacerbated, such as in the case of Peru.

Figure 20 – Mobile and fixed telephony ownership (in %)



A similar pattern is found with respect to internet access. With the exception of Peru, the poor seem relatively uninterested in the internet, though usage tends to rise among the younger population. Interestingly, the factors that explain the lack of internet use by the poor are only partly related to affordability or infrastructure availability, since in most

urban areas there is plentiful internet access via public access centres (such as cybercafés) offering relatively inexpensive hourly access (at least compared on a per-minute basis with mobile tariffs). Our results revealed that the poor simply perceive no benefit in using the internet, with the exception of a small percentage of youth who consider it useful for school purposes and keeping in touch with friends. This represents a red flag for universal access policies exclusively centred on internet/PC shared-access programs. For the poor, the mobile phone has long become a more relevant and familiar platform than the internet.

Our results also show that public phones – often overshadowed by other priorities in universal access programs such as telecenters – continue to play a very significant role for the poor, often as a complement to mobile services (see Figure 21). Cost, convenience and simply the lack of other options are the reasons most often mentioned for the continued use of public phones by the poor (see Figure 22), despite increased availability of and access to mobile telephony.

Figure 21 – Use of public telephony in the last month (in %)

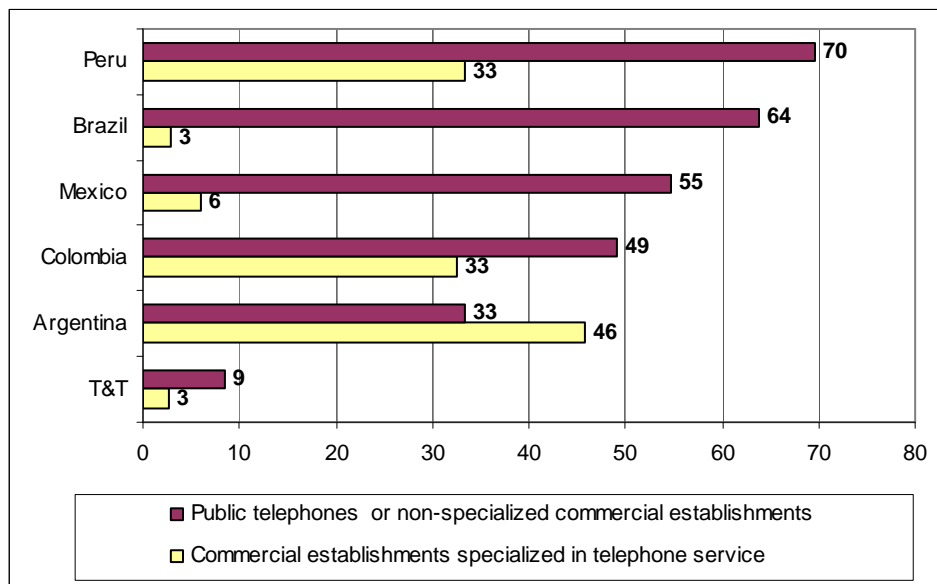
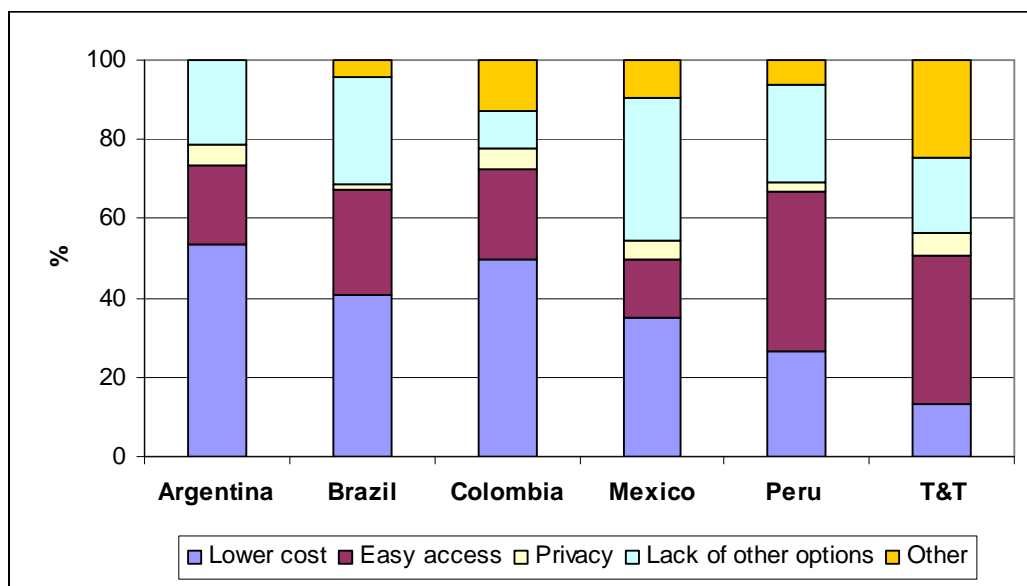


Figure 22 – Reason for using a public payphone (in %)



4.0 Conclusion

The goal of this report was to contribute to the discussion about how access to mobile telephony contributes to improving the livelihoods of the poor in Latin America and the Caribbean – what we call *mobile opportunities*. Our results show that mobile telephony is highly valued by the poor as a tool for strengthening social ties and for increased personal security, and that it is beginning to prove useful for enhancing business and employment opportunities. Overall, the survey results suggest that mobile adoption for the poor has economic impact that is expressed mainly in terms of improved social capital variables such as the strengthening of trust networks and better coordination of informal job markets.

Given their limited access to traditional fixed telephony, the poor attribute a significant improvement in quality of life to mobile access. Demand for mobile services at the bottom of the income pyramid appears to be rather inelastic to tariff variations. The significant level of expenditure on mobile handsets and services found among these low-income populations is also consistent with the numerous benefits perceived by users. Nonetheless, affordability barriers are still present, deterring entry and increased use. In countries like Mexico, Brazil and Peru a majority of the poor still cannot afford a mobile phone, though some rely on informal service resellers and family or friends to make or receive calls. Those who can afford their own mobile phone make little use of voice and other services, tightly controlling their expenditure and often relying on public payphones for outgoing calls. These findings reveal the continued need to innovate in business models that extend the market frontier for mobile telephony. They also highlight the urgent need to rethink public policies that are premised on the mobile phone as a luxury good. For the poor, mobile telephony has long become the most cost-effective and accessible alternative.

Since affordability is the most significant barrier to extending the reach of mobile services, as well as the range of services offered to the poor, priority should be placed on policies aimed at reducing tariffs. Enhancing competition through increased spectrum allocation, reducing taxation levels, lowering interconnection rates, and the implementation of number portability are among the initiatives worth considering. Tariff reductions need not penalize operators. Our results show ample room for win-win initiatives that increase overall traffic and create new commercial opportunities for operators and third-party service providers, ranging from simple information to more complex transaction services.

Along these lines our results also reveal that users are rarely taking full advantage of the services enabled by the mobile platform. Text messaging is the only service beyond voice that is gaining rapid adoption. Many of the applications that could most benefit the poor, such as m-banking and m-government, are still in their infancy in the region. Seizing the poverty-reduction opportunities created by the widespread adoption of mobile phones among the poor will take a concerted effort between market actors and governments. And as users hike up the technological learning curve, and handset prices continue to drop, these mobile opportunities should only increase.