Chapter 5

Mobile Phone Usage Pattern in Vadodara District

5.1 Introduction

The impact of mobile phone services in day-to-day life of the common man can better be understood by analyzing their usage pattern of the same. Socio-economic condition of the mobile phone consumers, under different heads has been discussed in the last chapter. In this chapter, experience of the mobile phone services and its usage pattern is studied. Important socio-economic factors of the mobile phone consumers of Vadodara district are analyzed and various hypotheses are tested with the help of econometric and statistical tools.

This chapter attempts to highlight the behavior of the mobile phone consumers and their preferences along with the usage pattern. Various socio-economic factors like age, educational qualification, and the possession of the fixed landline phone connection of the respondents are studied separately.

The chapter is divided into six sections. Second section studies the usage pattern of mobile phone VAS in relation with age of the mobile phone consumers. Standard of living variables (possession of assets, household and demographic variables) of the mobile phone consumers in relation with the possession of fixed landline phone connection is studied in section three. Mobile phone services and the opinion about mobile phone usage pattern along with an important demographic factor-educational qualification of the respondent are explained in section four. Changing pattern of the telecommunication services i.e. adoption of fixed landline phone and mobile phone services is analyzed as substitute or complementary goods in section five. The chapter is concluded in section six. From sections two to five various statistical and econometric tools are applied.

5.2 Age and Value Added Services Usage Pattern

One of the important demographic factors-age has been studied in relation with the possession of mobile phones of the respondents in the last chapter. Here age of the

respondent is studied along with the usage of VAS of mobile phones. With increasing pressure and stress on individuality, mobile phone consumers wish to carry their individuality to their mobile phone device also. Thus for a large number of consumers mobile phone has become a truly personal device and VAS has become an extension of their personality. Many studies have been done collectively as well as individually on awareness of mobile phone usage pattern, irrespective of the country, and almost all the studies found that younger mobile phone consumers as relatively more accustomed to this technical gadget. Here in this section an attempt is made to analyze the relation between young mobile phone consumers in Vadodara district and their mobile phone VAS usage pattern.

Teenagers use the mobile phones to organize their everyday life and to maintain social and personal relationships. Mobile phone communication of wireless literate generation has many features that differ from the mobile phone communication of others. Frequent use of text messaging, free-of-charge signal calls (miss calls), and playing mobile games are an essential part of the mobile phone communication culture of this generation. Personalizing the mobile phone by means of playing new ringing tones and changing the appearance of the phone by different logos, changing its covers and repainting the mobile phone handsets are few common attributes typical of young mobile phone consumers.[1] In short, possession of mobile phone handset has become increasingly a reflection of ones personality.[2]

Mobile phone VAS can be availed by the consumer besides receiving and making calls, by paying premium price charges to the mobile phone service provider. VAS include voice and non-voice advanced services, whose list can run number of pages but the important ones are: SMS, news, stock, cricket, ring tones, caller tunes, web dial, voice mail, group message service, call forwarding, missed calls alerts, blue tooth, infrared, video application, call waiting, General Pocket Radio Service (GPRS), range of voice activated services etc.[3] the nature of VAS has changed overtime. It has become

[1] Wagstaff, J (2002) "SMS: Keep it Plain and Pithy", Far Eastern Economy Review, September 19, 2002.
[2] Opcit (2002)
[3] Opcit (2005)

commoditized and so widely used that it no longer provides meaningful differentiation on a relative basis.

Ministry of Information Industry (MII) of China during the year 2001 has classified the VAS into five categories: VAS in the fixed landline phone connection, in the mobile phones, in satellite networks, Internet, and VAS in other data services.[4]

Acceptance of mobile phone VAS can be judged better by the revenue generated by them. During the year 2003, revenue constituents for pre-paid mobile phone consumers in India was 94 percent from SMS and 6 percent from other services, at the same time for post-paid mobile phone consumers' 34 percent was from SMS, 39 percent from others, and 27 percent from clip charges. For the year 2004 post-paid mobile phone consumers contribution in revenue generation for VAS includes-65 percent from SMS, 27 percent from others, and 8 percent from clip charges. These figures show continuous increasing trend in the net revenues by the service[5].

Popular and important mobile phone VAS, as defined on the basis of a preliminary survey of 10 respondents from each taluka under study includes-SMS, roaming, picture messaging, Closer User Group (CUG), video application, GPRS, and infrared. Respondents were asked personally about their awareness by specifying as "aware" or "unaware" about these services. Results of all mobile phone VAS are examined first separately and then collectively.

Table 5.1 and figure 5.1 represents the distribution of awareness in different age groups for all the VAS, Table 5.3 represents the results of regression model discussed later. Brief discussion of mobile phone VAS follows.

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[4] Bernhard Holtkamp (2006) "VAS China Project: Mobile Value - Added Services in China" www.dtu.dk, 2007.

[5] Ramachandran, T. V. (2004) "Demand for the World's Second Largest Market-Prospects and Challenges", September 28, 2004@ Singapore, COAI, New Delhi.

5.2.1 Short Messaging Services

Most popular and basic VAS of mobile phone is SMS facility. SMS is the ability to send and receive text messages to and from the mobile phones. The text comprises of words or numbers or alphanumeric combinations.[6] SMS is the transmission of short text messages to and from a mobile phone, or any other device capable of generating the SMS.[7] It takes a couple of seconds to reach any where in the world all the way through marine cable, cable satellite and local cell towers. It is one of the most remarkable success stories in the world of data communication.[8]

Generally this facility is either free or at a low price (depending on the package provided by mobile phone service provider) and is considered as one of the cost effective means of delivering a key piece of information when compared to voice.

SMS stands as an example to demonstrate that VAS are not centered on inherent mobile phone distribution limitations such as speed, screen size of the mobile phone handset etc. Phrasing an SMS is something of an art form because their being does not exceed 160 characters (exception are some of the new mobile phone handsets like 3310 and 2600 of Nokia where maximum space is of 459 and 972 characters respectively) and therefore it has to be short else it will be split-up and sent as separate messages of 160 characters each. Text messages undermine traditional rules of writing any language. It hasn't quite found a firm place in the hierarchy of official communications; setting somewhere between phone call, e-mail, and a fax and therefore lack of structured etiquettes results in high misunderstanding.[9]

Intended originally as a messaging service for technicians, it is flexible enough to cope not only with text messages but with other binary data, such as sending and receiving ring

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[6] Telecom Regulatory Authority of India (2006) "Interconnection Usage Charges (IUC) for Short Messaging Services (SMS)", Consultation Paper No. 10/ 2006, New Delhi.

[7] Opcit (2001)

[8] Rao, M (2001) "Asian Mobile Operators Cash in on SMS Success, Internet Convergence", Mobile Messaging Services Summit, December 10, Singapore.

[9] Fraunholz, B. and Unnithan, C. R. (2003) "SMS Growth and Diffusion-A Preliminary Investigation of Three Economies", School Working Paper-Series 2003, Faculty of Business and Law, School of Information System, Deakin University.

tones, pre-payment, voice and fax notifications, internet e-mail alerts, and information services and so on. It also supports broadcasting; therefore one person can send the same message to the large number of people (if mobile phone handset also supports this feature). This opens the door to third party services, such as stock quotes or sports scores.

Every new generation needs a new technology that it can adopt, as its own to communicate. It is said that, it was because SMS was so very difficult to use that young people were determined to overcome the interface and other issues. SMS became popular among them as it offered a new degree of freedom or rather a new dimension to be in touch. SMS occurs within and between nearly every social situation, adding secondary and important communicative layer to everyday life.[10]

Many scholars have studied the mobile phone SMS usage pattern with special emphasis on young consumers. A study by Potts (2004)[11] and Igarashi Tasuku (2004)[12] found a similar SMS trend for both the genders whereas, Mante and Piris (2004)[13] and Eldridge M. and Grinter R. (2001)[14] found females as the heavy users of the SMS facility in comparison to their counter part. Rich Ling (2001)[15] study on the female users found that young girls use this facility more frequently than the woman's in older age. Rautiainen, P. (2001)[16] and Taylor, S. A. and Harper, R (2002)[17] emphasizes the teenagers mobile phone service usage pattern and therefore also discussed the SMS usage pattern.

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[10] Keen PGW and Mackintosh, R. (2001) "The Freedom Economy: Gaining the m-Commerce Edge in the Era of the Wireless Internet", Osborne/McGRaw Hill, California.

[11] Potts Geoff (2004) "Collage Students and Cell Phone Use: Gender Variation" www.socio.ch.com, 2007

[12] Igarashi, T. (2004) "Response Style of Mobile Phone Text Messages: Effects of Gender and Message Contents," Poster Presented at the 28th International Congress of Psychology, Beijing, China.

[13] Mante, E. A. and Piris, D. (2002) "SMS use by Young People in the Netherlands", Revista de Estudios de Juventud, Junio, No. 57

[14] Eldridge, M. and Grinter, R. (2001) "Studying Text Messaging in Teenagers," Position Paper for CHI 2001 Workshop #1, Mobile Communications: Understanding Users, Adoption and Design.

[15] Ling, R. (2001) "Adolescent Girls and Young Adult Men: Two Sub-Cultures of the Mobile Telephone", Sociology of the Mobile Phone, Sociology Institute of Zurich University of Zurich, Switzerland.

[16] Rautiainen, P. (2001) "The Role of Mobile Communication in the Social Networks of Finnish Teenagers", Machines that Becomes Us, An International Conference School of Communication and Library Studies, Department of Communication, Rutgers University, New Brunswick, New Jersey, USA

[17] Opcit (2002)

Mobile phone SMS can be broadly classified as:

- Person to person (P2P)
- Advertiser to person (A2P)
- Person to network (P2N)
- Internet to person (I2P)

Most common practice of communication through mobile phone SMS is of P2P messages. Practice of charging premium prices for P2N messages is very common. P2N provides the consumers with an on demand store of the latest of everything. As per the authority directions dated May 3, 2005, such premium prices are to be published in all communication/advertisements relating to these services.[18]

Presently this facility is been used for advertising of many products and services, all over the world. The study by Nysveen, H. et. al. (2003)[19] emphasis on understanding the effect of SMS and Multi-media Messaging Services (MMS) as channel addition on customers' relationship with a brand, suggesting that SMS is more effectively and commonly accepted means than any other VAS. In general, such advertising increases brand awareness and helps in making positive attitude towards brand.

A writ petition (civil) was filed by Dr. Pathak, H. in the Supreme Court of India on New Delhi v/s Union of India and others, in relation to the unsolicited telemarketing calls made to them by the mobile phone service providers, banking and list of other companies using telemarketing as strategy for business promotion. He claimed that such calls are the invasion of privacy of the consumers of mobile phone services at all times and hours. "Right of privacy" is associated to the fundamental right under article 19 and 21 of the constitution of India and mobile phone service providers and telemarketers are violating the law by using personal data of the consumer for their business purpose. They are not

[18] Opcit (2006).

[19] Nysveen, H. et. al (2003) "Using Mobile Phone Services to Strengthen Brand Relationships: The Effects of SMS and MMS Channel Additions on Brand Knowledge, Satisfaction, Loyalty and Main Channel Use", SNF-Project No. 6500 "Mobile and Channel Integrating Electronic Commerce", Bergen, July, 2003.

allowed to do so in the light of section 427 and 513 of the Indian Telegraph Rules, 1951.[20]

Within India most relevant practice by all mobile phone service providers is to increase charges of SMS as one moves away from intra circle (within the boundaries of the state i.e. local periphery) to inter circle (within the boundaries for the country - STD level) and further outside the residual country (international world - ISD level). This rule is applicable to pre-paid as well as post-paid mobile phone consumers. Post-paid mobile phone consumers have to pay the fixed sum of money for each message, based on tariff plan enrolled with.

SMS facility is available not only in English or Hindi but also in regional languages (depending on the service providers' facility in a particular region). One has to download the application of the same and only GPRS enabled mobile phone consumers can do so. For this just one touch help function facility is available for consumers. This facility can be availed by the pre-paid as well as the post-paid mobile phone consumers. The only constraint here is that the, another person to whom message is sent should also have this facility enabled in their mobile phone handset.

Pre-paid consumers can avail the facility of reducing their SMS cost by using different tariff schemes planned by their mobile phone service providers. Most common one is the use of SMS top-up card, which decreases the total expense on SMS for particular time duration only. Another way of reducing the SMS charges is to subscribe for weekly/monthly rental of certain amount of money from their main account balance. Here the number of messages is fixed. Some of the monthly recharging cards of higher denominations also reduce the cost of this service.

One of the prevalent practices of short code service is also very popular in India. The companies who owns a short codes, sold to the third party client for some keyword for a specific time period. They have a tie up with multi service providers so as to ensure that consumers of all the service providers can send the SMS to the same number. Most

[20] Pathak, H. (2005) "In the Supreme Court of India, Civil Original Jurisdiction", (Public Interest Litigation Petition), Writ Petition (Civil) of 2005, New Delhi.

common example is the Indian Idol-a reality show on Sony Entertainment Television, got 55 million SMS in five months. Beside this Radio Mirchi-a popular FM radio channel claims to receive 40,000-45,000 SMS every day.[21]

The average proportion of SMS revenue to total revenue of all India GSM service providers as on December 2005 is 5.69 percent while it was 5.46 in December 2004. Increase in SMS revenue is also accompanied with an increasing number of mobile phone consumers per month. During December 2005, the number of SMS per month per consumer was 40 whereas it was only 31 in December 2004.[22] For December 2005 the average contribution of SMS to total revenue of mobile phone service providers ranged from 1.6 percent to 11.7 percent. The outgoing SMS per month per consumer varies from 15 to as high as 68 and the rising trend is predicted to be seen in near future also.[23] Thus in future SMS will be a gold mine of India's mobile phone market.

Region-wise awareness of the mobile phone SMS facility among the different age groups of the respondents in the present study area is shown in Table 5.1. Table emphasize that region (rural and urban) does not make any difference on the level of awareness of the facility. Total number of aware respondents in the age group of 11-30 years, 31-45 years and 46-60 years are 706, 384, and 142 respondents respectively. The number of respondents in all categories is not even but the ratio of aware respondents in all the age groups is somewhat similar. In Vaghodia taluka and Padra taluka all the respondents are aware about mobile phone SMS facility. Overall 98.56 percent of the respondents are aware about this facility, thus showing the popularity of SMS in Vadodara district.

5.2.2 Roaming

As per the discussion document by ECGDXIII, roaming in the words of Commission Green Paper on a common approach in the field of mobile and personal communications in the European Union, is the facility supported by commercial arrangements between

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[21] Ray, S. (2006) "Mobile Value Added Services in India", a Report by Internet and Mobile Association of India and e-Technology Group, Mumbai.
[22] Opcit (2006)
[23] Telecom Regulatory Authority of India (2006) "Financial Performance of Telecom Industry of China and India", Study Paper No. 1/2006, 27 June 2006, New Delhi.

mobile phone service providers, which enables the consumers to use their mobile phone handset on any other network which has entered into a roaming agreement in the same or another country for both outgoing and incoming calls.[24]

TRAI has defined the roaming facility of mobile phone in the consultation paper no. 12/2006, as the ability for a mobile phone consumer to automatically make and receive voice and data calls and also to access other services while traveling outside the geographical coverage area of the home network, by using the visiting network.[25]

Depending on the origin of mobile phone consumers, roaming is of two different types

- National roaming-National roaming refers to the ability to move from one mobile phone service provider to another in the same country. This reduces the entry cost of new service providers as the existing service providers are able to provide full national coverage without having a national network with the support and collaboration with the other operating service providers.

- International roaming-International roaming occurs when a consumer is abroad and uses the network of foreign mobile phone service provider. It is particularly of interest to business travelers and tourists.

Roaming facilities can be availed as one way or two-way communication. In one way roaming, consumers can only receive incoming calls and their outgoing calls are debarred but sending and receiving SMS is possible in the same manner as in without roaming activation. If nothing is specified to the service provider, two ways roaming is applicable. Mobile phone consumers can avail all the facilities within inter circle though they are not in intra circle. They can make and receive calls, SMS and all other VAS just by paying for them, as per the applicability. This facility is automatically activated when the

[24] EC DGXIII (1999) "Consumer Demand for Telecommunications Services and the Implementations of the Convergence of Fixed and Mobile Networks for the Regulatory Framework for A Liberalized EU Market", Discussion Document for Public Workshop, Squire, Sanders, and Dempsey L.L.P. and Analysis Ltd.

[25] Telecom Regulatory Authority of India (2006) "Admissibility of Revenue Share between Visiting Network and Terminating Network for Roaming Calls", Consultation Paper No. 12/2006, New Delhi.

consumer enters into some other circle or region. Also deactivation is made as soon as they enter again in the intra circle region. Issues in relation to revenue sharing between home network service provider, visiting network service provider, and terminating network service provider are governed as per TRAI rules.

Within Gujarat circle, private GSM service providers (Airtel, Hutch, and Idea) charges Rs. 49 or Rs. 50 (as per their policy) as fixed roaming charges by default for pre-paid as well as for post-paid consumers as monthly charges. Notion is not only to charge high for outgoing calls but also incoming calls were charged heavily, making RPP principle applicable. As compare to GSM, the CDMA service providers (Reliance Infocom and Tata Indicom) do not have the fixed charge for this facility, for any consumer but follows the rule of RPP. Same trend is followed for BSNL mobile phone services (exception is postpaid plan of Rs. 99 and Rs. 120) though it is on GSM basis.

When the GOI realized the lack of competition in roaming services in mobile phone sector. Utmost charges in terms of monthly rentals and airtime charges were fixed by the authority in the year 2002 via 18th amendment to Telecommunication Tariff Order 1999 (TTO 1999), Currently TRAI has issued a consultation paper on review of ceiling tariffs for roaming services and the same has taken effect from February 15, 2007. Comparative pictures of new rollover roaming rates with the old ones are as per Table 5.2.

Table 5.2

Applicable Roaming Charges

Distance	Current Rates (Rs.)			Revised rates (Rs.)
	GSM	BSNL	CDMA	
Outgoing				
Local	2.89-3.09	1.50	3.00	1.40
0-50	3.09	2.40	3.00	2.40
51-200	3.54	2.40	3.00	2.40
201-500	3.79	2.40	3.00	2.40
Above 500	3.99	2.40	3.00	2.40

Incoming				
0-50	3.09	2.00	3.00	1.75
51-200	3.54	2.00	3.00	1.75
201-500	3.79	2.00	3.00	1.75
Above 500	3.99	2.00	3.00	1.75
Rental (Rs.)	50	Free	Free	Free
Surcharge (percentage)	15	Free	Free	Free
Incoming SMS	Operators to fix	Free	Free	Free
Outgoing SMS	Operators to fix			

Source: Telecom Regulatory Authority of India, 2006

Beside the above mentioned roaming charges, major GSM/CDMA service providers are also offering roaming plans with a monthly rental (ranging from Rs. 299 to Rs. 490), to its consumers. In these plans, roaming tariff is Rs. 1 per minute for roaming in their respective network.

Consumers will no longer be charged in any form, a rental or surcharge for availing roaming services. Incoming SMS while roaming is free while outgoing SMS continues to be charged. Irrespective of terminating networks and tariff plans, TRAI has placed per minute cap on roaming service charges. The new tariffs are applicable for all mobile phone consumers, pre-paid and post-paid, across all types of tariff plans offered by GSM and CDMA mobile phone service providers.

Roaming is a highly competitive segment due to multi-service area, multi-operator regime, often resulting in national roaming tariffs being even lower than intra circle tariffs of service providers. Percentage of total roaming revenue earned in 2003 was 9 percent from post-paid mobile phone consumers and 3 percent from pre-paid mobile phone consumers. Thus 12 percent of total service revenue of the mobile phone sector for the year 2003 was from roaming services.[26] As a result of current decline in roaming

[26] Opcit (2004)

tariffs upto 59 percent, the revenue from the consumer segment will also be reduced by Rs. 800-900 crore.

Awareness of roaming services in rural and urban study area in relation to age is represented in Table 5.1. Overall 90.80 percent (1,135respondents) of the sample population is aware about this facility. Highest percentage of awareness is in Savali taluka with 97.48 percent whereas in Vaghodia taluka it is only 86.57 percent. In Vadodara taluka only 89.32 percent of the respondents are aware about the roaming facility. In Padra and Dabohi Talukas, percentage of aware respondents is 93.34 percent and 95.65 percent respectively. In Padra taluka and Savali taluka all the respondents in the age group of 46 years to 60 years are aware about this facility. In the age group of 31 years to 45 years all the respondents of Savali taluka are also aware about roaming services.

Awareness of any mobile phone VAS does not specify the usage pattern i.e. how frequently this facility is availed by the respondents cannot be judged by the awareness pattern. But high percentage of awareness represents the popularity of the facility among the Vadodara district.

5.2.3 Picture Messaging

Overtime, the nature and form of mobile phone communication are getting less textual and more visual. The mobile phone service is moving from SMS to icons and picture messages. Another important mobile phone VAS to be studied is picture messaging: part of SMS facility, as one can send and receive graphics through SMS. In general, the majority of the respondents are using this facility but they do not consider it as picture message, what they name it is, SMS facility. A charge for this facility is same as that of SMS.

The more advanced version of picture messaging is the MMS. Here the consumer can send messages along with the multimedia objects (images, audio, video etc). Techno savvy consumers are further using Enhanced Messaging Service (EMS), simply SMS with additional payload capabilities. But SMS and MMS are more popular than the EMS.

Awareness among different age groups and picture messaging facility under present study is shown in Table 5.1. Only 58.82 percent of the respondents in Savali taluka are aware of the picture massaging facility whereas in Vadodara taluka the percentage of aware respondents is 72.30 percent. Overall 70.80 percent of the respondents' are aware about the facility. In Savali Taluka, number of unaware respondents in the age group of 31 years to 45 years is more in comparison to the number of aware respondents in the same age group whereas, just the opposite is applicable to all the talukas for the age group of 11 years to 30 years.

5.2.4 Closer/Closed User Group

CUG is where, the user of extensive closed group (i.e. users of one particular mobile phone service provider) can make and receive calls within the group under group tariff plan, where charges are bare minimum (as per the tariff plan enrolled with), they are allowed to use all the mobile phone facility just as others.

Group talk plans are available exclusively for companies and associations, Government employees, corporate employees (Separately for central and state), and for the family persons and relatives. Internal calling charges within the group are bare minimum. Thus, to reduce the calling rates CUG facility is the best available option to the mobile phone consumers. In the present study area Hutch provides this facility with minimum number of members as 3 and maximum as 6. But all have to be post-paid mobile phone consumers only. Airtel provides this facility for its pre-paid consumers also under the name of Friendz card. Idea Cellular also supports this facility but the charges and the number of consumers to form a group differs. Important point to be considered is, all the mobile phone consumers forming CUG should have the connection of the same mobile phone service provider. BSNL is the only GSM technology based mobile phone service provider, not supporting CUG service. CDMA based service providers: Reliance Infocom and Tata Indicom mobile phone service providers also supports this facility and generally the private sector companies' employees are benefited with CUG.

45.04 percent of the total respondents are aware about CUG (see Table 5.1), whereas only 21.85 percent of the respondents in Savali taluka and 60 percent respondents of Padra taluka are aware about this facility. Number of unaware respondents in the age group of 31 years to 45 years in all the talukas is high as compared to its counter part in the same age group, except in Padra taluka. Till this point of discussion all the VAS showed high percentage of aware respondents as compared to unaware respondents, but for CUG services it's a vice versa, emphasizing the non-popularity of CUG facility in Vadodara district.

5.2.5 Video Application

Video application facility enables the consumers to change the features pre-installed in their mobile phone handset. This facility is available within the mobile phone handset. There are number of video editing software's, with the help of them consumer can make their mobile phones more personal. If the handset supports, such software's can be installed as required. They can change the background, color etc of their mobile phone handset. Technology used in India is 2.5G whereas in other countries it's 3G, which supports the video shooting, what exactly video application means in our study.

Video-on-demand (VoD) is one of the services of video application, which will make the future communication and entertainment a new horizon. A VoD service allows mobile phone service providers to offer a wide range of specialized content that consumers can watch at their convenience. Some of the important VoD services to be launched in India include:

- Quasi VoD (Groups are based on common interest)
- Near VoD (It has functions like forward and rewind, stimulated by transitions in discrete time intervals)
- True VoD (Full function VCR facility)

In the present study 21.23 percent of older age group respondents are aware about the video application services (Table 5.1) and overall only 33.92 percent are aware about the same. It shows that the elder age group respondents are more aware about the facility and

thus shows their interest in understanding and accepting new technology in mobile phone. 60.68 percent of the respondents in Vadodara taluka are unaware about the video application facility whereas only 5.04 percent of the respondents of Savali taluka know about the video application facility of mobile phone. One needs latest updated mobile phone handsets supporting this feature and this might be the only reason for its non-acceptance by consumers in our study area.

5.2.6 General Pocket Radio Service

Technology developed by European Telecommunications Standard Institute (ETSI) first launched commercially in the UK by 2002, stands with acronym GPRS. It's a non-voice VAS enabling the consumers to send and receive information through network in the form of packets. To reach the same destination it can be sent to different directions, just like the Internet, thus making it an 'always on'.[27]

GPRS is a data bearing and transfer network developed in the base of GSM standard. It adopts the leading wireless technology and combines the mobile phones with internet, representing the fashionable and exciting features compared with the GSM network.

Without any dial up modem, complete internet application as used on the computer desktop (from web browsing to chat) is available on the mobile phone handset. One needs to have proper knowledge about the usage of the same. To avail this service access, mobile phone handset that supports GPRS and a subscription with the mobile phone service provider, is specifically needed.

GPRS is packet switched, which means that multiple users share the same transmission channel, only transmitting when they have data to send. Thus, the total available bandwidth can be immediately dedicated to those users who are actually sending the data at any moment.[28]

Main advantage of GPRS includes: internet browsing, simultaneous access to voice calls and Internet data, file transfer, vehicle positioning, and home automation. Some of the

[27] www.mobile-phones-uk.org.uk, 2007
[28] www.wikipedia.com, 2007

merits of GPRS are not at all popular in our country and also the awareness about exact usage is less. GPRS with various merits has some limitations also. Its speed much lower in reality, new GPRS compatible mobile phone handsets are required, availability of GPRS facility provision with service providers.

Airtel was the first mobile phone service provider to start the GPRS facility in Gujarat circle (and in Vadodara district), from 2004 onwards and is followed by all other GSM mobile phone service providers. Today with increasing competition, almost all the mobile phone service providers in Gujarat circle have made this facility available to their consumers. Very similar facility to GPRS is being provided by the CDMA service providers namely R-World by Reliance Infocom. This makes the access to detail services of GPRS with CDMA technology.

Some of the important facilities, which can presently be availed by GPRS, enrolled consumers in Vadodara district includes: enquiry about PNR number, horoscope, wallpaper download, weather report, video clips, java games, animated images, polyphonic ring tones and many more.

Percentage of aware respondents in each age group is much less than the unaware respondents (Table 5.1). Only 10.92 percent of the respondents of Savali taluka are aware about this facility whereas this percentage is 50.12 in Vadodara taluka. Padra taluka stands with highest percentage of the aware respondents (53.33 percent) whereas in urban area, only 50.12 percent of the respondents are conscious about GPRS. Overall percentage of awareness is 42.80 percent, higher then the percentage of aware respondents of video application service and the only possible reason for this, is the availability of the service and the initiative by the mobile phone service providers to popularize the service.

5.2.7 Infrared

To avail the infrared facility one needs a mobile phone handset, which supports the facility. Here data transfer can be done from one mobile phone handset to another and also with the computer, just by keeping them beside each other. Only barrier to this

facility is - both the gadgets should be kept beside each other within a particular periphery and also the rate of transfer i.e., time duration it takes is more.

Latest development of technology has resulted in blue tooth, where there is no compulsion to keep the mobile phone handsets or computer near to each other but still data can be transmitted from one gadget to another easily. Here distance is not the barrier. All GSM service providers i.e. Airtel, BSNL, Idea, and Hutch sustain the infrared facility. Few mobile phone handsets of Reliance Infocom and Tata Indicom also provide such services. Again the percentage of awareness of the facility is less as compared to the last discussed VAS facility GPRS, i.e., only 38.24 percent in comparison to 42.80 percentage (Table 5.1). Only 31 respondents in the age group of 46 years to 60 years are aware about the infrared facility, out of which, 29 respondents are from Vadodara taluka itself. In Padra taluka percentage of aware respondents is maximum i.e. 45.83 percent. Rationale one can say about is the interest supported by the mobile phone service provider for the facility.

Table 5.1
Age of the Respondents and Awareness of VAS

Age Group	SMS Facility		Roaming Facility		Picture Messaging Facility		CUG Facility		Video Application Facility		GPRS Facility		Infrared Facility	
	Aware	Unaware	Aware	Unaware	Aware	Unaware	Aware	Unaware	Aware	Unaware	Aware	Unaware	Aware	Unaware
Dabohi														
11 –30	49	-	48	1	43	6	26	23	11	38	15	34	13	36
31 – 45	30	1	29	2	14	17	11	20	5	26	8	23	4	27
46 – 60	12	-	11	1	2	10	-	12	-	12	-	12	-	12
Total	**91 (98.91)**	**1 (1.09)**	**88 (95.65)**	**4 (4.35)**	**59 (64.13)**	**33 (35.87)**	**37 (40.22)**	**55 (59.78)**	**16 (17.39)**	**76 (82.61)**	**23 (25.00)**	**69 (75.00)**	**17 (18.48)**	**75 (81.52)**
Padra														
11 –30	80	1	76	5	68	13	51	30	40	41	43	38	36	45
31 – 45	30	1	28	3	24	7	20	11	18	13	19	12	18	13
46 – 60	8	-	8	-	6	2	1	7	1	7	2	6	1	7
Total	**118 (98.33)**	**2 (1.67)**	**112 (93.34)**	**8 (6.66)**	**98 (81.67)**	**22 (18.33)**	**72 (60.00)**	**48 (40.00)**	**59 (49.17)**	**61 (50.83)**	**64 (53.33)**	**56 (46.67)**	**55 (45.83)**	**65 (54.17)**
Savali														
11 –30	59	-	56	3	54	5	19	40	4	55	4	55	5	54
31 – 45	38	-	38	-	12	26	6	32	2	36	7	31	1	37
46 – 60	10	-	22	-	4	18	1	21	-	22	2	20	-	22
Total	**119 (100)**	-	**116 (97.48)**	**3 (2.52)**	**70 (58.82)**	**49 (41.18)**	**26 (21.85)**	**93 (78.15)**	**6 (5.04)**	**113 (94.96)**	**13 (10.92)**	**106 (89.08)**	**6 (5.04)**	**113 (94.96)**
Vaghodia														
11 –30	35	-	34	1	30	5	14	21	5	30	4	31	4	31
31 – 45	22	-	16	6	9	13	6	16	2	20	2	20	2	20
46 – 60	10	-	8	2	3	7	1	9	1	9	2	8	1	9
Total	**67 (100)**	-	**58 (86.57)**	**9 (13.43)**	**42 (62.69)**	**25 (37.31)**	**21 (31.34)**	**46 (68.66)**	**8 (11.94)**	**59 (88.06)**	**8 (11.94)**	**59 (88.06)**	**7 (10.45)**	**60 (89.55)**
Vadodara														
11 –30	483	7	441	49	414	76	278	212	224	266	268	222	228	262
31 – 45	264	4	237	31	157	111	98	170	84	186	117	151	78	190
46 – 60	90	4	83	11	45	49	31	63	29	65	42	52	29	65
Total	**837 (98.24)**	**15 (1.76)**	**761 (89.32)**	**91 (10.68)**	**616 72.30)**	**236 (27.70)**	**407 (47.77)**	**445 (52.23)**	**335 (39.32)**	**517 (60.68)**	**427 (50.12)**	**425 (49.88)**	**335 (39.32)**	**517 (60.68)**

Source: Field survey 2005

Figure 5.1
Graphical Presentation of Regression Results

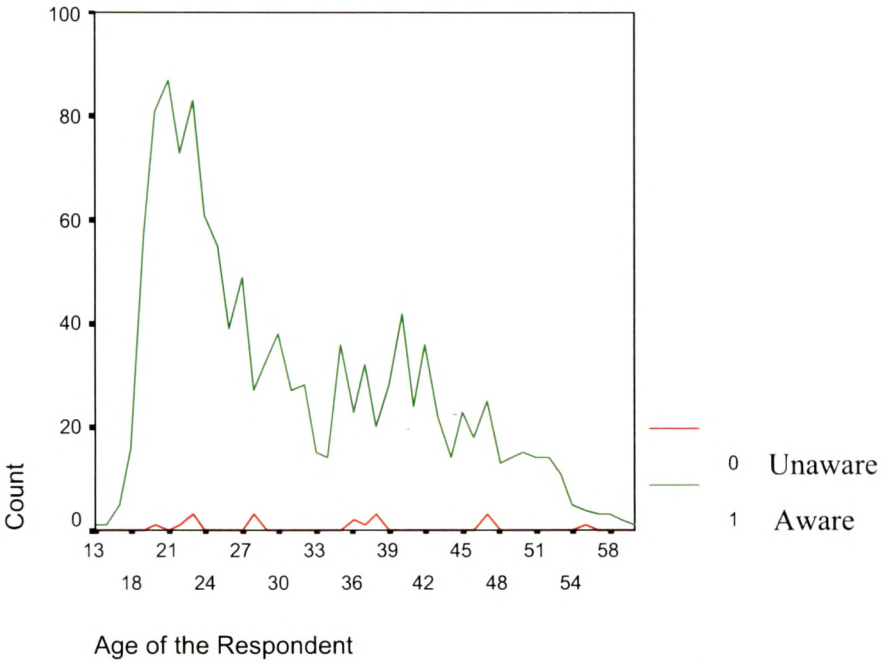

Figure 5.1.a Awareness among Respondents for SMS Facility

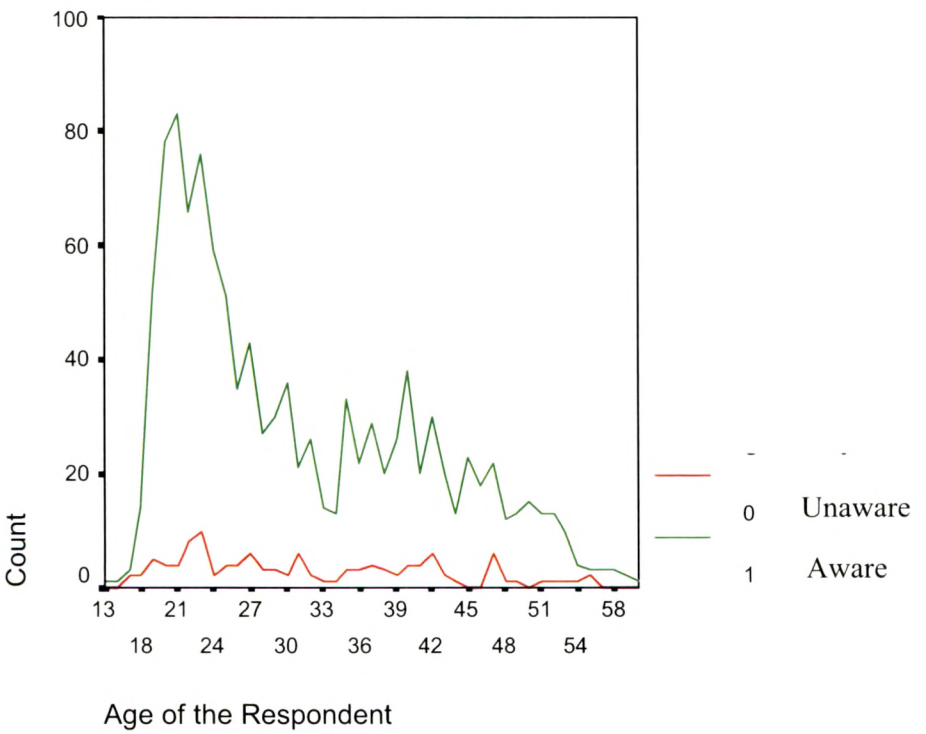

Figure 5.1.b Awareness among Respondents for Roaming Facility

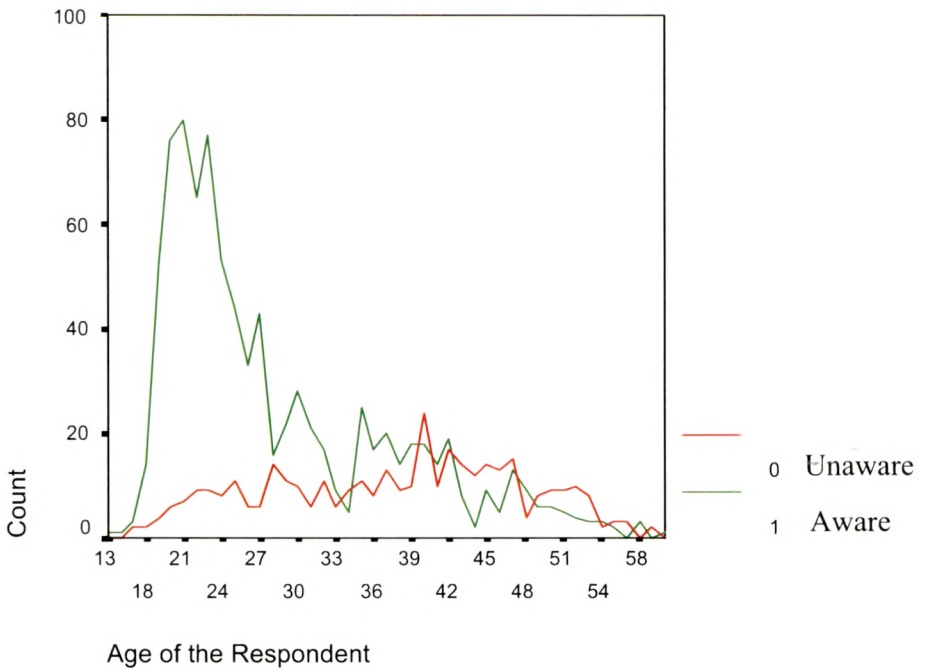

Figure 5.1.c Awareness among Respondents for Picture Messaging Facility

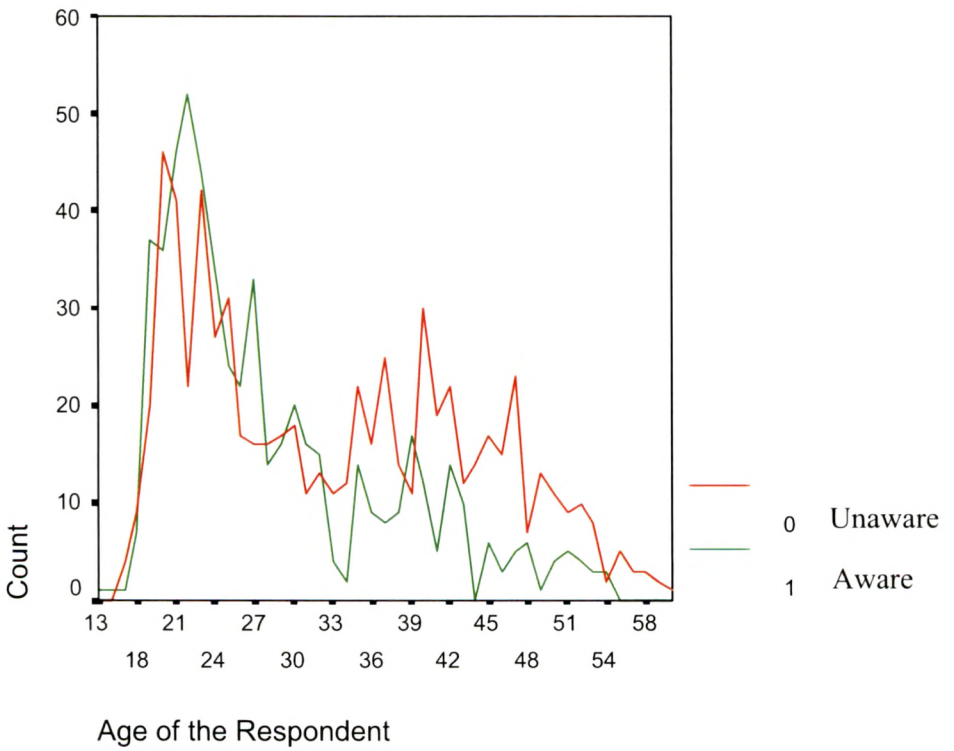

Figure 5.1.d Awareness among Respondents for CUG

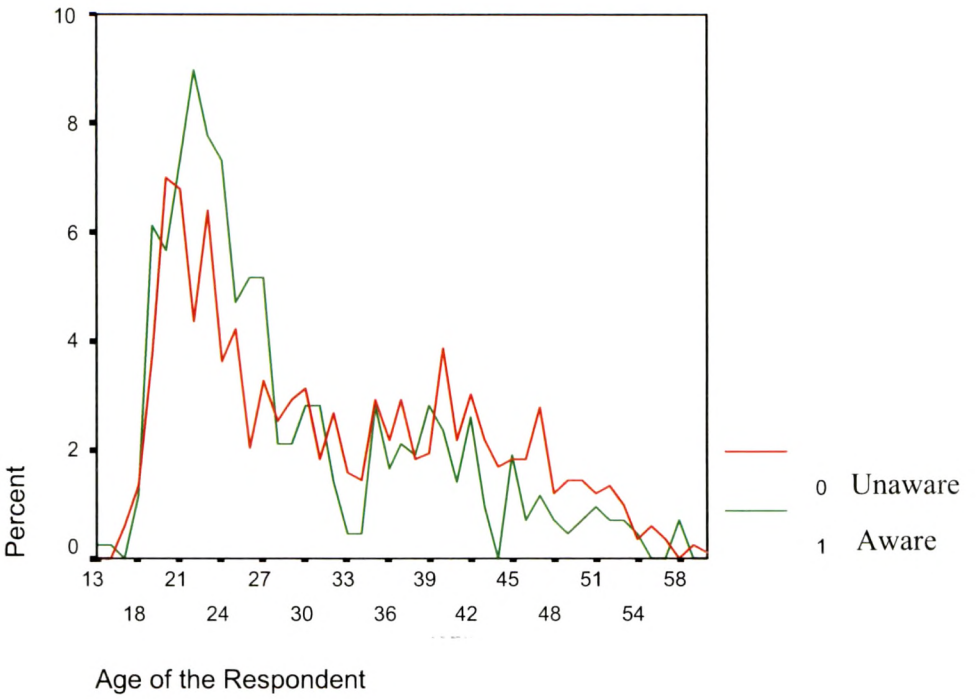

Figure 5.1.e Awareness among Respondents for Video Application

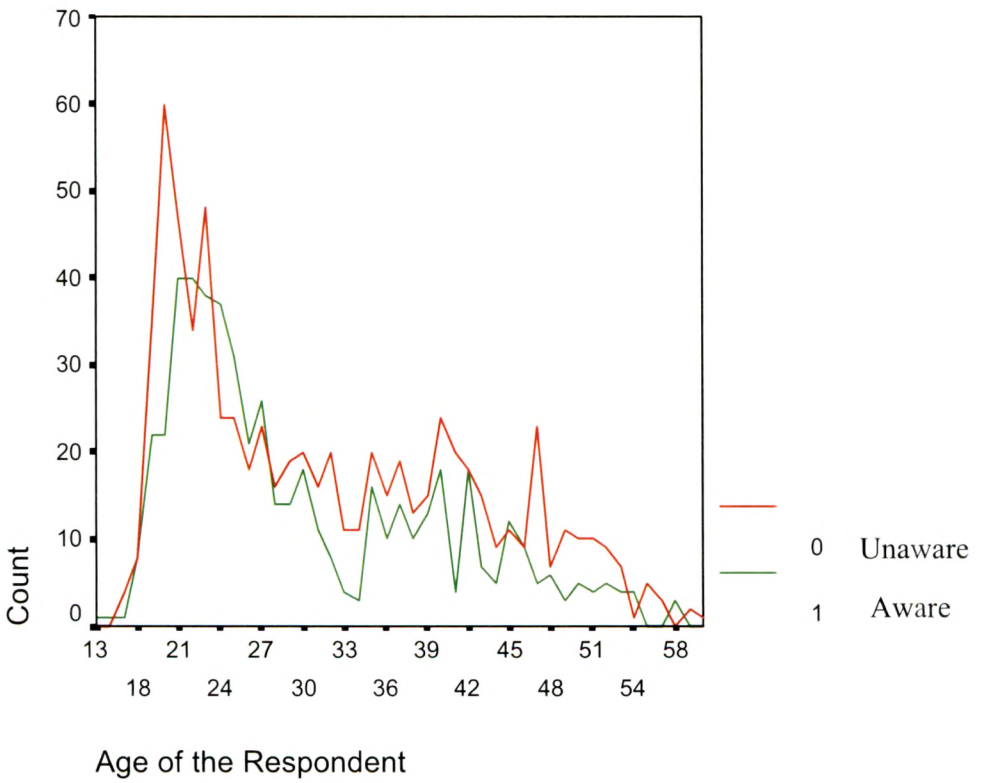

Figure 5.1.f Awareness among Respondents for GPRS

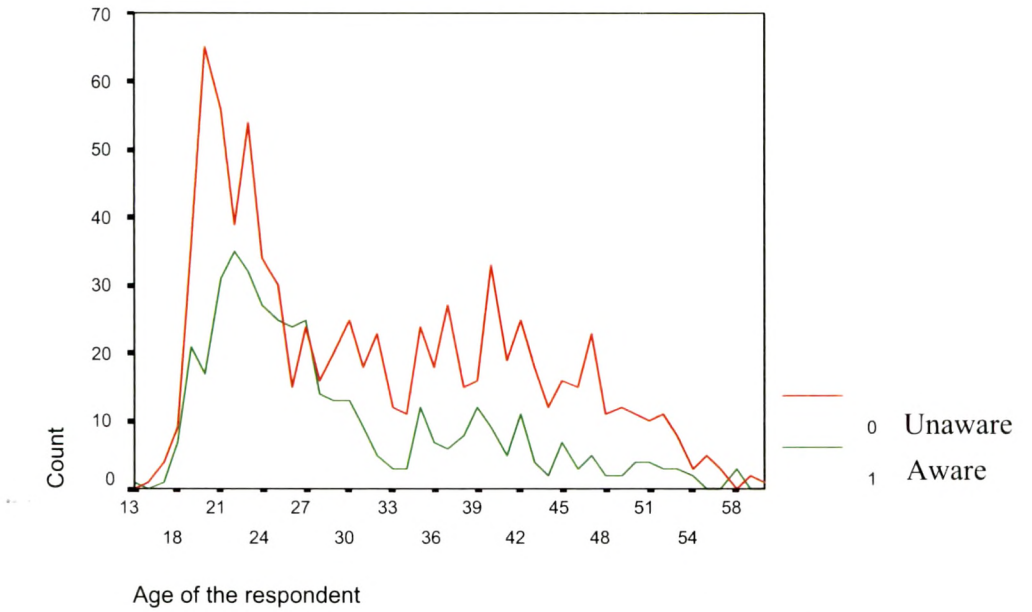

Figure 5.1.g Awareness among Respondents for Infrared

5.2.8 Linear Probability Model

This section attempts to find out the effect of age of the mobile phone consumers on the awareness about various VASs. As the awareness about VAS is a qualitative variable and as there are no grouped data, LPM is fitted. LPM follows the usual OLS procedure under normality assumptions, as we analyze the large sample size.[29] In the following regression equation

$$Y_i = B_1 + B_2 X_i + u_i$$

Where Y is the probability of awareness of VAS and X is the age of the mobile phone consumer. If the conditional exception of Y_i is given i.e. X_i, $E(Y_i/X_i)$, can be interrupted as the conditional probability that an event will occur, given X_i. LPM is preferred as it helps in the analysis of the variables of qualitative nature.

The results are presented in Table 5.3. The probability of awareness irrespective of age is very high in case of SMS (99 percent) and roaming facilities (92 percent), whereas it is relatively lower in case of video application, GPRS, and infrared. For CUG, probability of awareness is 80 percent.

Goldfeld-Quandt test[30] is applied to analyze for presence of heteroscedasticity problem in the model. Since the estimated value (Λ) exceeds critical value only for picture message facility (Λ = 1.2467 whereas its Table value is 1.00) out of all seven type of facilities, it is concluded that there is heteroscedasticity in the error variance for this particular facility. F-Value for all other services is less then the table value, indicating, absence of heteroscedasticity problem.[31]

The slope coefficients are negative and statistically significant except of SMS and roaming service. This result shows the fall in VAS awareness with the increase in age. Student t-value for all, except SMS and roaming facility are statistically significant at 5

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[29] Gujarati, D. (2005) "Basic Econometrics", Tata McGraw-Hill Publishing Company Limited, New Delhi.
[30] Ibid (2005)
[31] Calculated value of Λ for SMS, roaming, picture messaging, closer user group, video application, GPRS, and infrared is .0295; 0.4291; 0.9437; 0.8289; 0.9526; and 0.8047 respectively. Here the degree of freedom is 623.

percent level, meaning to accept our hypothesis "younger the respondent, greater is the awareness about VAS facility."

Table 5.3

Regression Results, Significant Age Awareness Relationship

Variable	Constant	Coefficient	t value
SMS	.999	-4.27E-04	-1.292
Roaming	.929	-6.65E-04	-.828
Picture Messaging	1.273	-1.82E-02	-15.782*
Closer User Group	.800	-1.13E-02	-8.383*
Video application	.544	-6.60E-03	-5.068*
GPRS	.537	-3.51E-03	-2.562*
Infrared	.521	-5.98E-03	-4.590*

Note: a. Independent variable: Age of the respondent

b. Dummy variable: Awareness =1, otherwise 0

c. * Significant t value at a 5% level

Expansion of the range of mobile phone VAS that mobile phone service providers offer to consumers is further increasing the attractiveness and utility of mobile phones. Mobile phone had affected the daily lives of the people. Thus, emphasizing huge development and acceptance of the mobile phone VAS space in the Indian market. Mobile phone VAS plays an important role in the development of telecommunication service market in India. Basic reason for the development of the VAS market is that mobile phone consumers are not satisfied only with voice. They are looking for more and more intelligence, comfortable, individual, and entertainment services, which only VAS can provide. All the mobile phone service providers are focusing on providing better VAS services to its consumers and thus increasing the competition in the market.

Beside the above mentioned growth and acceptance rate, there are several more challenges, which need the immediate attention, for the prosperous growth of VAS in India. It includes the spread of VAS usage irrespective of the age group, reducing the

preference for low feature mobile phone handsets, and reducing the transferring of high cost to the ultimate consumer.

Various studies by Potts (2004)[32], Igarashi Tasuku (2004)[33], Mante and Piris (2004)[34], Eldridge M. and Grinter R. (2004)[35], Rich Ling (2001)[36] analyzed the young mobile phone consumers along with the gender variation, to understand their usage pattern. The present study emphasizes only the usage pattern among different age group of mobile phone consumers in Vadodara district and do not take into consideration the gender variation. Reason for the same is the availability of few female consumers in the district as per the occupational variations and those who are using were not aware of any other function than to make and receive phone calls. The analysis of the study shows that mobile phone SMS facility is popular among all the age groups and almost every person is aware of this facility.

All other VAS facilities (except SMS) are not taken into consideration largely for research but the popularity and awareness of all VAS shows that the mobile phone consumers in Vadodara district are more conscious about the technological changes taking place in mobile phone communication revolution and the increasing interest of young mobile phone consumers cannot be overlooked. The result also shows that the younger mobile phone consumers are largely aware about the VAS facilities. The present study also emphasis that with the increasing age and mobile phone experience, the share of youth owning a regular mobile phone is growing in Vadodara district.

Most upcoming mobile phone VAS m-commerce is studied in relation to young mobile phone consumers. According to Nokia study on mobile phone VAS, the primary target market for m-commerce consumer services are:

- Teens (upto 18 years)
- Students (19-25 years)
- Young business-people

[32] Opcit (2004)
[33] Opcit (2004)
[34] Opcit (2004)
[35] Opcit (2004)
[36] Opcit (2001)

With the constant progress of technology and development of mobile VAS market all over the world, greater development will be for characters, pictures, and also video services.

5.3 Fixed Landline Phone Connection and Standard of Living

In the present section an attempt is made to analyze the relationship between possession of fixed landline phone connection and the standard of living of the respondents. Fixed landline phone and mobile phone, both are communication devices and are a part of telecommunication sector. Basic criterion for selecting a respondent in the present study is the possession of at least one mobile phone at the time of the survey. Therefore all 1,250 respondents are availing the benefit of possessing mobile phone. But the possession of fixed landline phone was an optional. Region-wise number of respondents possessing fixed landline phone is shown in Table 5.4.

Standard of living of the respondents will make the investigation of consumption behavior towards the telecommunication services much easier. Important socio-economic factors are studied to analyze the standard of living of the respondents. Tables 5.5 to 5.7 show the possession of fixed landline phone connection in relation with the standard of living variables. Further Table 5.8 shows the results of the Linear Regression Model.

5.3.1 Possession of Fixed Landline Phone Connection

Possession of fixed landline phone connection in a family reveals the importance of being in contact with the society. In Vadodara district, highest percentage of possession of fixed landline phone connection is in Padra taluka i.e. 89.17 percent (107 respondents) followed by Dabhoi taluka with 81.52 percent (75 respondents) (Table 5.4). While only 59.66 percent of respondents (71 respondents) from Savali taluka possesses the same. In Vaghodia taluka, the percentage of respondents possessing fixed landline phone connection is 70.15 percent (47 respondents). In urban area i.e. Vadodara taluka only 79.81 percent (680 respondents) of the total respondents possesses fixed landline phone connection. Thus, a mix proportion in both rural and urban area in relation to possession of fixed landline phone can be seen.

Table 5.4

Possession of Fixed Landline Phone

Taluka	Possession of Fixed Landline Phone Connection		Total
	Yes	No	
Dabhoi	75 (81.52)	17 (18.48)	92 (100)
Padra	107 (89.17)	13 (10.83)	120 (100)
Savali	71 (59.66)	48 (40.34)	119 (100)
Vadodara	680 (79.81)	172 (20.19)	852 (100)
Vaghodia	47 (70.15)	20 (29.85)	67 (100)
Total	**980 (78.40)**	**270 (21.60)**	**1,250 (100)**

Source: Field survey 2005

Note: a. Yes = Number of respondents possessing of fixed landline phone

b. No = Number of respondents not possessing of fixed landline phone

5.3.2 Standard of Living

Here important socio-economic factors in terms of composition of household, demographic, and standard of livings are studied in relation to possession of fixed landline phone connection. Possession of these qualitative and quantitative variables is shown in Tables 5.5, 5.6, and 5.7 respectively.

Composition of household includes: the number of members in a family, number of mobile phone users in a family, and the number of earning members in a family. In relation to the number of members in a family (Table 5.5), the maximum number of respondents in all the talukas irrespective of rural and urban region have 4-6 members in their families and therefore the percentage of fixed landline phone connection is also high in these families. 78.34 percent of the respondents having 4-6 members in a family is in Padra taluka and 70.84 percent of them possess fixed landline phone connection. While 50.42 percent of the respondents in Savali taluka out of total 84.04 percent, having 4-6 members do possess fixed landline phone connection. Only 8 respondents of Vadodara

taluka have 10-12 members in a family and all of them possess fixed landline phone connection.

Further, 85.76 percent of respondents have 1-2 earning members in a family, followed with 13.12 percent of respondents having 3-4 earning members and the remaining 1.12 percent respondents have 5 or more earning members in a family. None of the respondent having 3-4 earning members in a family in Vaghodia taluka possesses fixed landline phone connection. But in any other case, number of respondents possessing fixed landline phone connection is more in comparison to those who do not possess it. Only 1 respondent falling in the 3-4 number of earning members category in each Dabhoi, Savali and Padra taluka do not possess fixed landline phone connection out of total 7, 3, and 8 respondents respectively.

1,046 respondents have 1-2 mobile phone users in a family, 99.16 percent of respondents of Savali taluka have 1-2 mobile phone users in a family out of which, 58.82 percent of respondents do possess fixed landline phone connection and the remaining 1 respondent making 0.84 percent have 5-6 mobile phone users in a family and even possess fixed landline phone. While in Padra taluka, 6 respondents have 3-4 mobile phone users and all of them possesses fixed landline phone besides having 5-6 mobile phone users in a family.

All these variables of composition of household in relation with possession of mobile phone are already discussed in last chapter. Possession of fixed landline phone connection and mobile phone in relation to these variables shows a similar trend. As the variables of composition of household starts increasing the possession of both the telecommunication services starts declining. But the percentage of population possessing the telecommunication services in Vadodara district specifies the importance of being in touch with the outer world and also with each other.

Table 5.6 shows the demographic factors in relation with the possession of fixed landline phone connection. Here educational qualification and marital status of the respondents has been taken into consideration. Out of the total 81.52 percent of respondents of Dabohi

Taluka, who are possessing fixed landline phone connection, 31.52 percent are graduates or under graduates while only 5.43 percent are post graduates. Some what similar trend i.e. percentage of respondents possessing fixed landline phone connection is highest among graduates and under graduates followed with post graduation as educational qualification can been seen in all talukas. In Savali,·Padra, and Vaghodia taluka none of the respondents possesses the degree of professional course, but all the respondents are having HSC as minimum educational qualification. In Vadodara Taluka, 4 out of 6 respondents having educational qualification less than SSC do possess fixed landline phone along with the mobile phone connection.

Percentage of married respondents possessing mobile phone is higher than unmarried respondents. But the percentage of unmarried respondents possessing fixed landline phone connection is 31.34 percent in all four talukas. In Vadodara taluka, percentage of married and unmarried respondents possessing fixed landline phone is 37.91 and 41.09 percent respectively. Somewhat similar trend of percentage between married and unmarried respondents possessing of fixed landline phones can be concluded for all the talukas.

Educational qualification of the respondents and the possession of the telecommunication services (fixed landline phone and mobile phone) by them show a familiar trend. Large number of graduate respondents possesses both fixed landline phone connection and mobile phone connection. While marital status of the respondent and the possession of both the telecommunication services in Vadodara district show an opposite trend. More number of married respondents in Dabohi, Vaghodia, and Vadodara taluka possesses mobile phones but not the fixed landline phone connection whereas vice versa in Padra and Savali taluka. Thus, the possession of the telecommunication services and marital status of the respondents in Vadodara district varies.

Possession of two wheelers, four wheelers, computer, C. D. Player, television, and house in relation with the possession of fixed landline phone connection is shown in Table 5.7. Here 1,192 respondents out of total 1,250 respondents possess two wheelers and within this also 945 respondents possesses fixed landline phone connection. Percentage of

respondents owning both, two wheelers and fixed landline phone connection in Dabhoi, Padra, Savali, Vaghodia and Vadodara taluka are 76.09, 84.17, 56.30, 64.18, and 77.93 percent respectively.

Out of total respondents, 980 respondents possess four wheelers and fixed landline phone connection at their disposal, out of which 229 respondents are from Vadodara taluka. In Savali taluka 48 respondents (40.34 percent) do not possess either of four wheeler or fixed landline phone connection. Total number of respondents possessing four wheelers is very less as compared to those who have two wheelers.

3.26 percent of respondents of Dabhoi taluka possesses computer along with fixed landline phone connection. And in Vadodara taluka 39.91 percent of respondents possess fixed landline phone connection and computer. Number of respondents possessing computer along with fixed landline phone connection is highest in Vadodara taluka in comparison to all other talukas. And the lowest percentage of possessing both the assets is in Savali taluka. Therefore, in Vadodara taluka respondents possessing computer along with fixed landline phone connection is highest among all the other talukas included in the present study.

Number of respondents possessing C.D. Player and fixed landline phone connection in Dabhoi, Padra, Savali, Vaghodia, and Vadodara taluka are 40, 61, 36, 28, and 455 respectively. While the number of respondents not possessing any of these assets in Dabhoi, Padra, Savali, Vaghodia, and Vadodara taluka are 3, 39, 10, 11, and 77 respectively. Much variation between the number of respondents possessing and non-possessing this asset can be analyzed.

One of the important and accepted electronic gadgets in our society is television set. Only 270 respondents do not own either television set or fixed landline phone connection while 980 respondents possess both the assets. 80.43 percent of respondents of Dabhoi taluka possess fixed landline phone connection and television set at a time of the survey while this percentage is 29.41 in Savali taluka, 50.84 percent in Padra taluka, 70.15 percent in Vaghodia taluka and 53.40 percent in Vadodara taluka.

Number of respondents possessing house and fixed landline phone connection is 587 in Vadodara taluka whereas only 40 respondents in Vaghodia taluka possess both these assets. In Savali taluka, this percentage is 51.26. Highest percentage of respondents i.e. 78.34 percent possessing house and fixed landline phone connection at the time of survey is in Padra taluka, followed by 73.91 percent of Dabhoi taluka.

Table 5.5
Possessions of Fixed Landline Phone Connection and Household Variable

Particulars	Dabohi			Savali			Padra			Vaghodia			Vadodara		
	A	B	Total	A	B	Total	A	B	Total	A	B	Total	A	B	Total
Number of Mobile Users in a Family															
1-2	73 (79.35)	16 (17.39)	89 (96.74)	70 (58.82)	48 (40.34)	118 (99.16)	101 (84.17)	13 (10.83)	114 (95.00)	40 (59.70)	19 (28.36)	59 (88.06)	522 (61.27)	154 (18.08)	676 (79.35)
3-4	2 (2.17)	1 (1.09)	3 (3.26)	-	-	-	6 (5.00)	-	6 (5.00)	7 (10.45)	1 (1.49)	8 (11.94)	144 (16.90)	18 (2.11)	162 (19.01)
5-6	-	-		1 (0.84)	-	1 (0.84)	-	-	-	-	-	-	14 (1.64)	-	14 (1.64)
Total	**75 (81.52)**	**17 (18.48)**	**92 (100)**	**71 (59.66)**	**48 (40.34)**	**119 (100)**	**107 (89.17)**	**13 (10.83)**	**120 (100)**	**47 (70.15)**	**20 (29.85)**	**67 (100)**	**680 (79.81)**	**172 (20.19)**	**852 (100)**
Number of Members in a Family															
1-3	9 (9.78)	4 (4.35)	13 (14.13)	7 (5.88)	7 (5.88)	14 (11.76)	15 (12.50)	4 (3.33)	19 (15.83)	4 (5.97)	5 (7.46)	9 (13.43)	117 (13.73)	73 (8.57)	190 (22.30)
4-6	63 (68.48)	13 (14.13)	76 (82.61)	60 (50.42)	40 (33.61)	100 (84.04)	85 (70.84)	9 (7.50)	94 (78.34)	41 (61.19)	15 (22.39)	56 (83.58)	527 (61.85)	90 (10.56)	617 (72.42)
7-9	3 (14.13)	-	3 (3.26)	4 (3.36)	1 (0.84)	5 (4.20)	7 (5.83)	-	7 (5.83)	2 (2.99)	-	2 (2.99)	28 (3.29)	9 (1.06)	37 (4.34)
10-12	-	-		-	-	-	-	-	-	-	-	-	8 (0.94)	-	8 (0.94)
Total	**75 (81.52)**	**17 (18.48)**	**92 (100)**	**71 (59.66)**	**48 (40.34)**	**119 (100)**	**107 (89.17)**	**13 (10.83)**	**120 (100)**	**47 (70.15)**	**20 (29.85)**	**67 (100)**	**680 (79.81)**	**172 (20.19)**	**852 (100)**
Number of Earning Members in a Family															
1-2	69 (75.00)	16 (17.39)	85 (92.39)	69 (57.98)	47 (39.50)	116 (97.48)	100 (83.33)	12 (10.00)	112 (93.33)	40 (59.70)	20 (29.85)	60 (89.55)	552 (61.27)	153 (17.96)	705 (82.75)
3-4	6 (6.52)	1 (1.07)	7 (7.61)	2 (1.68)	1 (0.84)	3 (2.52)	7 (5.83)	1 (0.83)	8 (6.67)	7 (10.45)	-	7 (10.45)	118 (13.85)	16 (1.88)	134 (15.73)
5 & More	-	-		-	-	-	-	-	-	-	-	-	10 (1.17)	3 (0.35)	13 (1.52)
Total	**75 (81.52)**	**17 (18.48)**	**92 (100)**	**71 (59.66)**	**48 (40.34)**	**119 (100)**	**107 (89.17)**	**13 (10.83)**	**120 (100)**	**47 (70.15)**	**20 (29.85)**	**67 (100)**	**680 (79.81)**	**172 (20.19)**	**852 (100)**

Source: Field Survey, 2005

Note: A = Respondents Possessing Fixed Landline Phone Connection
B = Respondents Not Possessing Fixed Landline Phone Connection

Table 5.6
Possessions of Fixed Landline Phone Connection and Demographic Variables

Particulars	Dabohi			Savali			Padra			Vaghodia			Vadodara		
	A	B	Total	A	B	Total	A	B	Total	A	B	Total	A	B	Total
Educational Qualification															
> SSC	-	1 (1.09)	1 (1.09)	-	-	-	-	-	-	-	-	-	4 (0.47)	2 (0.23)	6 (0.70)
SSC	1 (1.09)	-	1 (1.09)	-	5 (4.20)	5 (4.20)	2 (1.66)	2 (1.66)	4 (3.33)	-	-	-	26 (3.05)	9 (1.06)	35 (4.11)
HSC	4 (4.35)	3 (3.26)	7 (7.61)	9 (7.56)	5 (4.20)	14 (11.76)	1 (0.83)	1 (0.83)	2 (1.66)	2 (2.99)	2 (2.99)	4 (5.97)	21 (2.46)	18 (2.11)	39 (4.58)
Diploma	5 (5.43)	1 (1.09)	6 (6.52)	6 (5.04)	3 (2.52)	9 (7.56)	-	-	-	5 (7.46)	2 (2.99)	7 (10.45)	20 (2.35)	6 (0.70)	26 (3.05)
Graduate	29 (31.52)	9 (9.78)	38 (41.30)	36 (30.25)	24 (20.17)	60 (50.42)	42 (35.00)	4 (3.33)	46 (38.33)	26 (38.81)	11 (16.42)	37 (55.22)	280 (32.86)	72 (8.45)	352 (41.31)
Post Graduate	5 (5.43)	3 (3.26)	8 (8.69)	8 (6.72)	3 (2.52)	11 (9.24)	23 (19.16)	2 (1.66)	25 (20.83)	2 (2.99)	5 (7.46)	7 (10.45)	127 (14.91)	26 (3.05)	153 (17.96)
Professional	2 (2.17)	-	2 (2.17)	-	-	-	-	-	-	-	-	-	101 (11.85)	23 (2.70)	124 (14.55)
Under Graduate	29 (31.53)	-	29 (31.53)	12 (10.08)	8 (6.72)	20 (16.81)	39 (32.50)	4 (3.33)	43 (35.83)	12 (17.91)	-	12 (17.91)	101 (11.85)	16 (1.88)	117 (13.73)
Total	**75 (81.52)**	**17 (18.48)**	**92 (100)**	**71 (59.66)**	**48 (40.34)**	**119 (100)**	**107 (89.17)**	**13 (10.83)**	**120 (100)**	**47 (70.15)**	**20 (29.85)**	**67 (100)**	**680 (79.81)**	**172 (20.19)**	**852 (100)**
Marital Status															
Married	40 (43.48)	1 (1.09)	41 (44.57)	33 (27.73)	17 (14.29)	50 (42.02)	61 (50.83)	9 (7.50)	70 (58.33)	26 (38.81)	5 (7.46)	31 (46.27)	323 (37.91)	73 (8.57)	396 (46.48)
Unmarried	35 (38.04)	16 (17.39)	51 (55.43)	38 (31.93)	31 (26.05)	69 (57.98)	46 (38.34)	4 (3.33)	50 (41.67)	21 (31.34)	15 (22.39)	36 (53.73)	357 (41.90)	99 (11.62)	456 (53.52)
Total	**75 (81.52)**	**17 (18.48)**	**92 (100)**	**71 (59.66)**	**48 (40.34)**	**119 (100)**	**107 (89.17)**	**13 (10.83)**	**120 (100)**	**47 (70.15)**	**20 (29.85)**	**67 (100)**	**680 (79.81)**	**172 (20.19)**	**852 (100)**

Source: Field Survey, 2005

Note: A = Respondents Possessing Fixed Landline Phone Connection
B = Respondents Not Possessing Fixed Landline Phone Connection

Table 5.7
Possessions of Fixed Landline Phone Connection and Possession of Goods

Particulars	Dabohi			Savali			Padra			Vaghodia			Vadodara		
	A	B	Total	A	B	Total	A	B	Total	A	B	Total	A	B	Total
Possession of Two Wheelers															
Possession	5	-	5	4	2	6	6	2	8	4	3	7	16	16	32
	(5.43)		(5.43)	(3.36)	(1.68)	(5.04)	(5.00)	(1.66)	(6.67)	(5.97)	(4.48)	(10.45)	(1.88)	(1.88)	(3.76)
Non Possession	70	17	87	67	46	113	101	11	112	43	17	60	664	156	820
	(76.09)	(18.48)	(94.57)	(56.30)	(38.66)	(94.96)	(84.17)	(9.17)	(93.33)	(64.18)	(25.37)	(89.55)	(77.93)	(18.31)	(96.24)
Total	**75**	**17**	**92**	**71**	**48**	**119**	**107**	**13**	**120 (100)**	**47**	**20**	**67**	**680**	**172**	**852**
	(81.52)	**(18.48)**	**(100)**	**(59.66)**	**(40.34)**	**(100)**	**(89.17)**	**(10.83)**		**(70.15)**	**(29.85)**	**(100)**	**(79.81)**	**(20.19)**	**(100)**
Possession of Four Wheelers															
Possession	65	17	82	68	48	116	96	12	108	38	20	58	451	160	611
	(70.65)	(18.48)	(89.13)	(57.14)	(40.34)	(97.48)	(80.00)	(10.00)	(90.00)	(56.72)	(29.85)	(86.57)	(52.93)	(18.78)	(71.71)
Non Possession	10	-	10	3	-	3	11	1	12	9	-	9	229	12	241
	(10.87)		(10.87)	(2.52)		(2.52)	(9.17)	(0.83)	(10.00)	(13.43)		(13.43)	(26.88)	(1.41)	(28.290
Total	**75**	**17**	**92**	**71**	**48**	**119**	**107**	**13**	**120 (100)**	**47**	**20**	**67**	**680**	**172**	**852**
	(81.52)	**(18.48)**	**(100)**	**(59.66)**	**(40.34)**	**(100)**	**(89.17)**	**(10.83)**		**(70.15)**	**(29.85)**	**(100)**	**(79.81)**	**(20.19)**	**(100)**
Possession of Computer															
Possession	72	17	89	68	47	115	81	12	93	39	18	57	340	134	474
	(78.26)	(18.48)	(96.74)	(57.14)	(39.50)	(96.64)	(67.50)	(10.00)	(77.50)	(58.21)	(26.86)	(85.07)	(39.91)	(15.73)	(55.63)
Non Possession	3	-	3	3	1	4	26	1	27	8	2	10	340	38	378
	(3.26)		(3.26)	(2.52)	(0.84)	(3.36)	(21.67)	(0.83)	(22.50)	(11.94)	(2.99)	(14.93)	(39.91)	(4.46)	(44.37)
Total	**75**	**17**	**92**	**71**	**48**	**119**	**107**	**13**	**120 (100)**	**47**	**20**	**67**	**680**	**172**	**852 (100)**
	(81.52)	**(18.48)**	**(100)**	**(59.66)**	**(40.34)**	**(100)**	**(89.17)**	**(10.83)**		**(70.15)**	**(29.85)**	**(100)**	**(79.81)**	**(20.19)**	
Possession of C. D. Player															
Possession	35	3	38	36	39	75	46	10	56	19	11	30	225	95	320
	(38.04)	(3.26)	(41.30)	(30.25)	(32.78)	(63.03)	(38.33)	(8.33)	(46.67)	(28.36)	(16.42)	(44.78)	(26.41)	(11.15)	(37.56)
Non Possession	40	14	54	35	9	44	61	3	64	28	9	37	455	77	532
	(43.48)	(15.22)	(58.70)	(29.41)	(7.56)	(36.97)	(50.84)	(2.50)	(53.33)	(41.79)	(13.43)	(55.22)	(53.40)	(9.04)	(62.44)
Total	**75**	**17**	**92**	**71**	**48**	**119**	**107**	**13**	**120 (100)**	**47**	**20**	**67**	**680**	**172**	**852 (100)**
	(81.52)	**(18.48)**	**(100)**	**(59.66)**	**(40.34)**	**(100)**	**(89.17)**	**(10.83)**		**(70.15)**	**(29.85)**	**(100)**	**(79.81)**	**(20.19)**	
Possession of Television															
Possession	1	2	3	36	39	75	46	10	56	-	1	1	225	95	320
	(1.09)	(2.18)	(3.26)	(30.25)	(32.78)	(63.02)	(38.33)	(8.33)	(46.67)		(1.49)	(1.49)	(26.41)	(11.15)	(37.56)
Non Possession	74	15	89	35	9	44	61	3	64	47	19	66	455	77	532
	(80.43)	(16.30)	(96.74)	(29.41)	(7.56)	(36.98)	(50.84)	(2.50)	(53.33)	(70.15)	(28.36)	(98.51)	(53.40)	(9.04)	(62.44)
Total	**75**	**17**	**92**	**71**	**48**	**119**	**107**	**13**	**120 (100)**	**47**	**20**	**67**	**680**	**172**	**852**
	(81.52)	**(18.48)**	**(100)**	**(59.66)**	**(40.34)**	**(100)**	**(89.17)**	**(10.83)**		**(70.15)**	**(29.85)**	**(100)**	**(79.81)**	**(20.19)**	**(100)**
Possession of House															
Possession	7	1	8	10	4	14	13	2	15	7	2	9	93	74	167
	(7.61)	(1.09)	(8.70)	(8.40)	(3.36)	(11.76)	(10.83)	(1.67)	(12.50)	(10.45)	(2.98)	(13.43)	(10.91)	(8.69)	(19.60)
Non Possession	68	16	84	61	44	105	94	11	105	40	18	58	587	98	685
	(73.91)	(17.39)	(91.30)	(51.26)	(36.98)	(88.24)	(78.34)	(9.16)	(87.50)	(59.70)	(26.87)	(86.57)	(68.90)	(11.50)	(80.40)
Total	**75**	**17**	**92**	**71**	**48**	**119**	**107**	**13**	**120 (100)**	**47**	**20**	**67**	**680**	**172**	**852 (100)**
	(81.52)	**(18.48)**	**(100)**	**(59.66)**	**(40.34)**	**(100)**	**(89.17)**	**(10.83)**		**(70.15)**	**(29.85)**	**(100)**	**(79.81)**	**(20.19)**	

Source: Field Survey, 2005

Note: A = Respondents Possessing Fixed Landline Phone Connection
B = Respondents Not Possessing Fixed Landline Phone Connection

5.3.3 Ordinary Least Square Regression

Beside the forgoing discussion on the possession of standard of living variables in relation to possession to fixed landline phone, it is found that the assets under study have some positive effect on the possession of fixed landline phone connection. Further to examine the relationship between these variables with fixed landline phone, OLS regression analysis technique is made use of. Linear regression estimates the coefficients of the linear equation, involving one or more independent variables; the best predict the value of the variable.[37] Results are presented in Table 5.8 and the regression function is shown below.

$$\text{Fixed landline phone connection } (Y) = f(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11})$$

Where,

X_1 = Number of members in a family
X_2 = Number of mobile phone users in a family
X_3 = Number of earning members in a family
X_4 = Educational Qualification of the respondent
X_5 = Marital status of the respondent
X_6 = Possession of two wheeler
X_7 = Possession of four wheeler
X_8 = Possession of computer
X_9 = Possession of C. D. Player
X_{10} = Possession of television
X_{11} = Possession of house

In order to explain the variation in qualitative variables, the dummy variables are introduced. The reason dummy dependent variable models are important is that they are everywhere. Many individual decisions of how much to do something require a prior decision to do or not do at all. Possession of two wheelers, four wheelers, C. D. player,

[37] Spss- help topics

television, and house are considered here. 1 represents the possession and 0 non-possessions of these goods. Marital status, showing 1 for married and 0 for unmarried respondents. Educational qualification, as discussed in Table 5.6, is categorized in eight different stages. Other three explanatory variables are the number of members in a family, number of mobile phone users in a family and the number of earning members in a family.

In the analysis, the regression coefficient for marital status and number of earning members in a family shows the negative impact of both these variables on the consumers owning fixed landline phone connection ($b1 < 0$). All other coefficient value has positive sign, which shows strong association between them and possession of fixed landline phone connection. The result shows that the increase in possession of all goods will also result in increase in owning of fixed landline phone connection. β values of possession of four wheelers, television and house are exceptions from the exponential values.

The table t-value is 1.645 at 5 percent level. Table 5.8 shows all t-values with * sign, significance at 95 percent confidence level. Marital status and possession of two wheelers are the only variables having estimated value less than the table value, representing lack of effect of marital status, and of possession of two wheelers on fixed landline phone connection.

All the variables of the model taken together, explains 15 percent variation in the possession of fixed landline phone connection.

Total number of members in a family and the number of mobile phone users in a family have positive impact on fixed landline phone connection. It is interesting to note that with the increase in the number of earning members in the family, the probability of fixed landline phone connection goes on falling. The educational qualification of the respondent, marital status, possession of four wheelers, computer, C. D. Player, house and television are affecting positively the possibility of possession of fixed landline phone connection.

Table 5.8

Effects of Variables on Fixed Landline Phone Connection

Particulars	Coefficient	t-value
Constant	-6.72E-02	-.800
Number of members in a family	4.235E-02	4.725*
Number of mobile phone consumers in a family	3.381E-02	2.251*
Number of earning members in a family	-3.02E-02	-1.924*
Educational qualification of the respondent	2.438E-02	3.142*
Marital status of the respondent	-1.31E02	-.541
Possession of two wheelers	8.623E-02	1.644
Possession of four wheelers	.102	3.339*
Possession of computer	9.339E-02	3.543*
Possession of C. D. player	5.100E-02	2.148*
Possession of television	.303	5.554*
Possession of house	.113	3.780*
R^2 = .159		

Note: a. for all dummy variables (marital status, possession of two wheelers, four Wheelers, C. D. player, Television, house) possession = 1, otherwise 0.

b. * Significant t value at a 5% level

From the above analysis and interpretation about the possession of fixed landline phone connection in Vadodara district in relation to the components of family structure and assets, one can easily consider the importance of fixed landline phone besides the availability of mobile phone services. Purpose of getting fixed landline phone connection is to be in contact and to have some common contact number in a family where all the members can be traced out collectively and also individually, will never let down the growth of fixed landline phone market in Vadodara district. It will not just flourish but its demand will increase with time without having any impact on growth of the mobile phone market.

5.4 Educational Qualification and Paid Mobile Phone Value Added Services

Education refers to the process of learning and teaching. As mentioned in chapter 3, educational qualification distinguishes human being from other living beings. Increasing acceptance of educational level adds to an increase in economic and social development of any country. In relation to education, mobile phone usage pattern can be studied as services exactly in use and the usage level for the services.

Many scholars have conducted the studies on the importance of education in relation with new upcoming technology. A study conducted by Yusuf, F. and Naseri, M. B. (2003)[38] mentioned that educational qualification has an indirect influence on the frequency of using ATM, surprisingly; higher income earners saw them as less useful than low-income earners.

Mobile phones are the new means of learning in today's world. It helps in better higher education. Students are using mobile phone to shape and express their collaborative intent, sharing the knowledge electronically. In some of the Japanese collage's, lab funds are not included any more in the fee structure, as they being replaced by wireless equipment and configurable furniture.[39] Another important gizmo to be mentioned here is personal note-book or laptop, a teacher from U.S., agrees that students are so use to with the laptops that they have significantly increased their personal writing and composition.[40]

As Emphasised by Whattananarong (2004) mobile phone portability, simplicity, and affordability has helped in improving the e-learning status. It has been accepted as a natural fit for education initiatives in places where computers and internet connectivity may be scarce.[41]

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[38] Opcit (2003)

[39] Alexander, B. (2004) "Going Nomadic: Mobile Learning In Higher Education", Educause Review, September-October 2004.
www.educause.edu, 2007

[40] Ibid (2004)

[41] Whattananarong (2004) "An Experiment in the Use of Mobile Phones for Testing at King Mongkut's Institute of Technology North Bangkok, Thailand", Paper Presented at the International Conference on Marketing Education Reform, Happen: Learning From Asian Experience and Comparative Perspectives, Bangkok, Thailand.

Here in this section an attempt is made to analyze the difference between usage of mobile phone connection in relation to playing games, requesting news updates and participating in quiz competitions. Also opinion about different variables like - accepting mobile phone as status symbol, considering mobile phones as a necessity for daily life, influence of mobile phones on health of the user, ban on using camera phones in public place and also its usage in schools and collages is studied for Vadodara district. On the basis of response of 1,250 respondents', educational level is studied in not less than seven different categories as discussed in Table 5.9. Table 5.9 and 5.10 specifies the variables under study, in relation to educational qualification of the respondents and further graphical presentation of the same is highlighted (figure 5.2, 5.3, and 5.4).

5.4.1 Mind-set of the Mobile Phone Consumers

Table 5.9 studies the attitude of mobile phone consumers of Vadodara district and specifies these variables in relation to educational qualification of 1,250 respondents. 932 respondents (74.56 percent) do not consider usage of mobile phone as a status symbol and within this maximum respondent are graduates. Total number of respondents considering mobile phone usage as status symbol is less than those who do not believe so. Greatest variation is in the category of professional mobile phone consumers, where 1.76 percent respondents consider mobile phone as a status symbol out of total 10.08 percent respondents.

A study conducted on mobile phone usage pattern in Germany found that it was considered as status symbol until late 1990s. Using a mobile phone in public place provided an image of importance, responsibility, and financial power. But during 2000, the number of mobile phones doubled, demonstrating a loss of elite image of mobile phone besides illustrating how short a time status effects lasts (Hoflich, J. R. and Rossler, P. 2002).[42] In India, mobile phones used to represent a symbol and impudent in daily life, but as a result of strong competition among service providers and technologies it has become a technology of choice for low price telephony.[43]

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[42] Opcit. (2002)

[43] Ministry of Finance (2004-2005), "Economic Survey – 2004-2005" GOI, New Delhi. www.indiabudget.nic.in, 2007.

Out of total 1,250 respondents, 924 respondents (73.92 percent) believe that the mobile phone is a necessary article in their daily life. But out of total seven respondents having less than SSC studies only one respondent believes it as a necessity and all others consider it as luxury. Only 10.96 percent of the respondents having graduation as educational qualification believe mobile phones as a necessity article in their life.

Among graduates, 140 respondents (11.20 percent) believed that mobile phone signifies the status symbol whereas 137 respondents (10.96 percent) reported it as a necessity in their life. More number of diploma holder respondents acknowledges mobile phone as status symbol and not as necessity. Similar trend is followed by the under graduate respondents, but those believing mobile phone as status symbol are just 62 respondents (4.96 percent) while those accepting mobile phone as necessity is only 90 respondents (7.20 percent) out of 221 respondents.

One of the important questions to be taken into consideration here is "Who needs a mobile phone?" Mobile phone displays an ironic understanding as regards those who need them due to physical handicaps and health problem, as it allows for making immediate emergency calls. But its acceptance as necessity in daily life around the world highlights the importance of being in contact with the society. But unannounced calling is annoying in the digital era differing slightly from sales representative. Mobile phone calls interrupt the receiver's rhythm of life, no matter with what intimate work they are occupied with.

The maximum number of respondents in the age group of 11 years to 30 years reported that mobile phone usage should be banned in schools and collages. Out of 1,250 respondents only 853 respondents (68.24 percent) had given negative response. Maximum variation in relation to prohibition on mobile phone usage pattern is among the graduates. Out of 333 respondents, 177 respondents (14.16 percent) reported that it should be banned. Total number of respondents having educational qualification less than SSC, SSC, and HSC is 118 respondents (9.44 percent) and out of these only 63 respondents (5.04 percent) agrees that mobile phones should not be banned in schools and collages. From the Table 5.9, it can be concluded that, as the educational level of the

respondents increases their response about ban on mobile phone usage in schools and collages declines.

A study done by Doring, N et, al. (2004) emphasis that mobile phones do not represent a disturbance factor at schools, meaning that conflicts with teachers, prohibition of mobile phones, and mobile phone cheating are seldom occurrence.[44] Formal educational level of parents of mobile phone using children is studied by Hoflich, J. R. and Rossler, P. (2002) here. The ownership of mobile phone is related to gender specific educational methods in different income groups. Study found that parents with higher educational level bring their daughters more autonomous and more aware of technical advances. Girls with upper class families are more users of technological gizmos and vice versa for boys.[45] Some of the Japanese schools are developing policies to block cheating by SMS.[46] As a token of precaution state officials of the capital along with other states are trying hard to implement the ban on mobile phone usage in educational institutions in India, but still results are awaited. Main reason for the same is to stop the negative consequences of the mobile phone usage by the teenagers who do not understand the seriousness of misuse of the technology.

With reference to banning of camera phone usage, shows an opposite results as compared to early results of ban on mobile phone usage in schools and collages is found out. Out of total number of respondents, 67.04 percent of the respondents positively agree on prohibiting the usage of mobile phones with camera in public place, highest percentage of positive result as compared to all other statements discussed earlier. Out of total respondents with less than SSC, SSC, HSC, Diploma, Graduate, Post Graduate, Professional, and Under Graduate as educational qualification 5, 34, 43, 31, 356, 124, 77, and 168 respondents respectively reported that the usage of camera phones should be banned in public places.

Various scholars have studied that the ban on mobile phones usage with cameras but one should understand that banning is not the remedy. Awareness is the ray of light. Mobile

[44] Opcit (2004)
[45] Opcit (2002)
[46] Opcit (2004)

phone usage pattern of 200 Japanese mothers and daughters from grade 5 of primary school to grade 3 of HSC concludes that 72.20 percent of girls had mobile phones with camera phones. They invest around 3,000 yen in a month, on an average, for data transmission.[47]

Out of total 1250 respondents, 679 respondents reported that usage of mobile phones is safe and they do not have to face any health problem even after using mobile phones, while 571 respondents are aware about the health problems. 299 respondents having graduation as educational qualification, responded that mobile phone usage is safe from the health point of view. But 112 respondents having professional degree besides agreeing on secure mobile phone usage also responded that much frequent use for long time duration might have some side effects on health of the user.

Mobile phone usage and its effect on health of the consumer is a research title all over the world and a controversial subject among the scholars. Maisch Don (2001)[48] in his research recommended that the usage of mobile phone by consumers is harmful for their health. The study suggests some of the remedies as follows:

- Radiation damages are more prone to the developing bodies and so the use of mobile phones by children's should be discouraged.
- Duration of mobile phone usage should be less.
- Mobile phone handsets should be kept far from the body and while using. they should not be pressed against the head. As far as possible in-built loudspeakers and microphones should be used. Hands free kit should be used to greatly reduce the microwave emissions.

[47] Opcit (2004)
[48] Maish, Don (2001) "Mobile Phone use: It's Time to Take Precautions", Journal of Australasian Collage of Nutritional and Environment Medicine, Vol. 20, No. 1, April 2001.

Chakraborty, P. (2005) studied the mobile phone usage pattern of youths in Vadodara city and emphasized that 103 respondents (79.3 percent) of the total are aware about the health hazards of mobile phone usage.[49]

As stated by the chairman of Wordtel and C-Sam, Pitroda, S., the key challenges in the urban areas are to highlight the latest technology, to develop new applications for education and healthcare.

Some of the important health problems includes-increasing risk of cancer, neck pain, headache etc. Awareness about health problem in relation to mobile phone usage by youth signifies a positive sign for the society.

[49] Chakraborty, P. (2005) "Awareness about Cell phones Amongst Youth - A Study", Masters thesis Communication Studies, Faculty of Journalism and Communication, M. S. University of Baroda, Vadodara.

Table 5.9
Educational Qualification and Mind Set of the Mobile Phone Consumers

Educational Qualification	Usage of Mobile Phone as Status symbol			Usage of Mobile Phone as Necessity in Daily Life			Ban on Usage of Mobile Phones in Schools and Collages			Ban on Using Mobile Phones with Inbuilt Camera in Public Place			Usage of Mobile Phones Affects the Users Health		
	A	B	Total	A	B	Total	A	B	Total	A	B	Total	A	B	Total
>SSC	3 (0.24)	4 (0.32)	7 (0.56)	1 (0.08)	6 (0.48)	7 (0.56)	2 (0.16)	5 (0.40)	7 (0.56)	5 (0.40)	2 (0.16)	7 (0.56)	5 (0.40)	2 (0.16)	7 (0.56)
SSC	16 (1.28)	29 (2.32)	45 (3.6)	11 (0.88)	34 (2.72)	45 (3.60)	23 (1.84)	22 (1.76)	45 (3.60)	34 (2.72)	11 (0.88)	45 (3.60)	26 (2.08)	19 (1.52)	45 (3.60)
HSC	21 (1.68)	45 (3.6)	66 (5.28)	23 (1.84)	43 (3.44)	66 (5.28)	30 (2.40)	36 (2.88)	66 (5.28)	43 (3.44)	23 (1.84)	66 (5.28)	42 (3.36)	24 (1.92)	66 (5.28)
Diploma	13 (1.04)	35 (2.80)	48 (3.84)	15 (1.20)	33 (2.64)	48 (3.84)	18 (1.44)	30 (2.40)	48 (3.84)	31 (2.48)	17 (1.36)	48 (3.84)	33 (2.64)	15 (1.20)	48 (3.84)
Graduate	140 (11.20)	393 (31.44)	533 (42.64)	137 (10.96)	396 (31.68)	533 (42.64)	177 (14.16)	356 (28.48)	533 (42.64)	356 (28.48)	177 (14.16)	533 (42.64)	299 (23.92)	234 (18.72)	533 (42.64)
Post Graduate	41 (3.28)	163 (13.04)	204 (16.32)	46 (3.68)	158 (12.64)	204 (16.32)	56 (4.48)	148 (11.84)	204 (16.32)	124 (9.92)	80 (6.40)	204 (16.32)	112 (8.96)	92 (7.36)	204 (16.32)
Professional	22 (1.76)	104 (8.32)	126 (10.08)	3 (0.24)	123 (9.84)	126 (10.08)	31 (2.48)	95 (7.60)	126 (10.08)	77 (6.16)	49 (3.92)	126 (10.08)	75 (6.00)	51 (4.08)	126 (10.08)
Under Graduate	62 (4.96)	159 (12.72)	221 (17.68)	90 (7.20)	131 (10.48)	221 (17.68)	60 (4.80)	161 (12.88)	221 (17.68)	168 (13.44)	53 (4.24)	221 (17.68)	87 (6.96)	134 (10.72)	221 (17.68)
Total	**318 (25.44)**	**932 (74.56)**	**1250 (100)**	**326 (26.08)**	**924 (73.92)**	**1250 (100)**	**397 (31.76)**	**853 (68.24)**	**1250 (100)**	**838 (67.04)**	**412 (32.96)**	**1250 (100)**	**679 (54.32)**	**571 (45.68)**	**1250 (100)**

Source: Field Survey 2005

Note: A = Positively consent about the statement.
B = Negatively consent about the statement.

5.4.2 Usage of Paid Mobile Phone Value Added Services

Till this point of discussion, mobile phone users in relation with their educational qualification have been considered. In the subsequent paragraphs the discussion on actual usage of mobile phones in relation to educational qualification of the users is analyzed with reference to playing games, requesting for news updates, and participating in quiz competition. Results are shown in Table 5.10.

Number of respondents playing games on mobile phones is 59.52 percent, constituting 744 respondents out of total 1250 respondents. Maximum percentage of respondents preferring playing games on mobile phones has SSC as educational qualification (33 respondents (73.33 percent) out of total 45 respondents, followed by professional degree holders (68.25 percent) respectively. Only 99 respondents (44.49 percent) out of total 221 respondents with under graduate degree always play games on mobile phone.

Dictionary meaning of the word game is a form of competitive activity or sport played according to rules in which people or teams compete against each other.[50] Importance of games for the constitution of a society has decreased; games still represent certain subcultures and introduce individuals to these cultures. Mobile phone game can be played in the mobile phone handset platform. Mobile phone gaming is preferred specially by young consumers, as they learn new technologies very fast and have accepted the same as a part of their daily lives. Between 19 years to 22 years of age group mobile phone consumers forms 34 percent of the total mobile phone game market in China and out of it 25 percent are the students.[51]

Acceptance of mobile phone games in a short period of time can be judged with Mobile Streams, Inc.[52], which has published a book analyzing the mobile gaming market around the world. Various studies emphasizing the technology that support the evolution of mobile games, in depth analysis of the generation related to mobile phone gaming and market analysis of the same are undertaken.

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[50] Opcit (2006)
[51] Opcit (2005)
[52] www.mobilestreams.com, 2007

Mobile phones inspire users to play with them, which are precisely the quality of mobile phones, which attracts consumers to accept mobile phone handsets in their daily life.[53] Generally mobile phone users prefer to play inbuilt games pre-installed in their mobile phone handsets. Many games are designed in such a manner that the mobile phone user doesn't need to be taught how to play; the designer assumes that the user will never read the manual. There are some technology savvy consumers preferring to download new game software in their mobile phone handsets, by paying premium charges. Around 87 percent of the mobile phone consumers in China consider the mobile phone game available in the handset, when they purchase one and they take it as an important influencing factor when selecting a mobile phone handset.[54]

The game-playing attitude is likely to survive in the near future. It has emerged as a mega business for the telecommunication sector and an important entertainment source for the consumers. Development of mobile games around the world has equally affected the Indian market and also the Vadodara district of Gujarat state. Within the nation, mobile phone game market has grown approximately 75 percent in last four years. Still it is in the beginning phase. Increasing trend of accepting mobile phone gaming is highly supported by the improvement in mobile phone handset and availability of high bandwidth. Some of the most preferred games include sports like cricket, football, and balling etc. small display screen, limited color and voice display, technology problem, and size limitation of the application software are some of the basic limitations of the mobile phone game market.

The detail broadcast report of information about recent event i.e. news update on mobile phones is available for the consumers. 30.15 percent of the respondents with professional degree, demands always for current events updates (30.15 percent) followed by those having post graduation as educational qualification (28.92 percent) and then by diploma holders (27.08 percent) (Table 5.10). Minimum demand is from the respondents having SSC as educational qualification (2.22 percent). Out of total 1250 respondents, 227 respondents are always using this facility. This trend emphasis that more educated a

[53] Opcit (2002)
[54] Opcit (2005)

consumer is more frequent users they are for paid services. But only those consumers having passion or in some or the other way this information can help them in earning their livings, demands for the same. Some of the important news demand includes: politics, astrology, sports, entertainment etc.

Another important paid service facility available for mobile phone consumers is to participate in quiz competitions and contests. Respondents with educational qualification less than SSC taking part in such services are 14.28 percent. While only 6.37 percent of the respondents with graduation degree get involved in mobile phone quiz competitions. None of the respondents with SSC as educational qualification avail this facility. Generally people participate in such quiz competitions out of curiosity, to test their luck. As the participants have to pay premium charges to be a part of this service, only few people are interested in it. Not only the mobile phone service providers but also other service providers in collaboration with other media facilities are organizing such events.

Table 5.10

Educational Qualification of the Respondent and Acceptance of Mobile VAS

Educational Qualification	Playing Games			Requesting for News Updates			Quiz Participation		
	A	B	Total	A	B	Total	A	B	Total
>SSC	1 (0.08)	6 (0.48)	7 (0.56)	1 (0.08)	6 (0.48)	7 (0.56)	1 (0.08)	6 (0.48)	7 (0.56)
SSC	12 (0.96)	33 (2.64)	45 (3.60)	1 (0.08)	44 (3.52)	45 (3.60)	0 -	45 (3.60)	45 (3.60)
HSC	27 (2.16)	39 (3.12)	66 (5.28)	7 (0.56)	59 (4.72)	66 (5.28)	7 (0.56)	59 (4.72)	66 (5.28)
Diploma	16 (1.28)	32 (2.56)	48 (3.84)	13 (1.04)	35 (2.80)	48 (3.84)	6 (0.48)	42 (3.36)	48 (3.84)
Graduate	214 (17.12)	319 (25.52)	533 (42.64)	97 (7.76)	436 (34.88)	533 (42.64)	34 (2.72)	499 (39.92)	533 (42.64)
Post Graduate	74 (5.92)	130 (10.4)	204 (16.32)	59 (4.72)	145 (11.6)	204 (16.32)	20 (1.6)	184 (14.72)	204 (16.32)
Professional	40 (3.2)	86 (6.88)	126 (10.08)	38 (3.04)	88 (7.04)	126 (10.08)	11 (0.88)	115 (9.2)	126 (10.08)
Under Graduate	122 (9.76)	99 (7.92)	221 (17.68)	11 (0.88)	210 (16.8)	221 (17.68)	17 (1.36)	204 (16.32)	221 (17.68)
Total	**506 (40.48)**	**744 (59.52)**	**1250 (100)**	**227 (18.16)**	**1023 (81.84)**	**1250 (100)**	**96 (7.68)**	**1154 (92.32)**	**1250 (100)**

Source: Field Survey 2005

Note: A = Always involve in the activity.
B = Never involve in the activity.

5.4.3 Graphical Analysis of Various Paid VAS and Level of Educational Qualification

In order to examine the relation between educational qualification of the mobile phone consumers and the rate of acceptance of various paid VAS, graphical presentation is made use of and graphs 5.2, 5.3, and 5.4 represents the same. In graph 5.1, game playing habits of the respondents along with the percentage of respondents with different educational qualification are highlighted. Number of respondents with graduation as educational qualification is high but the percentage of graduate respondents not playing games is more than the percentage of respondents playing games. Respondents with post graduation as educational qualification are less use to, for this paid VAS as compared to professionals. Thus, as the educational qualification of the respondents increases, the game playing activity declines.

Graph 5.3 shows the percentage of respondents with different educational qualification requesting for news updates on their mobile phones. Respondents with higher educational qualification demands more for this paid VAS and visa-versa. Maximum variation can be seen in the category of the respondents having graduation and under graduation as educational qualification, peaks in the graph represent the same. Whereas, the peak level in the percentage of graduate respondents requesting for news updates is high as compared to the respondents in other categories of educational qualification.

Graph 5.4 shows the results of the percentage of respondents in various educational qualification categories and their requesting habit for the quiz participation via mobile phones. Area representing the percentage of respondents not requesting for the participation in quiz competition is much more than the percentage of respondents availing the benefit of this paid VAS.

Scholars all over the world have undertaken various studies in relation to mobile phone market. But only few studies have been done on consumer behavior in relation to paid services. In the present study area, all the paid mobile phone services: games, news updates, and quiz participation, are related to educational qualification of the mobile phone consumers, in one or the other way affecting their service consumption behavior.

Currently mobile phone games are in demand but the other paid services are still in need of proper exposure and thus in near future all the paid mobile phone services will have equal opportunities of development. Educational qualification in relation to mobile phone services stands as hedonism rather than utilitarian activity. It is found from the analysis that all the variables, which affect the usage of mobile phone paid services among consumers, are important. The result shows that the consumers of Vadodara district are not frequent users of the paid services.

Figure 5.2

Gaming and Educational Qualification of the Respondent

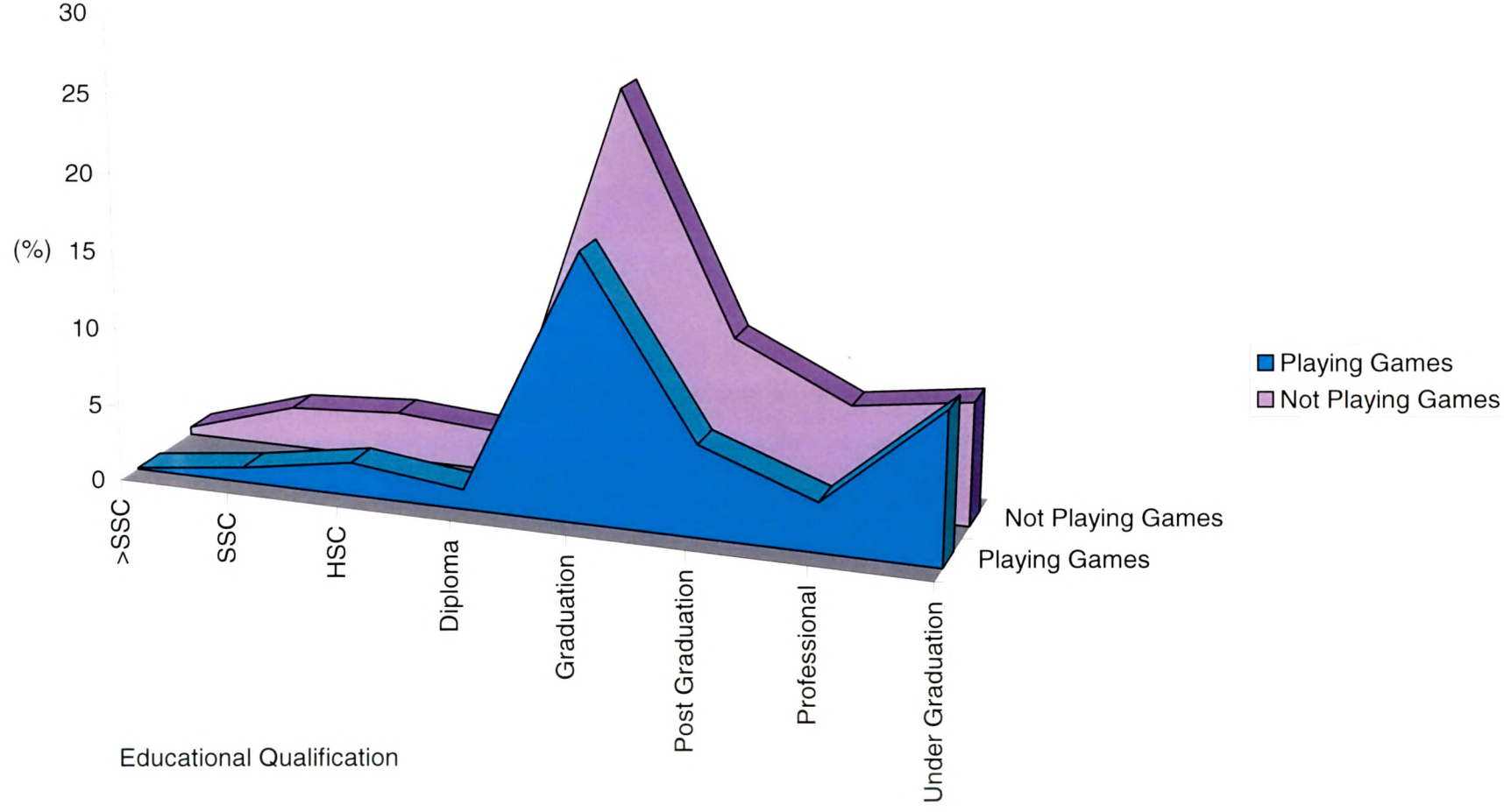


Figure 5.3

Respondents Requesting for News Updates and Educational Qualification

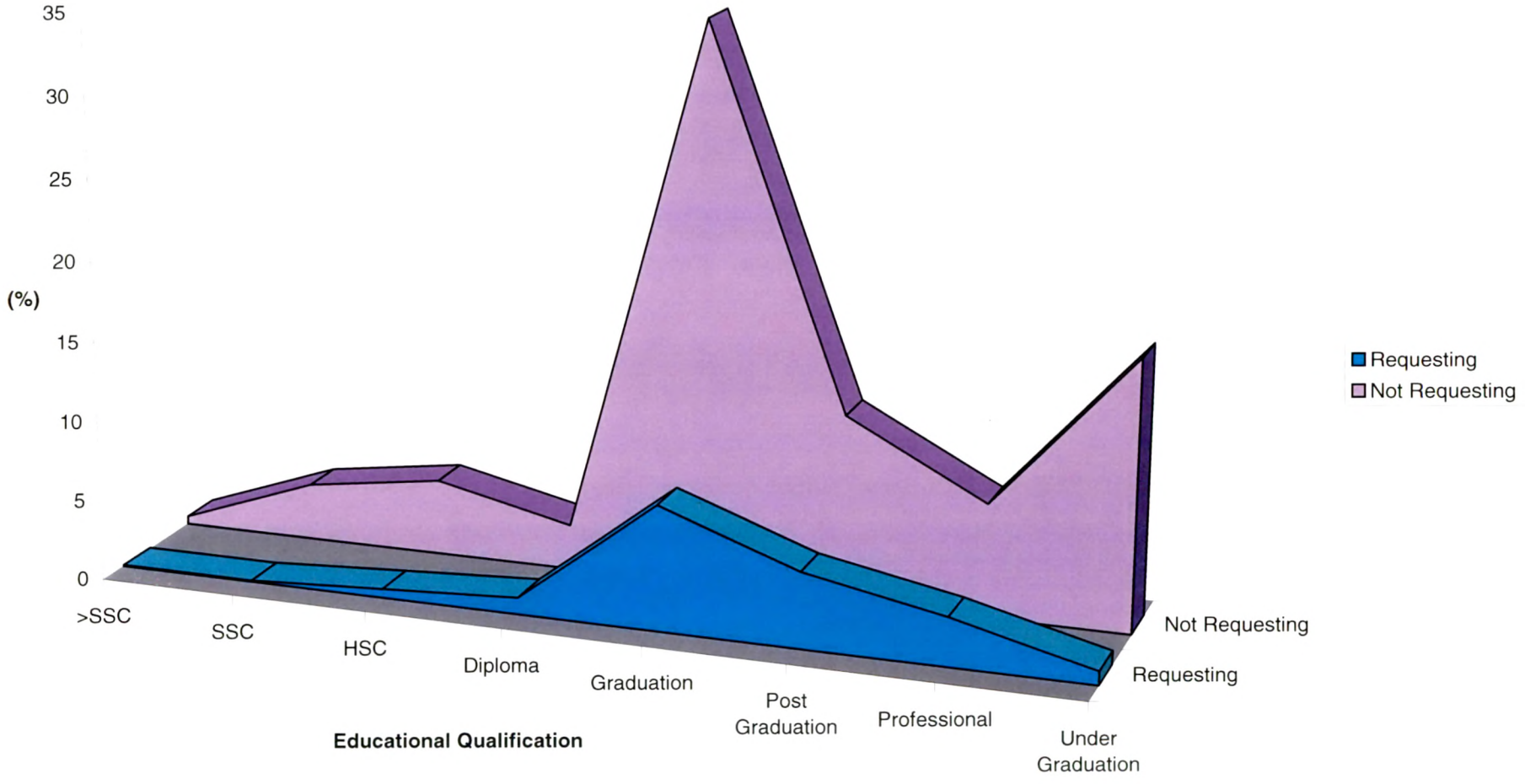
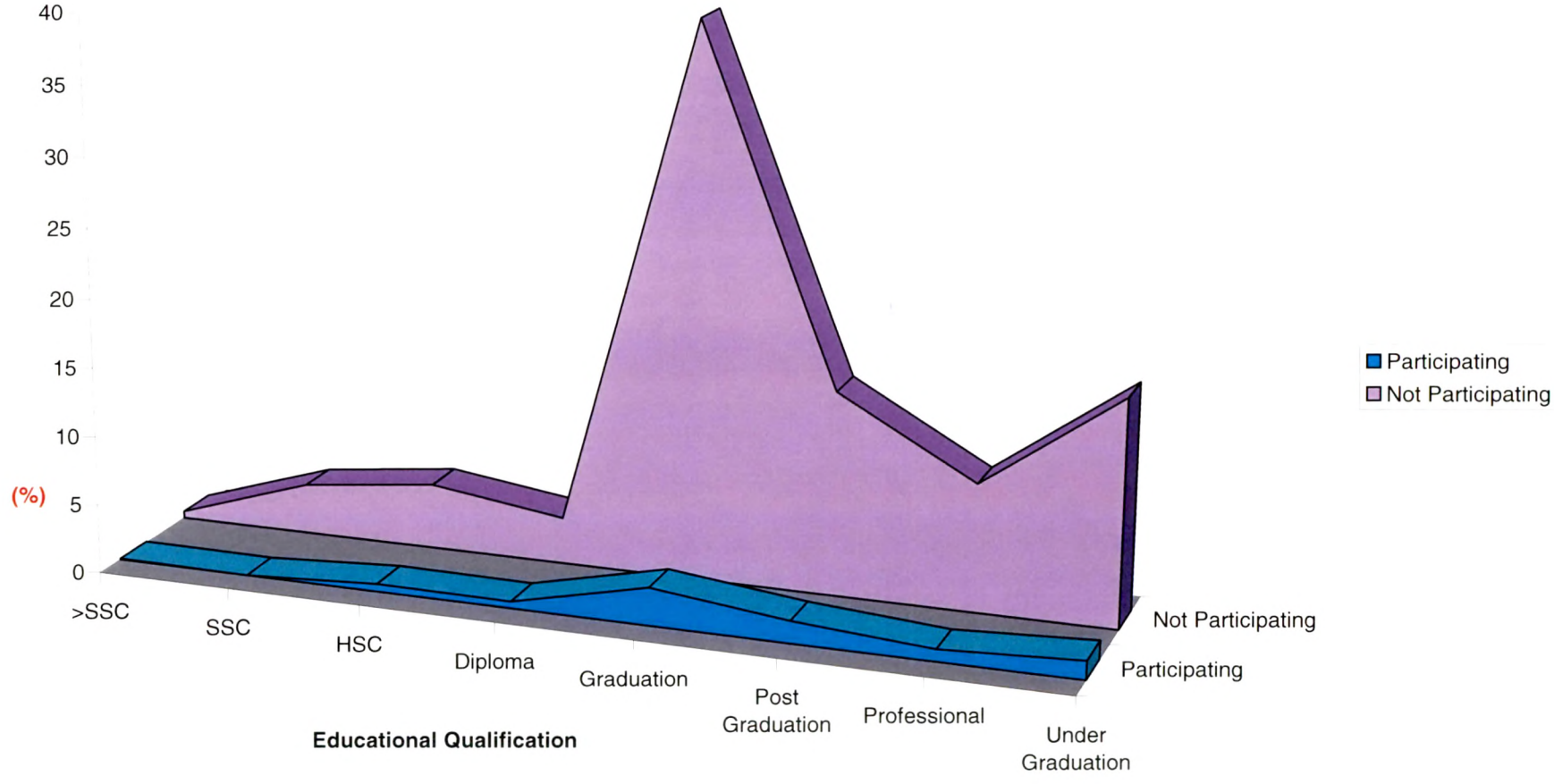


Figure 5.4

Respondent Requesting for Quiz Participation and Educational Qualification



5.5 Telecommunication Services - Complementary or Substitutes

In this section an attempt is made to analyze the pace of consumer adoption of mobile phones in relation with fixed landline phone connection. Telecommunication services contribute to the economic development by providing; better market information, improved transport efficiency, more distributed economic development, besides increasing security in rural areas, organizations, and people and also increasing connectivity to international economic activity.[55] Telecommunication services make a significant contribution to more effective management of socio-economic activities in the country, especially in urban and semi-urban areas.[56] As the telecommunication sector continues to create new services, mobile phone and fixed landline phone are the basic devices for it. Possession of fixed landline phone and mobile phones by the respondents are taken into consideration, to analyze their complementarities and substitutability in Vadodara district. Information on consumer possessing fixed landline phone connection, number of members in a family, number of mobile phone users in a family, in relation with monthly rent of mobile phone is taken into consideration. Further, regression model is applied to understand the usage pattern of the telecommunication services.

5.5.1 Fixed Landline Phone and Mobile Phone Services

In our country, historically, mobile phones were accepted at a very slow pace at the time of their introduction. Its high prices, poor geographical coverage, cumbersome handsets, and unsatisfied transmission quality in relation with fixed landline phone services are some of the main reasons for the slow growth of mobile phone market. Since those early days, mobile phone services have grown at astonishing rates, as the quality of services and performance of service providers is steadily improving.

Today mobile phone has been incorporated into consumers' lifestyle. Multi-possession of telecommunication services is not only accepted but has become a trend of current scenario. U.S. consumers tend not to disconnect there fixed landline phone connection

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[55] Opcit (1999)

[56] Biswas, K. (1983) "Telecommunication in settlement Development", Proceedings of Telecommunications for National Development, Indian Chamber of Commerce, India Exchange, Calcutta.

though they possess mobile phone services.[57] Fixed landline phone connection in most European Union countries still preferred as an effective means of connecting a computer to the internet.[58]

Fixed landline phone connection provides a useful means of contacting any member of the household as phone is in a consistent position and there is no risk of it running out of battery power at any time. The mobile phone has become ubiquitous medium; it offers the possibility of reaching others and to be reached by others, independent of where the caller and the person called are. The use of telecommunication services has not only been accepted but the success of mobile phone services all over the world and the continuous requirement of fixed landline phone connection has made both the services to compete with each other.

In 2002, worldwide number of mobile phones in use surpassed the total number of fixed landline connection. It took a century for the world to accumulate the first billion fixed landline phones, but only a decade or so to do the same with mobile phones.[59] On October 24, 2004 number of mobile phone connection in India has taken over the fixed landline phone connection, nine months after the commencement of the mobile phone services. And the biggest highlight of the financial year 2005-2006 was, mobile phone services overtaking fixed landline phone service revenues. The growth process is taking place everywhere in the country: metropolitan to smaller towns and villages.

Table 5.11 shows the region-wise number of respondents in Vadodara district, possessing fixed landline phone and mobile phone services. Basic criterion for selecting a respondent is the possession of at least one mobile phone at the time of the survey. Therefore, all 1,250 respondents possess mobile phones. But the possession of fixed landline phone was an optional. Out of total 1,250 respondents, 980 respondents (78.40 percent) possess fixed landline phone connection at their premises. In Padra taluka 89.17

[57] Ward, M.R. and Woroch, G.A. (2004) "Usage Substitution Between Mobile Telephone and Fixed Line in the U.S.", Department of Economics, University of Texas at Arlington, Arlington.
[58] Opcit (1999)
[59] Feldmann, V. (2003) "Mobile Overtakes Fixed: Implications for Policy and Regulation", Research Project, ITU, Switzerland.

percent (107 respondents) of the respondents had fixed landline phone connection whereas, in Savali taluka only 59.66 percent (71 respondents) of the respondents possess the same. In Vadodara urban region 79.81 percent (680 respondents) of the respondents possesses fixed landline phone connection.

Table 5.11

Possession of Telecommunication Services

Particulars	Rural				Urban	Total
	Dabohi	Padra	Savali	Vaghodia	Vadodara	
Fixed Landline Phone	75 (81.52)	107 (89.17)	71 (59.66)	47 (70.15)	680 (79.81)	980 (78.40)
Mobile Phone	92 (100)	120 (100)	119 (100)	67 (100)	852 (100)	1250 (100)
Total	**92 (100)**	**120 (100)**	**119 (100)**	**67 (100)**	**852 (100)**	**1250 (100)**

Source: Field Survey 2005

To analyze the acceptance of telecommunication services, number of members in a family and number of mobile phone users in a family are also taken into consideration, Table 5.12 shows the same. With the increase in the number of members in a family and the number of mobile phone users in a family, acceptance of telecommunications services declines. Maximum numbers of respondents have 4-6 members in the family whereas 1,046 respondents have 1-2 mobile phone users in a family. Only 18 respondents have 10-12 members in a family and only 17 respondents have 5-6 mobile phone users in a family.

Table 5.12

Region-wise Household Variables

Variables	Rural				Urban	Total
	Dabohi	Padra	Savali	Vaghodia	Vadodara	
Number of Members in a Family						
1 – 3	13 (1.04)	19 (1.52)	14 (1.12)	9 (0.72)	190 (15.2)	245 (19.60)
4 – 6	76 (6.08)	94 (7.52)	100 (8.00)	56 (4.48)	617 (49.36)	943 (75.44)

7 – 9	3 (0.24)	7 (0.56)	5 (0.40)	2 (0.16)	37 (2.96)	54 (4.32)
10 – 12	-	-	-	-	18 (1.44)	18 (1.44)
Total	**92 (7.36)**	**120 (9.60)**	**119 (9.52)**	**67 (5.36)**	**852 (68.16)**	**1250 (100)**
Number of Mobile Phone Users in a Family						
1 – 2	89 (7.12)	113 (9.04)	118 (9.44)	58 (4.64)	668 (53.44)	1046 (83.68)
3 – 4	3 (0.24)	7 (0.56)	-	9 (0.72)	168 (13.44)	187 (14.96)
5 – 6	-	-	1 (0.08)	-	16 (1.28)	17 (1.36)
Total	**92 (7.36)**	**120 (9.60)**	**119 (9.52)**	**67 (5.36)**	**852 (68.16)**	**1250 (100)**

Source: Field survey 2005

Table 5.13 shows the monthly rent of mobile phones as specified by the respondents. Maximum number of the respondents in all the talukas irrespective of the region has their monthly bill between Rs. 300 to Rs. 500. As 72 percent of the respondents are possessing pre-paid mobile phone connection and therefore, only recharge of more than Rs. 350 irrespective of the mobile phone service provider, has to be spend for being in contact for a period of one month. 215 respondents have a monthly expenditure between Rs. 100 to Rs. 300. 92 respondents have monthly rent of Rs. 1,100 and more whereas, only 22 respondents of Vadodara taluka has monthly expenditure between Rs. 700 to Rs. 900. None of the respondents in Savali and Vaghodia taluka has an expenditure of Rs. 700 to Rs. 900 on mobile phone in a month, but 5 respondents of both these talukas has monthly expenditure of Rs. 900 and more. Out of 1,250 respondents, 105 respondents pay a monthly bill of Rs. 1,100 and more.

Table 5.13

Monthly Mobile Phone Rent

Particulars	**Rural**				**Urban**	**Total**
(In Rs.)	**Dabohi**	**Padra**	**Savali**	**Vaghodia**	**Vadodara**	
Less than 100	-	-	-	-	1 (0.01)	1 (0.10)
100 - 300	28 (2.24)	32 (2.56)	44 (3.52)	5 (0.40)	106 (8.48)	215 (17.20)

300 - 500	51 (4.08)	67 (5.36)	65 (5.20)	50 (4.00)	503 (40.24)	736 (58.90)
500 - 700	4 (0.32)	6 (0.48)	5 (0.40)	7 (0.56)	81 (6.48)	103 (8.20)
700 - 900	2 (0.16)	2 (0.16)	-	-	22 (1.76)	26 (2.10)
900 - 1,100	3 (0.24)	9 (0.72)	2 (0.16)	3 (0.24)	47 (3.76)	64 (5.10)
1,100 and more	4 (0.32)	4 (0.32)	3 0.24)	2 (0.16)	92 7.36)	105 (8.40)
Total	**92 (7.36)**	**120 (9.60))**	**119 (9.52))**	**67 (5.36)**	**852 (68.16)**	**1250 (100)**

Source: Field survey 2005

5.4.2 Regression Model

Table 5.11, 5.12, and 5.13 emphasizes that the multi-possession of the telecommunication services in Vadodara district is very common. Fixed landline phone connection and the mobile phone services, both have made their own room in everyday life of the people. Relationship among telecommunication services i.e. substitutes or complements is emphasized. The explanatory variables-consumers possessing fixed landline phone connection, number of members in a family, and the number of mobile phone users in a family, shows a positive relation with the monthly rent of mobile phone.

The Table t-value is 1.645 at 5 percent level. The number of mobile phone users in a family and the number of members in a family shows the lack of relationship with the independent variable of the model. Number of consumers possessing fixed landline phone connection has positive and strong association with the monthly rent of the mobile phone services. In the model, 1 percent of variation in dependent variables is explained by the monthly rent of the mobile phone services.

Consumers' possessing fixed landline phone connection has positive impact on mobile phone rent per consumer. As the number of mobile phone users in a family increases, monthly rent of mobile phone also increases. Number of members in a family and the number of consumers possessing fixed landline phone connection have positive and strong association with the independent variables (monthly rent of the mobile phone).

Indicating the increase in the value of independent variables will further result in an increase in the value dependent variable also.

$$\text{Mobile Phone Rent Per Consumer(Y)} = f(\beta_0 + \beta_1 X_0 + \beta_2 X_1 + \beta_3 X_2)$$

Where,

X_0 = Consumers possessing Fixed Landline Phone Connection

X_1 = Number of Members in a Family

X_2 = Number of Mobile Phone Users in a Family

Thus,

Mobile Phone Rent Per Consumer (Y) = f (β_0 + β_1 Consumers possessing Fixed Landline Phone Connection + β_2 Number of Members in a Family + β_3 Number of Mobile Phone Users in a Family)

Mobile Phone Rent Per Consumer (Y) = f (402.043 + 146.265X_0 + 19.626X_1 -12.122X_2)

(5.538)* (3.130)* (1.327) (-0.570)

$R^2 = 0.010$

f-value = 4.317

Note: a. Figures in the brackets represent t-value.

b. * Significant at 5 percent level.

Number of studies has been undertaken by scholars to explain the substitution effect of the telecommunication services. Ward, Woroch, and Rodini (2002)[60]; Ward and Woroch (2004)[61] studied the substitutability between mobile phone and fixed landline phone services using cross price elasticities. Studies concluded that both the services are substitutes to each other and the trend will increase with the time. Hamilton (2003)[62] has compared mobile phone to fixed landline phone by analyzing pricing and penetration data to determine that mobiles are substitutes to fixed landline phone connections. He further concluded that as demand increases, there is a complementary function to mobiles as

[60] Opcit (2002)

[61] Opcit, (2004)

[62] Hamilton (2003) "Are Main Lines and Mobile Phones Substitutes or Complements? Evidence From Africa", Telecommunications Policy, 227.

well. Ahn and Lee (1999)[63] estimate demand for mobile phone in Korea, using wireless subscription data for 64 countries. They show the complementarities between the services. India Infrastructure Report-2001[64] emphasizes the fixed landline phone and mobile phone connection as complementary and competitive to each other.

5.5 Conclusion

The present chapter has examined the actual usage pattern of mobile phone services by the respondents of Vadodara district. Various econometrics and statistical models are applied here. Mobile phone services and the opinion about mobile phone usage pattern along with an important demographic factor are studied in detail. Various socio-economic factors like age, educational qualification, and the possession of the fixed landline phone connection of the respondents are studied separately.

An attempt is made to analyze the relation between young mobile phone consumers in Vadodara district and their mobile phone VAS usage pattern. And for the same LPM is made use of. The study found out that the consumers in Vadodara district are well aware of various mobile phone services (SMS, Roaming, GPRS etc.). The analyses shows that the probability of awareness irrespective of age is very high in case of SMS (99 percent) and roaming facilities (92 percent) whereas, it is relatively lower in case of video application, GPRS, and infrared. For the CUG facility, the probability of awareness is 80 percent. Basic reason for the development of the VAS market is that mobile phone consumers are not satisfied only with voice. They are looking for more and more intelligence, comfortable, individual, and entertainment services, which only VAS can provide. All the mobile phone service providers are focusing on providing better VAS services to its consumers and thus increasing the competition in the market.

The standard of living variables (possession of assets) in relation to possession to fixed landline phone connection are analyzed. For analyzing the aspect, regression technique is made use of. It is found from the analysis that the assets under study have some positive effect on the possession of fixed landline phone connection. The analysis found the

[63] Opcit (1999)
[64] India Infrastructure Report (2001) "Issues in Regulation and Market Structure", Oxford, New Delhi.

importance of possession of fixed landline phone in Vadodara district in relation to the components of family structure and assets. Further it shows that the increase in possession of all goods will also result in increase in owning of fixed landline phone connection. Total number of members in a family and the number of mobile phone users in a family have positive impact on fixed landline phone connection. It is interesting to note that with the increase in the number of earning members in the family, the probability of fixed landline phone connection goes on falling. The educational qualification of the respondent, marital status, possession of four wheelers, computer, C. D. Player, house and television are affecting positively the possibility of possession of fixed landline phone connection.

The possession of fixed landline phone connection in Vadodara district in relation to the components of family structure and assets highlights the importance of fixed landline phone besides the availability of mobile phone services. Purpose of getting fixed landline phone connection is to be in contact and to have some common contact number in a family where all the members can be traced out collectively and also individually, will never let down the growth of fixed landline phone market in Vadodara district. It will not just flourish but its demand will increase with time without having any impact on growth of the mobile phone market. One can easily consider the importance of fixed landline phone besides the availability of mobile phones.

An attempt is made to analyze the difference between usage of mobile phone connection in relation to playing games, requesting news updates and participating in quiz competitions. Also opinion about different variables like - accepting mobile phone as status symbol, considering mobile phones as a necessity for daily life, influence of mobile phones on health of the user, ban on using camera phones in public place and also its usage in schools and collages is also studied. On the basis of response of 1,250 respondents', educational level is studied in not less than seven different categories.

To analyze the acceptance of telecommunication services, number of members in a family and number of mobile phone users in a family are also taken into consideration. Monthly rents of mobile phones as specified by the respondents are highlighted here.

Maximum number of the respondents in all the talukas irrespective of the region has their monthly bill between Rs. 300 to Rs. 500. As 72 percent of the respondents are possessing pre-paid mobile phone connection and therefore, only recharge of more than Rs. 350 irrespective of the mobile phone service provider, has to be spend for being in contact for a period of one month. 215 respondents have a monthly expenditure between Rs. 100 to Rs. 300. 92 respondents have monthly rent of Rs. 1,100 and more whereas, only 22 respondents of Vadodara taluka has monthly expenditure between Rs. 700 to Rs. 900. None of the respondents in Savali and Vaghodia taluka has an expenditure of Rs. 700 to Rs. 900 on mobile phone in a month, but 5 respondents of both these talukas has monthly expenditure of Rs. 900 and more. Out of 1,250 respondents, 105 respondents pay a monthly bill of Rs. 1,100 and more.

The number of mobile phone users in a family and the number of members in a family shows the lack of relationship with the dependent variable of the model. Number of consumers possessing fixed landline phone connection has positive and strong association with the monthly rent of the mobile phone services. Regression coefficient of the number of mobile phone users in a family shows a negative sign, indicating the inverse relationship between the monthly rents of the mobile phones paid by a family. As the number of mobile phone users in a family increases, monthly rent of mobile phone also increases. Number of members in a family and the number of consumers possessing fixed landline phone connection have positive and strong association with the independent variables (monthly rent of the mobile phone). Indicating the increase in the value of independent variables will further result in an increase in the value dependent variable also.

Telecommunication services have made a room in every day life of the residents of Vadodara district in the same manner as in the other parts of the world. As per the analysis, fixed landline phone and mobile phone connection are complementary to each other. Purpose of getting fixed landline phone connection is to be in contact and to have some common contact number in a family where all the members can be traced out collectively and also individually, will never let down the growth of fixed landline phone

market in Vadodara district. It will not just flourish but its demand will increase with time without having any impact on growth of the mobile phone market.

Fixed landline phone and mobile phone services, both are important telecommunication services. Possession of these services in relation to socio economic variables is studied here. Possession of fixed landline phone connection and mobile phone in relation to these variables shows a similar trend. Telecommunication services have made a room in every day life of the residents of Vadodara district in the same manner as in the other parts of the world. As per the analysis, fixed landline phone and mobile phone connection are complementary and competitive to each other. Mobile phone connection in India has taken over the number of fixed landline phone connection and also the revenues generated by fixed landline phone connection.