Handbook of Mobile Communication Studies

edited by James E. Katz

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6 Mobile Communication in Mexico: Policy and Popular Dimensions

Judith Mariscal and Carla Marisa Bonina

Mexico specifically and Latin America generally have followed many of the mobile communication trends seen elsewhere in the world. It has seen unexpectedly rapid growth, and access to mobiles is outstripping fixed access. During the mid-1980s, mobiles were considered a rich person's device, but mobile telephones are today proliferating among the poor, often providing them with their only source of telecommunication access. This chapter examines major contours of the situation of mobiles in Mexico, and reports on a snapshot survey on mobile usage among youth undertaken specifically for this volume.

Development of the Mexican Mobile Industry

In Latin America, from 1995 to 2005, the number of mobile subscribers increased nearly 57 times, from 4 million to 227 million in 2005. This increase is yet more dramatic when one considers that until 1997, mobile telephony was a secondary business for incumbent companies. Fixed teledensity surpassed mobile penetration and investment in fixed telephony, being relatively sheltered from competition and operating within a relatively weak regulatory environment, seemed to promise a major source of income. Mobile telephony firms, on the other hand, were subject to intense competition. Therefore, as the mobile companies were facing serious difficulties in generating profits, the firms in the fixed sector owning mobile sister companies did not consider this branch of their business as very promising (Mariscal and Rivera 2005). After 1998, while fixed teledensity tended to stagnate in most countries, mobile telephony began to grow at double-digit rates. This dramatic growth changed the access to voice communications; what initially appeared as a means of communications restricted to high income groups was transformed into the main means of telecommunications access to the poorer groups of the region.

This same pattern of growth was experienced in Mexico. Mexico initiated in 1990 a process of major reforms in its telecommunications sector, with the aim of modernizing the network on the one hand, and opening the country to international trade and

investment on the other. The second phase of reforms began in 1994 when national and international long distance services were opened to competition. Although in 2001 Mexico had nine competitors in the mobile arena, due to consolidation and business strategies, after a half-decade less than half remained in the market. Telcel dominates with 75 percent of the market, with concomitant impact on prices. Among the other market participants, Telefónica Movistar is in second place with 14 percent, and Iusacell, Unefón, and Nextel have a small residual. Like the rest of Latin American, even though the mobile communication segment is open to competition, the market has become a duopoly.

The Pattern of Growth in the Mexican Mobile Market

Similar to most Latin American countries, Mexico's growth in mobile telephony has been extraordinary. While in 1990 Mexico had 64,000 subscribers, mostly limited to the higher echelons of society, by 2005, the number had increased to 44 million. Prepaid mobile systems introduced in 1995 and ''calling party pays'' modality (CPP) introduced in 1999 have resulted in impressive growth and penetration rates, as can be seen in figure 6.1. Growth in mobile telephony far surpasses that of fixed telephony. Figure 6.1 depicts the evolution in the penetration of fixed and mobile telephony in Mexico.

A significant characteristic in the dynamic growth of the Mexican mobile sector is the predominance in prepaid subscribers as a proportion of total subscribers in the country. As can be seen in the figure 6.2, Mexico has the highest rate of prepaid subscribers (93 percent) in Latin America.

This phenomenon may be due to the fact that a prepaid modality was introduced right after Mexico's December 1994 economic crisis and prepaid services were pro-

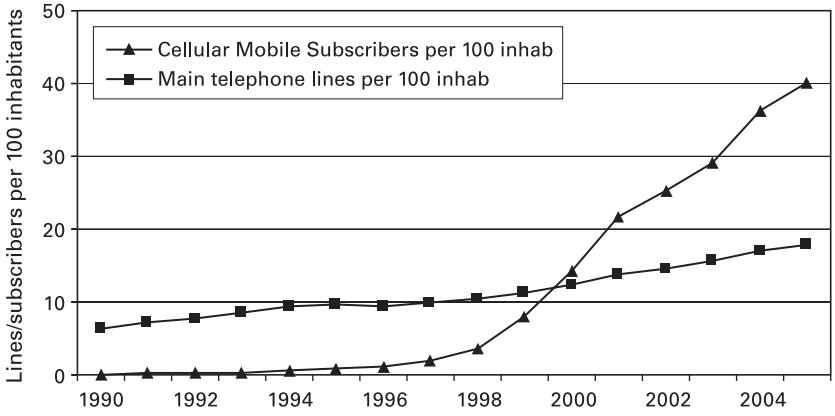

Figure 6.1
Fixed versus mobile telephony in Mexico, 1990–2005.

moted aggressively by Telcel to avoid any credit risks associated with telephone credit. The second reason has to do with the lower costs in the chains of distribution; Telcel is a member of the Carso Group, which is a conglomerate made up of not only telecommunication but also financial and other companies as well. Hence, the costs of distributing prepaid cards were very low given the large number of sales points available within the company.

In sum, as in other developing countries, the rapid diffusion of mobiles in Mexico has had a stronger impact on obtaining the policy goal of universal access than had traditional policies aimed at this goal. Among the policies for mobiles that have fueled the dramatic growth are prepaid cards and ''calling party pays.'' Together, these policies have helped millions overcome barriers that low income people have traditionally faced when seeking to gain mobile service.

Mobile Usage in Mexico: Gender, Age, and Socioeconomic Levels

This section identifies the usage patterns in different groups in Mexico, particularly in terms of gender, age, and economic status. It draws on a Telefónica Movistar de México (TEMM) nationwide survey conducted in May 2005. This nationwide survey was of about four thousand people above the age of fourteen.

Gender

In Mexico, there are relatively more men than women among current mobile phone users (55 percent men versus 47 percent women). Among former users, 14 percent were men versus 9 percent women. Interestingly, the surprisingly high percentage of

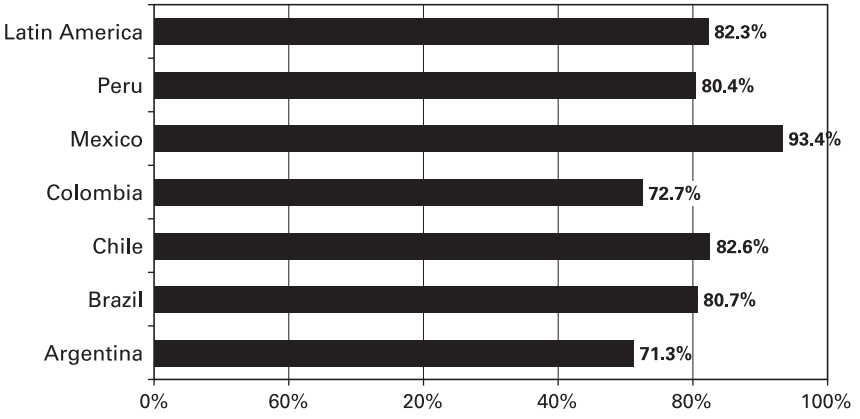

Figure 6.2
Prepaid subscribers as a percentage of total subscribers in Latin American countries, 2004. Source: Authors.

mobile phone ''dropouts'' fits with the discovery of a comparable phenomenon in the United States by Katz and Rice (2002). In Mexico, more than nine out of ten users have prepaid plans. While men have a slightly higher proportion of postpaid plans (10 percent) compared to women (8 percent), the difference is probably not very consequential.

According to another nationwide survey carried out in June 2003, the two main reasons for females to get a cell phone were to be easily reachable (30 percent) and for security or an emergency (23 percent). On the other hand, men's main reason for getting a mobile was to make personal calls (26 percent), followed by making job-related calls (22 percent). Noteworthy was that only 10 percent of females considered work purposes as the main reason for purchasing a mobile, compared to 22 percent of males. Prices or costs were not important determinants of cell phone acquisition (but of course those without cell phones were not included in the survey).

Age

There are differences in usage of mobile telephony by age. As can be seen from figure 6.3, in 2005 young adults age twenty-five to thirty-four show the highest adoption rate. Perhaps surprising is that teenagers and youth, fifteen to twenty-four years old, also widely adopt the cell phone, especially when compared to those in the next older (and presumably richer) category. This high level, though, is understandable when one considers that the younger generation is a target of mobile operators in Mexico, who address their new products and publicity campaigns to this generation. For instance,

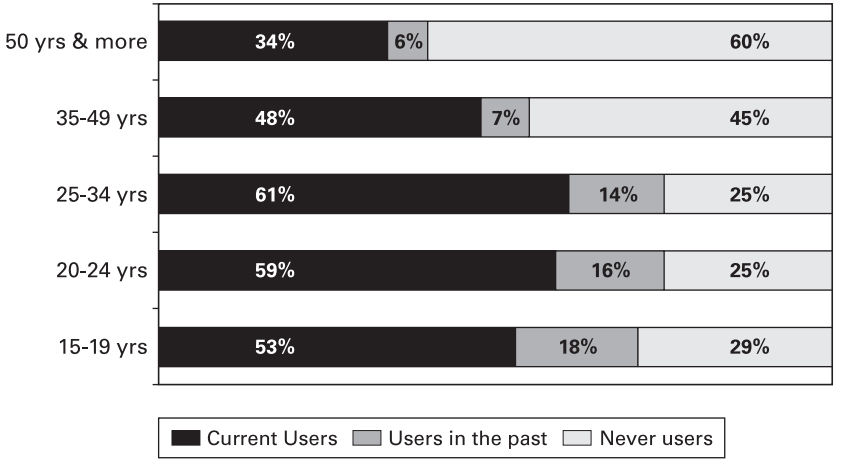

Figure 6.3
Mobile phone penetration by age group in Mexico. Source: Authors, derived from TEMM 2005.

Telcel—the most important player in the industry—has focused on the teenage and even the children's market by launching new phones based on popular cartoons and television characters. The fourth section of this chapter explores in more detail the youth and teenagers market.

The fifty-and-older age group has the lowest penetration rate, which is typical of the pattern worldwide. The distribution suggests that adoption is heavily a function of social location and not income. It may also be due to the typical resistance that older people often show to new technology, as seen in figure 6.3.

Preferences regarding payment options show, again, that the prepaid modality is preferred by every age group in more than 85 percent of cases (figure 6.4). People age thirty-five to forty-nine show the highest usage rate of postpaid plans. This might be due to their higher participation in the labor market and the resulting higher average income.

Socioeconomic Levels

The concept of ''socioeconomic levels'' (SEL), an industry standard defined by the Mexican Association of Market Research and Public Opinion Agencies (AMAI), can be used to analyze the growing use of cellular telephones by low income groups. The SEL are divided into five groups—A/B, C+, C, D+, D, and E—where the A/B group encompasses the highest income ranges of the population while the E group covers those with the lowest income level and quality of life.

Drawing on data generated by two Telefónica Movistar of México surveys, we can analyze the use of mobile telephony by low income groups. Table 6.1 provides

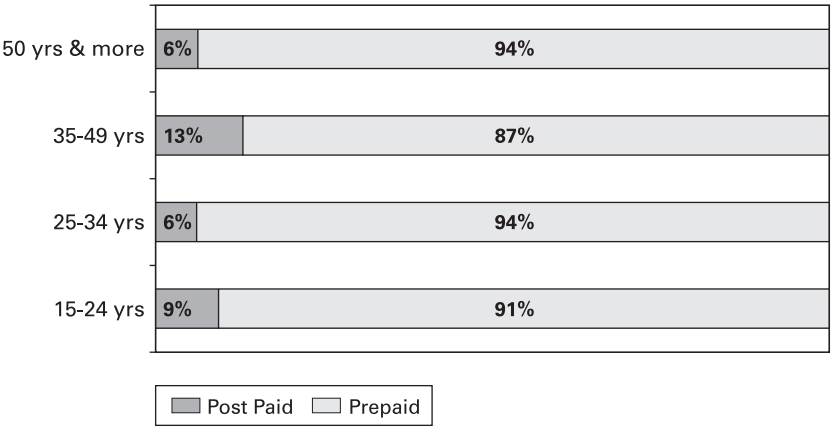

Figure 6.4
Age-based usage by payment options. Source: Authors, derived from TEMM 2005.

Table 6.1
Mobile Penetration by Socioeconomic Level, 2003

	Socioeconomic level (in percent)		
	A/B, and C+	C and D+	D and E
Overall distribution of population	10.8	32.9	56.3
Postpaid subscribers	19	8	6
Prepaid subscribers	81	92	92
Mobile penetration within level	85	43	9

Source: Telecom CIDE (2006) derived from a 2003 nationwide TEMM survey of approximately 5,000 people

indicators for 2003. In 2003 the use of mobile telephones was predominately in the higher income sectors of the population (85 percent of all people in the highest SES category). On the other hand, in 2003, the lowest income group also included users of mobile telephony—one in every eleven had a mobile telephone!

Nevertheless, penetration in the past two years tells a different story. According to recent data provided by TEMM, the mobile telephone has become a common tool among the lower income sectors. While in 2003 only 9 percent of the individuals classified within the D and E socioeconomic levels were users of mobile telephony, by 2005 the number had tripled and reached 27 percent of the population in those brackets.

In the higher income sectors, on the other hand, the number has not changed significantly. This could be expected since the percentage of the population using mobile telephones in that income bracket was already high. (It also suggests that there may be barriers to virtually 100 percent penetration, even when costs are of little real consequence.) Still, the middle class, associated with SEL C and D+, has also shown a growing use of mobile telephones as evidenced by an increase from 43 percent in 2003 to 51 percent in 2005. This is seen in table 6.2.

The increasing use of mobile telephones by the low income groups is mostly due to the lower access and usage costs enabled by the prepayment system and the ''calling party pays'' (CPP) arrangement. (Under the prepaid system, users have the advantage of controlling their telephone expenses, eliminating the risk of escalating debts. Users have no fixed monthly charges and can determine their level of expense and usage. Together with the CPP modality, even if the telephone no longer has credit, the user can continue receiving calls, allowing for continuing connectivity.) When analyzing the segment of prepayment specifically, using tables 6.1 and 6.2, both in 2003 and 2005, the groups most intensively using this modality are those falling within SELs D and E. This provides lower income people with increased autonomy from other alter-

Table 6.2
Mobile Penetration by Socioeconomic Level, 2005

	Socioeconomic level (in percent)				
Subscription status	A and B	C+	C	D+	D and E
Postpaid subscribers	28	12	6	6	4
Prepaid subscribers	72	88	94	94	96
Mobile penetration (per group)	89	75	67	42	27

Source: Telecom CIDE (2006) based on nationwide survey by TEMM

natives such as community centers, where there are often restrictions to receiving calls. It is important as well to have the means to be located in order to get jobs, since among the lower income groups temporary employment is predominate. So the main reasons mentioned by the mobile users of socioeconomic level D for purchasing a cellular telephone include needing to be located, making personal calls, and making job-related calls.

In sum, prepaid services were preferred by every group. Together with the introduction of prepayment in mobile telephony, the overall adoption of the ''calling party pays''—where the user does not have to finance incoming calls—has translated into a major increase in demand and contributed to a major growth in coverage in Mexico.

Mobiles and Youth in Mexico City: Findings from a Small Survey

Youth and teenagers are the most enthusiastic users of mobile telephony in many countries around the world. Mobile phones have become not only a status symbol and a fashionable good for young people but also a new mode of socializing, particularly in developed countries but elsewhere as well (Katz 2003). The ITU has even claimed that ''many teenagers don't recognize the difference between speaking on their mobile phone and meeting face-to-face'' (ITU 2004a, p. 12).

In Mexico, young people are increasing their use of mobile services, thereby transforming the way they interact and creating new social innovations. In this section, we explore how teenagers and youth are using cellular phones in Mexico, building our own research upon prior studies by the ITU (2004b) and MACRO (2004). The ITU study was designed to explore mobile usage patterns and trends of young students from the United States, and the MACRO report replicates it in the Indian context. We sought to use the same variables in our Mexican study, hoping in part to build upon previous findings in other countries. However, our survey was not aimed to be a rigorous scientific study but rather to give a first look at the current situation; certainly the topic is worthy of more detailed study, which we hope to do in the future, and given

Table 6.3
Respondents by Age and Gender

	Gender (in percent)*		
Age Category	Females	Males	Category subtotal
15–19	44	29	N=28
20–24	25	43	N=26
25–29	31	29	N=23
Subtotal in percent	100	100	N=77

Source: Author's survey, 2005
*May not total to 100 due to rounding

the dearth of studies on the subject in Mexico we were happy to get at least a small project underway.

Our nonrandom sample was drawn from young people (age fifteen to twenty-nine) in high school, college, or graduate school in the west area of Mexico City; questionnaires were distributed principally at the Centro de Investigación y Docencia Económicas (Teaching and Research in the Social Sciences Center) (CIDE) and a private high school. Most of the respondents were full-time students though some were also working. While the number of observations in the sample is small, it still provides an initial overview of how youth use mobile services in Mexico. Out of seventy-seven respondents, 53 percent were female and 47 percent were male. Table 6.3 shows age and gender distribution of the sample.

About 90 percent of the overall sample of students had mobile phones, so only eight respondents did not. Of the eight respondents not owning a cell phone, three plan to buy one in the near future. Their main reason for believing they would be getting a cell phone was in anticipation of it being needed for work. Regarding gender and age groups, those who reported not owning a cell phone were male between twenty and twenty-four years old. Respondents from the youngest age group showed the highest rate of users, which is due to two main factors: many of them belong to a high income group and, as it was already mentioned, cellular phones have been spreading rapidly among teenagers during the past few years. On the other hand, 65 percent of the cases in the 25–29 age category were working and many of them cited they own a cellular telephone because of that.

There were at least four main reasons for those who do not own a cell phone; high costs represent the most important barrier. Interestingly, in other countries an important reason for not having a cell phone has to do with not being allowed to; this was not an important factor to the respondents of this survey. In fact, no one chose that answer. (For U.S. students and in an Indian study, ''not being allowed to'' was the second most frequently given reason for not owning a cell phone (ITU 2004b and

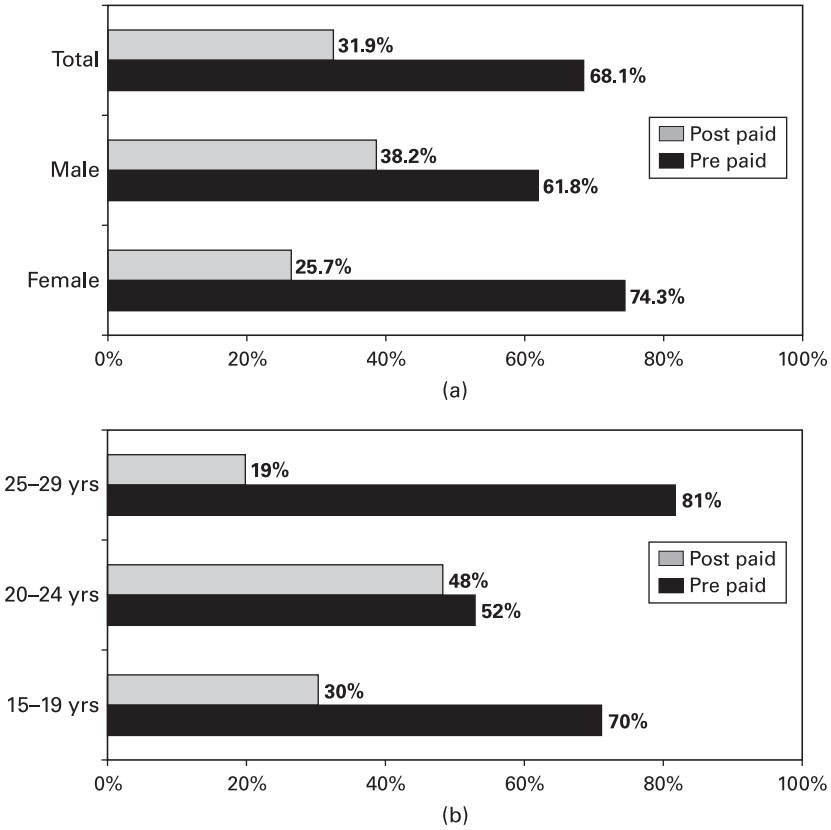

Figure 6.5a–b
Payment options by gender and age groups. Source: Authors' survey 2005.

MACRO 2004).) Having lost their mobiles was the other reason the respondents cited as to why they did not have a cell phone.

Modalities of Payment

As stated earlier, prepaid services are preferred in every category of analysis. From the total users, 68 percent were prepaid users while 32 percent had monthly rate services. When analyzing by gender, females showed a higher proportion of being on prepaid payment modality than men. Assuming that Mexico's reality is consistent with other surveys that find that females talk more on their cellular phones than males (MACRO 2004, pg. 18), the possibility of budgeting telephone expenses using prepaid services can explain this gender inclination toward this modality.

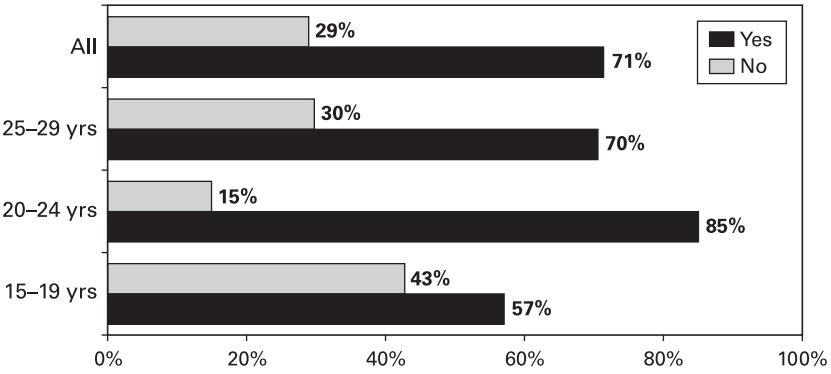

Figure 6.6
Perception of mobile phone versus face-to-face interaction. Answers to the question: ''Do you think there is any difference between speaking on your cell phone and meeting face to face?'' Source: Authors' survey 2005.

Calling and Usage Patterns

When asking if there is any difference between speaking on your cell phone and meeting face-to-face, almost a third of total respondents gave a negative answer. Interestingly, the amount of respondents in the 15–19 age group that stated not recognizing any difference between these two ways of communicating where the highest in the sample (43 percent). This pattern reaffirms what was pointed out at the beginning of this section regarding the blending of mediated with face-to-face communication.

In terms of mobile functionality, sending and receiving text messages are the most common activity among teenagers. As table 6.4 depicts, text messaging is the most common activity. Making local calls is important as well, but doing so is less frequent than using short message services (SMS). This trend was also found in other countries such as India and the UK where young people may prefer text to voice. This accords with ITU studies: in the UK more than eight out of ten people under the age of twenty-five are more likely to send someone a text message than to call (ITU 2004a, pg. 13). In the study of mobile phone usage in Mumbai, India, making local calls and text (SMS)-ing were reported as the most common activities as well (Macro 2004, pg. 22). On the other hand, activities such as downloading ringtones, playing games, and sending photos were reported as the less common actions. In the case of playing games on a cellular phone, the frequency proportion found among the respondents is surprisingly small compared with other countries. As found in the MACRO report (2004), industry reports indicate that mobile gaming can be considered the ''next big thing'' after SMS and ringtones (MACRO 2004, pg. 22). According to Mexican operators, while gaming

Table 6.4
Mobile Functionality

	Self-described frequency of use (in percent)		
Functionality	Always/Often	Sometimes/Rarely	Never
Sending text messages	93	15	2
Local calls	65	19	6
Long distance calls	18	53	29
Playing games	8	44	48
Sending photos	2	23	75
Downloading ringtones	2	21	77

Source: Author's survey 2005
N=69 for all functions

Table 6.5
Importance of Mobile Phone. Question: "Could you live without your cell phone?"

	Female	Male
Yes	51%	74%
No	49%	26%
	100%	100%
	n=41	n=36

Source: Author's survey, 2005
Female n=41; male n=36

still represents an incipient service, it will experience major advances in quality and use in the near future. The three main reasons explaining this are high costs, lack of habit of using mobile services other than voice, and the incipient penetration of modern devices capable of supporting gaming and other mobile services.

Another interesting question was related to the possibility of living without a cell phone. Surprisingly, 38 percent of our sample says that they would not be able to spend even a day without their cell phones. Many of the respondents said that they were quite used to having their cellular phones every day and needed to be constantly accessible to their friends, family, or colleagues. Moreover, some declared they get very nervous and anxious if they forget their mobiles at home, in their cars, or at the office (table 6.5).

Regarding gender analysis, females report being more prone to mobile dependence than were men. As table 6.5 shows, 49% of females said they could not live without a cell phone while males were at about a quarter only. Girls have less independence from their families than do males and that may explain this situation; indeed, women are

more likely to call home than men. Thirty-four percent of females stated they direct one out of every two calls to their families versus 28 percent of males; another 51 percent of females said they call home one of every three calls while the proportion of men in the same category was 40 percent.

Regulation and Usage Dimensions

Due to its popularity and rapid growth, the cell phone has for Mexico constituted the most effective tool yet for advancing universal access to communication. The country is enjoying its concomitant benefits. Regulatory changes in the industry and pricing strategies such as ''calling party pays'' and prepay systems have contributed to and support this development. The result is dramatically improved access to voice and text communication. A technology that initially appeared as a means of communication for only the highest income groups has been transformed into the principal means of telecommunication for the poorer groups of the region.

Analysis of usage patterns reveals that Mexicans by far prefer prepay modality. This is independent of gender, age, and income variables and is due mainly to the benefits offered by the prepayment system both to the operators as well as to the users. To the companies, advantages include reducing fraud, monthly bills, and collection costs. To consumers, advantages include control of telephone costs and ease of acquisition. Regarding gender, men show a higher proportion rate of usage than women. This difference may be explained by the higher participation of males in the labor market. In particular, mobile technology was found to be very helpful for lower income groups to find employment.

Mexico shows a robust and sustainable growth mobile market. The youth market is becoming the focus for mobile operators, equipment manufacturers, and other service providers. In terms of social impact, quickly diffusing mobile usage among the young is changing their behavioral routines and social interactions. We point to the data showing that teenagers consider no difference between speaking on the cellular phone and meeting face-to-face. But as yet, the consequences of these changes in mobile communication–driven behavior are but little understood, especially in terms of full participation in the various aspects of life in the information society.

References

International Telecommunications Union (ITU). 2004a. Social and human considerations for a more mobile world. ITU Workshop On Shaping The Future Mobile Information Society, SMIS/04, Geneva. http://www.itu.int/osg/spu/ni/futuremobile/socialaspects/.

International Telecommunications Union (ITU). 2004b. Mobile phones and youth: A look at the U.S. student market. ITU. Geneva. http://www.itu.int/osg/spu/ni/futuremobile/socialaspects/.

International Telecommunications Union (ITU). 2003. *World Telecommunications Indicators 2003*. Geneva.

Katz, J., ed. 2003. *Machines that Become Us: The Social Context of Personal Communication Technology*. New Brunswick, N.J.: Transaction Publishers.

Katz, J., and R. Rice. 2002. *Social Consequences of Internet Use: Access, Involvement, and Interaction*. Cambridge, Mass.: The MIT Press.

Mariscal, J., and E. Rivera. 2005. New trends in mobile communications in Latin America. Prepared for the Annenberg Research Network on International Communication Workshop, Marina del Rey, Calif.

Market Analysis and Consumer Research Organization (MACRO). 2004. Study of mobile phone usage among the teenagers and youth in Mumbai. http://www.itu.int/osg/spu/ni/futuremobile/socialaspects/IndiaMacroMobileYouthStudy04.pdf.

Telecom CIDE. 2006. Contribuciones sociales y económicas de la telefonía móvil en México (Social and economic contributions of mobile communications in Mexico). Prepared for Telefónica Movistar México, Mexico City.

Telefónica Movistar de México. 2003. Datos sobre el Mercado de usuarios de telefonía celular en México (Market data on mobile users in Mexico). Mexico City.

Telefónica Movistar de México. 2005. Datos sobre el Mercado de usuarios de telefonía celular en México (Market data on mobile users in Mexico). Mexico City.