Chapter 4

Socio-economic Factors Analyzing the Behavior of Consumers

4.1 Introduction

Consumer behavior is affected by various socio-economic factors such as demographic factors, market structure etc. The present chapter deals with the various works done by scholars on the mobile phone usage pattern with regard to socio-economic factors such as age, gender, occupation, ownership of assets etc. This chapter includes literature review on the mobile phone consumers irrespective of geographical boundaries. In this new gizmo age, each and every person is aware about the usage of mobile phones. Mobile phone market is at a boom all over the world. It is no more a communication technology only but also an important upcoming area of research.

This chapter helps to understand the impact of important variables, analyzed further in the present study. In the current study all the respondents possess mobile phones. Therefore, study of the socio-economic conditions of the consumers will emphasize their mobile phone usage pattern in Vadodara district. Various important socio-economic factors are studied on the rural and urban basis. The main objective to study the demographic trend is to identify and take advantage of change in population size, growth, and composition. Factors showing standard of living of the respondents are studied separately.

The present chapter is divided into five sections and each section analyzes the variables with regard to mobile phone usage pattern. The chapter is introduced in the first section. Second section is devoted to the work done by various scholars on the mobile phone usages pattern, by analyzing various socio-economic factors. Geographical description of the areas under study is discussed in third section. Fourth section analyzes various socio-economic factors, which affect the usages pattern of the mobile phone users. This section includes the study of composition of households, demographic factors, and standard of living separately. The chapter is concluded in the last section.

4.2 Major Studies on Mobile Phone Usage Pattern: A Survey

With the beginning of 21st century, communication sector has experienced a tremendous change all over the world, with special prominence on acceptance of mobile phone technology. Mobile culture has made an everlasting impact on population differing in age, income, education, gender, and origin. Sociology, psychology, economics and all other fields of studies have accepted pros and cons of mobile phones. In the subsequent paragraphs some of the important studies on mobile phone usage pattern irrespective of above-mentioned fields are discussed.

Hashimoto Yoshiaki (2002)[1] studied the usage pattern of mobile phones of 515 natives within 50Kms. of Tokyo metropolitan city, in the age group of 15 years to 39 years. The study focuses on the negative aspects of usage of mobile phones, as a result private life centrism, mobile phone dependency, sense of security, and changes in mentality are emphasized. Main reason for carrying mobile phone by young population as concluded is the sense of being always in contact with friends and it is not used as a tool for expanding communication network but as a tool to promote close communications. One who does not possess the mobile phone has a kind of fear of being left out from the social group. Several possible reasons for the wide spread mobile phones usage in Japan has been mentioned and the important one is the sharp decline in over all prices. Further it is believed that mobile phones would never have become so popular if consumers did not actually need them beside falls in mobile phone handset prices and increasing peer pressure.

Taylor, A. S. and Harper, R. (2002)[2] studied 120 respondents between the age group of 11 years to 18 years in three schools, one in London and two are from a near by region, and found that 50 percent of the respondents of the age group 13-14 years possess mobile phones whereas, in 17-18 years of age group 80 percent of them owns this facility. Level of familiarity between the device and services is too high and the most obvious means of

[1] Yoshiaki Hashimoto (2002) "The Spread of Cellular Phones and their Influence on Young People in Japan", The Institute of Socio - Information and Communication Studies, University of Tokyo, Japan.

[2] Taylor, S. A and Harper, R (2002) "Talking 'Activity': Young People and Mobile Phones", Presented at CHI 2001 Workshop: Mobile Communications: Understanding Users, Adoption and Design, 1-2 April, 2001Faculty of Social Sciences, University of Ljubljana, Slovenia.

communication is SMS. Mobile phone handset features that influence the young mobile phone consumers are branding, size, model, color and accessories while SMS, games and phonebook usage distinguishes young mobile phone consumers from adults. Activity theory is applied to study qualitative description of mobile phone usage in day-to-day lives of young peoples.

Study on consumer behavior for mobile phone markets in Finland done by Pakola, J., et. al. (2003)[3], found that the age of buying first mobile phone in last few years has lowered from 18 years to 15 years. Also 60 respondents from the sample believe that mobile phone market will experience same growth trend in next 12 months. Features, quality, influential person, brand and pricing are considered while selecting a mobile phone service provider. Manufacturer and market conditions along with the opinion of the influential person opinions are taken into consideration at the time of purchasing mobile phone handsets.

Socio economic and demographic features of Australian households having mobile phones is analyzed by Yusuf, F. and Naseri, M. B. (2003)[4], reveals that young and prosperous consumers are more likely to adopt new technologies. Also the household heads engaged in full time employment had the highest proportion of mobile phone owners and vice versa. Number of dependent children shows the positive association with the likelihood of having a mobile phone. Average spending of the household was estimated as $ 56.25 per month. Gender variation in relation with average expenditure on mobile phone is absent. Study concludes that convenience and immediacy of the technology will result in a positive growth of mobile phone market in future.

Study by MARCO (2004)[5] emphasized the mobile phone usage pattern among teenagers in Mumbai city. Mobile phone has made an immense impact on the socio-economic class

[3] Pakola, J., et. al (2003) "An Investigation of Consumer Behavior in Mobile Phone Markets in Finland", Proceedings of the 32nd EMCA Conference, Track: New technologies and E-Marketing, Glasgow, U. K., May 20-23.

[4] Yusuf, F. and Naseri, M. B. (2003) "Characteristics and Expenditure Pattern of Australian Households Using Mobile Phones", Paper submitted to the proceedings of The Australian and New Zealand Marketing Academy Conference, Adelaide.

[5] MARCO (2004) "A Report on Study of Mobile Phone Usage Among the Teenagers and Youth in Mumbai", Market Analysis and Consumer Research Organization, Mumbai.

and therefore 165 socio-economic class households were interviewed. Demographic factors like age, gender, and socio-economic levels are studied in detail. In the study, 35.15 percent of the mobile phone consumers are in the age group of 15 years to 19 years. Post-paid services are more preferred and the maximum mobile phone consumers are males. Average amount of billing per month comes to Rs. 700 to Rs. 1,000. Mobile phone handsets of Nokia Company are highly preferred by the respondents followed with the companies like Motorola and Samsung. 75.9 percent of respondent shows negative attitude towards using mobile phones while driving. 68 percent of the mobile phone consumers do not seek any medical side effects of using mobile phone whereas, 49 percent non-mobile phone consumers have vis-à-vis opinion.

According to the study conducted by Proitz Lin (2004)[6] in relation to gender and SMS, among the young Norwegian mobile phone consumers, the age groups between 15 years to 19 years possess their own mobile phones and females write SMS in more detail than their counterparts.

Doring, N et, al. (2004)[7] analyzed the relationship among mobile phone consumers in the age group of 12 years to 18 years and their social surrounding in Germany. Study concludes the presence of gender variation, where female mobile phone consumers consider more emotional and security value while using mobile phones whereas, males are technology savvy. Parents, besides their peers, play an important role as communication partners. Rarely conflicts among parents-teachers and children's occur due to the mobile phone usage pattern.

Ogertschnig, M and Van der Heijden, H, (2004)[8] studied 125 Dutch students and non-students mobile phone consumers behavior towards mobile phone information services. The study is based on scenario or vignette based questionnaire. SMS, as specific mobile

---

[6] Proitz Lin (2004) "The Mobile Gender. A Study of Young Norwegian People's Gender Performance in Text Messages", Mobile Communication and Social Change, International conference, Seoul, Korea October 18-19.

[7] Doring, N et, al. (2004) "Mobile Communication Among German Youth", In K. Nyíri (Ed.), A Sense of Place. The Global and the Local in Mobile Communication, Wien: Passagen Verlag.

[8] Ogertschnig, M. and Van der Heijden, H. (2004) 'A Short-form Measure of Attitude Towards Using A Mobile Information System", 17th Bled e-Commerce Conference, e-Global, Bled, Slovenia, June 21-23, 2004.

phone information service was studied on the basis of new attitude scale, measuring hedonic (the belief that pleasure is the most important thing in life) and utilitarian (useful or practical rather than attractive) value of the services. The study concludes that there is not much difference in service but in attitudes towards using mobile phone information services across gender, age, experience, and background is considered. The study shows a significant positive relationship between young respondents and high frequency of text messaging.

Mobile phone usage pattern of 1,006 young mobile phone consumers in the age group of 13 years to 20 years in Norway has been studied by Ling, R. (2000)[9]. The study emphasized that the age of accepting new technological communication gizmo is decreasing at a higher rate. The young mobile phone consumers are using pre-paid services in personal context rather than communal ones. Mobile phone's handset style, design, and vintage attract these consumers as a result; gender variation irrespective of age is absent. Total percentage of mobile phone owners is similar in both the genders, but girls are more frequent users of the SMS. An interesting result of the study is the usage of SMS facility in classrooms, which is increasing besides in social environment.

Ling, R. (2001)[10] studied the role of mobile phone handsets among minor age girls and young adult males in Norway. Study was on the basis of surveys conducted by Telenor R&D on possession and usage pattern among young mobile phone consumers and statistics Norway media use. He found that girls have taken lead in terms of mobile phone adoption. Also adolescent girls and young women send more SMS than males in the same age group. Within the female mobile phone consumers also, teenage girls are more active. With the increase in age, usage of voice calls on mobile phones increases for males but for females it declines with a higher rate.

---

[9] Ling R. (2000) "Norwegian Teens, Mobile Telephony and SMS Use in School", Sociology of the Mobile Phone, Sociology Institute of Zurich University of Zurich, Switzerland.

[10] 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.

Mante, E. A. and Piris, D. (2002)[11] considers the way young people in Netherlands are using their mobile phones and gives special emphasis on the usage of SMS service. As the study is based on secondary data, important sources are general statistics from statistical offices in the country, Internet, EURESCOM P903 (survey conducted during 2000-2001 for mobile phone consumers). Dutch youths are considered to be most extensive mobile phone consumers in Europe. Also they are the biggest users of e-mail and Internet in European Union and are making heavy use of SMS. Gender variation can be easily pointed out as males are often operators of technical functions and shorter and direct conversation whereas, females are more involved in cultural conversation and are heavy users of accessories and SMS. Most prevalent service is of pre-paid cards among youngsters, as it keeps phone cost under control and the major part of it is a combination of pocket money and additional jobs money. The average mobile phone consumer sends and receives 3 messages every day and a special language has been created for SMS.

Igarashi, T. (2004)[12] undertook a study to analyze gender and situational differences in usage patterns of SMS. 2x2x3 ANOVA mixed design method was applied over the sample collected from 142 Japanese under graduates (39 males and 103 females). Study concludes that the SMS facility is used by both the genders in a very similar pattern. Females use emotion, responds spontaneously and includes add on details more frequently than their counterpart, reflecting interpersonal gender differences.

Potts (2004)[13] conducted study on gender variation by examining the mobile phones usage pattern of 15 males and 15 females' students of Oakland University. The study found the relation between mobile phone usage pattern with reference to the topics of work, family, friends, and education and on such basis gender difference is measured. Equality on the usage of mobile phone technology by both the genders is emphasized but females' use it to maintain their social contacts and prefers to call primarily for this

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

[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] Potts Geoff (2004) "Collage Students and Cell Phone Use: Gender Variation", Sociology of the Mobile Phone, Sozilolgisches Indtitut der Universitat, Zurich, Switzerland.

purpose. Males use mobile phone Internet technology heavily and the awareness is more in relation to their counter parts. Irrespective of gender, mobile phone consumers agree to consider it as an instrument to fill the gap of time when bored and near equality in SMS usage is clearly seen as it has an easiness of availability. Mobile phone consumers found it convenient to make appointments with friends or family to plan meetings or to leave messages where a normal phone call would not be possible.

A study on 815 mobile phone consumers by Parissa, H. and Maria, M. (2005)[14] emphasizes on socio demographic factor-age, gender, and education, analyzed the consumer attitude towards mobile phone advertising in Austrian. The study concludes that the age is not the influencing factor but perception towards web advertising is highly positive with higher educational level. Gender makes a behavior towards advertising type but has no perceived value. They suggest that advertising campaigns and target groups should be thoroughly designed as the message content and characteristics have a strong impact on the consumers' behavior.

Study about the specific function of the SMS in case of young German mobile phone consumers in the age group of 15 years to 24 years by Hoflich, J. R. and Rossler, P. (2002)[15] concludes that voice calls and e-mail via internet are only partially replaced by mobile phones. New form of writing has emerged somewhere between written and spoken language. SMS are integrated into the communication behavior of youth, where gender and education are strongly related variables for communication rather than age and the length of mobile phone experience. Educational level of parents also emphasizes the mobile phone usage pattern among youth. Females with higher educated parents and thus of upper class families are more aware of the technological advances while for males the case is visa versa. In support of SMS usage pattern it is emphasized that it may be too late at night to make a phone call, but it's never too late to send an SMS.

---

[14] Parissa Haghirian, Maria Madlberger (2005) "Consumer Attitude toward Advertising via Mobile Devices - An Empirical Investigation among Austrian Users" ECIS.

[15] Hoflich, J. R. and Rossler, P. (2002) "More Than Just A Telephone - The Mobile Phone and Use of the Short Message Service (SMS) by German Adolescents: Results of A Pilot Study", Revista de Estudios de Juventud, Junio, No. 57.

Wireless Advertising Association (2001)[16] undertook the study on mobile phone consumers' awareness towards SMS advertising and services, based on 585 mobile phone consumers from five different European countries-Spain, Italy, UK, Germany, and France. The study found out that maximum numbers of SMS user respondents were in the age group of 20 years to 30 years. SMS is used mostly to be in touch with friends and to receive the information requested by them. Males are heavy users of SMS. In the study, majority of the respondents showed a positive attitude towards SMS advertising but consumer prefers to receive relevant advertisement of their interest only. Study also concludes that if products and services to be targeted via SMS advertising should be sent to the right consumers as it will make the activity less intrusive and will become positive marketing strategy in future.

Cross culture usage pattern of mobile phone among youths in U.S. and France is studied by Isaac, H et. al. (2003).[17] Study attempts to find the most acceptable social setting for the global business market to make the company products acceptable through M-Commerce. Mobile phone usage with special emphasis to mobile phone calls and SMS facility has been studied for under graduates and graduates in three different institutions. Most preferred location for conversation on phone call between both the country students is while walking on public streets, followed with a walk on campus and in the hallway of the building. In France, mobile phone calls in a public rest room and while driving a vehicle is not preferred in the same manner as among U.S. students. These variations are the results of strict government regulations in France. SMS facility is highly acceptable in France while traveling in public transportation along with walk on public streets whereas in U.S. the most acceptable location is while walking on public streets and on campus. At the time of driving a vehicle ban on SMS facility is acceptable by the respondents but a prohibition on usage of mobile phone in classroom is not welcomed.

---

[16] Wireless Advertising Association (2001) "User Perception to SMS Advertising and SMS Services", Industry Overview and MyAlet's Findings Through A Consumer Survey. www.myalert.com, 2006

[17] Isaac, H et. al. (2003) "Cell Phone Use In Social Settings: Preliminary Results from A Study In The United States and France", University of Paris Dauphine, CREPA, 75775, Paris Cedex 16, France.

Nurvitadhi (2003)[18] analyzed the usage pattern of 315 students among eight universities of U.S. and Japan (195 respondents were from Japan rural and urban areas and the remaining from U.S. universities) in the year 2002, by using random sampling method with the help of questionnaire based on NTT DoCoMo's surveys between 2000-2001. The study found that in Japan the number of mobile phone consumers are more, mature market environment with a value of very useful technology followed by useful attitude, whereas in U.S. maximum respondents believes mobile phone as only a useful gadget as compared to useful idea. Two main reasons for possessing mobile phones is its mobility and emergency usage. Maximum usage of digital features is in Japan (e-mail, music playing function etc.), as compared to another study area but more affordability (as price criteria) is in U.S. In comparison to other portable devices, mobile phones are popular in both the nations followed by personal computer notebook.

A comparative mobile phone usage pattern between university students of India and USA was done by Chakraborty, S. (2006).[19] Study concludes that irrespective of the place, there is a need for etiquette on mobile phone usage in public vicinity to be strictly followed. The respondents prefer to accept the mobile phone usage socially if not long and disturbing, whereas the contradictory opinion about ban on mobile phone usage while driving exists. The frequency of using SMS facility also differs among respondents of both the countries. In India, 64 percent respondents are availing the benefit of multiple numbers of SMS in a day while in USA, only 12 percent are involved in multiple number of SMS usage in a day. The study found that 72 percent of respondents from India are satisfied with mobile phone service providers while 76 percent are satisfied in USA. Most common time of the day for using mobile phones in both the countries as per the respondents' is in the evening hours.

---

[18] Nurvitadhi, E. (2003) "Trends in Mobile Computing: A Study of Mobile Phone Usage in the United States and Japan", Thesis for Bachelor of Arts in International Study, Electrical Engineering and Computer Science Department, Oregon State University, Corvallis.

[19] Chakraborty, S. (2006) "Mobile Phone Usage Patterns Amongst University Students: A Comparative Study Between India and USA", School of Information and Library Science, Masters Paper, Chapel Hill, North Carolina.

Humphreys, L. (2003)[20] study emphasis on mobile phone usage in public places in the content of social and cultural change of technology usage. The study is based on fieldwork, interviews, and photographs. The study concludes that private conversation in public place makes privatization of public space, while mobile phone consumers indicate their private conversation in different ways. They all negotiate the public space in which they interact. Communication on multiple fronts simultaneously is possible while talking on mobile phones in public space but many a times mobile phone consumers are less aware of their surroundings. The study further emphasis that, in negotiating the relation in public place, the mobile phone consumers should understand the social relations.

Ahsiund, F. (2006)[21] has analyzed Swedish market regarding mobile phone service and found that 61 percent of the respondents' uses one or two mobile phone services per month. Mobile phone services in the study includes: mobile terminated and originated SMS, mobile terminated Multi-media Messaging Services (MMS), Wireless Application Protocol (WAP), and web services. The study concludes that SMS are the most used technique, followed by MMS and WAP. MMS stands as lowest spending service per mobile phone consumer whereas, WAP stands as second highest spending service per mobile phone consumer. The study further emphasis that not much variation can be seen in the spending habits of the mobile phone service consumers during a week, and the number of transaction made on weekends are fewer. Thus, indicating the usage of more expensive services on weekends. Categorical segment suggests that information category has been used most frequently followed with entertainment category, which also stands as second highest spending per mobile phone consumer. Media category has the highest spending on Mondays but second least used category by the respondents. Enterprise category has the lowest spending per mobile phone consumer.

[20] Humphreys, L. (2003) "Can You Hear Me Now? A Field Study of Mobile Phone Usage in Public Space", Annerberg School for Communication, University of Pennsylvania.

[21] Ahsiund, F. (2006) "Consumer Behavior Statistics of Mobile Telephone Services", Masters of Science Thesis in Computer Science, Royal Institute of Technology, School of Computer Science and Technology, Stockholm, Sweden.

A study conducted by O' Hara, K. et. al. (2001)[22] has examined the relationship between mobile phone consumers and documentation during business travel. It reveals the technical innovation in mobile phone consumers' work practices. The study was based on workers employed in 17 different offices as mobile phone professional consumers and their phone call conversation to confirm delivery and elaboration of documents, accessing remote documents, document proofing, document discussion, and note taking activities, beside documents as records of phone calls are considered. Importance of mobile phones in relation to other technological innovative gizmos is also emphasized.

Besides the usage pattern of mobile phones, studies have been made to understand the consumer preferences towards mobile phone handsets. Yeonbae K., et. al. (2005)[23] applied the mixed binary regression model and conjoint analysis using Bayesian approach with Gibbs sampling, to study the future demand of mobile phone handsets. The study investigates 500 respondents (55 of those were later discarded) in the age group of 20 years to 60 years in Seoul, Korea. Input equipment content, quality of Internet, display size, price etc. are analyzed by applying statistical tools. The study found that the medium size display instruments with high degree of portability would have greater demand. Touch screen is on an average not preferred whereas hologram keyboard or a trackball mouse is more ideal. Multiuse mobile phone handsets will not be demanded very much. Partial mixture of personal computer applications will be preferred. Besides the incorporation of various future qualities in mobile phone handset, services and network facilities should also be considered for convergence.

Study by Ristola, A. and Kesti, M. (2005)[24] emphasis the effect of mobile phone handsets along with their initial and future usage pattern. Need and perception of the mobile phone consumers are also taken into consideration. Study concluded that the non mobile phone owners have more positive attitude towards the mobile phone services than vice versa.

---

[22] O' Hara, K. et. al. (2001) "Exploring the Relationship Between Mobile Phone and Document Use During Business Travel", Springer Computer Supported Cooperated Work Series, Brumel University, West London.

[23] Yeonbae, K., et. al (2005) "Effects of Consumer Preferences on the Convergence of Mobile Telecommunications Devices", Applied Economics 37.

[24] Ristola, A. and Kesti, M. (2005) "The Effect on Familiar Mobile Device and Usage Time on Creating Perceptions Towards Mobile Services", International Conference on Mobile Business (ICMB 2005), IEEE Computer Society, Washington, DC, USA, Vol 00.

Mobile phone consumers have high perception for the services and thus a basic reason for their non-satisfaction. Willingness to use similar mobile phone handsets and the confidence of well acquainting the services in future are the common belief by the mobile phone owners and non-owners.

Turel, O. and Serenko, A. (2004)[25] studied the consumers' loyalty and satisfaction for mobile phone services in Canada by applying the American customer satisfaction index model to 78 mobile phone consumers in Ontario. 65 percent of the respondents uses SMS while SMS based information services is been used by 42 percent only. 25 percent of the respondents uses Nokia brand of mobile phone handset. Study suggests that pre-paid and post-paid consumers prefer to use the same level of services. Positive relationship between satisfactions, repurchase and tolerance to price increase while, negative relationship among satisfaction and consumer complaints is highlighted.

Study of relationship between mobile phones service quality, consumers' satisfaction and payment equity to the service providers is undertaken by Palkar, A. (2004).[26] 400 mobile phone consumers from Mumbai circle were analyzed using statistical tools (simple regression and factor analysis technique). He concluded that overall apparent quality and target on consumer satisfaction and payment equity are the most important factors and their ranking level is very high. Five key quality elements-service quality, billing, pricing, usage pattern and service supports were considered as determinants of consumer retention.

A study on consumption behavior of mobile phones by Vision RI (2005)[27] in Delhi assessed the satisfaction level of mobile phone consumers encompassing quality of technical service, quality and operational aspect of mobile phone handsets, and socio-psychological costs due to unsolicited promotional calls/SMSs etc. The study adopted the mailing technique and 342 respondents in the age group of 14 years to 30 years were

[25] Turel, O. and Serenko, A. (2004) "User Satisfaction With Mobile Services in Canada", Proceedings of the Third International Conference on Mobile Business, DeGroote School of Business, McMaster University, Ontario, Canada.

[26] Palkar, A. (2004) "Determinants of Consumer Satisfaction for Cellular Service Providers", Udyog Pragati, Vol. 28, No. 1.

[27] Vision RI (2005) "Study on Mobile Phone Users' Satisfaction", Series on focused social and market surveys, Connexion Services Private Limited, New Delhi.

surveyed. Important composition of the sample survey includes age and occupation. Mobile phone consumers' level of satisfaction, reason for dissatisfaction, duration of mobile phone usage, and purposes for using mobile phones are also studied. The satisfaction level was judged on the basis of five-point scale. Majority of respondents' says that they are almost satisfied followed by average satisfied conviction. Main reason for dissatisfaction by mobile phone usage as pointed out is the poor quality and high prices of mobile phone services. Maximum usage of mobile phones is for personal purpose. Brands like Nokia and Samsung are most preferred ones for their operational ease and price structure. SMS and phone book are the VAS features used by maximum respondents.

Mobile phone usage pattern of 277 micro-entrepreneurs in Kigali, Rwanda was analyzed by Donner, J (2005)[28], to understand the mobile phone ownership pattern and its evolving mix usage guide for business and personal conversation. Availability of pre-paid cards, affordable messaging services, and inexpensive mobile phone handsets has resulted in easy availability of the mobile phones. In relation to business, mobile phone has added to the profitability by reducing transportation cost, resulting further in more time for production. Study shows an inverse relationship between level of education of the entrepreneur and proportion of business calls. Duration of mobile phone usage and proportion of business calls on mobile phone also shows the opposite relation. Fixed landline phone connection resulted in lower level of business calls on mobile phones. Also the new mobile phone consumers of small businesses had a low proportion of business calls on mobile phones.

Hyungtaik Ahn and Myeong Ho Lee (1999)[29] studied the demand for mobile phone connection in relation to fixed landline phones and concluded that mobile phone services are complementary to the fixed landline phone services in 64 International Telecommunication Union countries.

---

[28] Donner, J (2005) "The Use of Mobile Phones by Micro entrepreneurs in Kigali, Rwanda: Changes to Social and Business Networks", Wireless Communication and Development: A Global Perspective, Annenberg Research Networks on International Communication Workshop, 7-8 October.

[29] Ahn, H. and Myeong. Ho Lee (1999) "An Econometric Analysis of the Demand for Access to Mobile, Telephone Networks", Information Economics and Policy 11.

Oftel's residential consumer survey (2000)[30] conducted study on mobile phone consumers in United Kingdom and found that the mobile phone consumers would not consider getting a fixed landline phone connection but the expenditure pattern is almost similar to the latter. Mobile phone services dominated among high income and young consumers, however it is found in the study that 65 percent of households have at least one mobile phone. Convenience offered by mobile phone is more than the cost alone, as less call cost encourages them to make more usage of mobile phones. Thus making the mobile phones and fixed landline phone as substitutes to each other. Finally the study found that, in United Kingdom coverage activity is not the influencing factor for majority of mobile phone consumers.

Quarterly samples of U.S. household consumption by 294 urban residents were analyzed by Rodini, M. et. al (2002)[31], to estimate the cross price elasticity between second fixed landline phone connection and mobile phones. Study concludes the positive income effect for higher income group members and the demand for second fixed landline phone connection is more among middle-aged families with the household size of three or more. Residents working from home or using fax machine or accessing Internet also adds to the positive effect on the subscription of second fixed landline phone demand. Also mobile phone will become greater substitutes for second fixed landline phone connection over a period of time.

Haddon (2002)[32] studied the qualitative and quantitative study of household panel data of BTexact Technologies. The study found that the reason to carry mobile phone at young age (over 16 years) is to be in constant touch with friends whereas the other reasons are emergency and safety, as mentioned by parents. Around 60 percent of the respondents believe that mobile phone usage has an impact on usage of fixed landline phone connection but 27 percent opines the opposite of it. On the question of financial

[30] Oftel's Residential Consumer Survey (2000) "Consumers' Awareness, Usage and Attitude Towards Telecoms".
www.ofcom.org.uk, 2006

[31] Rodini, M. et. al. (2002) "Going Mobile: Substitutability Between Fixed and Mobile Access", Competition in Wireless: Spectrum Service and Technology Wars, Public Utility Research Center, University of Florida, Gainesville.

[32] Haddon, L (2002) "Youth and Mobiles: The British Case and Further Questions", Revista de Estudios de Juventud, Junio, No. 57.

dependency in early ages i.e., cost of carrying mobile phones, 41 percent pay their own bills but 34 percent pays only a part of it. Gender variation is not present among young mobile phone consumers. Trend of gift calls is present and popular too, inclusive of SMS. This shows gift-giving, gift receiving and reciprocating as an activity, for bonding the social relationships.

Study conducted by Gebreab (2002)[33] analyzed the factors of mobile phone distribution by a fixed effect and diffusion model. In relation to policy changes-competition, regulation, technological change, privatization, themes, and the presence of current service providers were studied separately. As far as relationship between mobile phone and fixed landline phone is concerned, they are perceived as substitutes for each other in developed market such as European Union, but are complementary services in relatively less developed markets like central and Eastern Europe. Mobile phone services in Africa were perceived as complementary to fixed landline phone services.

Ward and Woroch (2004)[34] studied the U.S. household survey data conducted over the period 1999-2001 and with Linear approximation/almost ideal demand system, estimated the substitutability of fixed landline phone connection and mobile phones. It is found in the study that significant positive cross price elasticity exists between mobile phones and fixed landline phones usage pattern. A study by Sung, Kim and Lee (2000)[35] as stated by Ward and Woroch, found that the number of Korean mobile phone consumers in 64 countries is positively correlated with the number of fixed landline disconnects, but negatively related with the number of fixed landline phone connection, emphasizing net substitution between the two services as complements exists.

Fixed landline phone and mobile phone convergence is studied by EC DGXIII (1999)[36] for European Union market. Fixed-Mobile Convergence (FMC) means the merging of

---

[33] Gebreab, F. A. (2002) "Getting Connected - Competition and Diffusion", World Bank, Washington D.C.
[34] Michael R. W. and Glenn A. W. (2004) "Usage Substitution Between Mobile Telephone and Fixed Line in the U. S.", Working Paper no. 04-013, Department of Economics, University of Texas, Arlington.
[35] Ibid, (2004)
[36] 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.

fixed landline phone and mobile phone services into an integrated service package. Consumers are offered with both these communication services using one connection and possibly one number and also single itemized bill. Both fixed landline phones and mobile phone services have their own pros and cons, so even the FMC will have them. Consumers point of concern for FMC includes pricing, handset quality, and quality of service along with coverage. Regulatory concerns for FMC include privacy and consumer protection. Emergency services, number probability and carrier pre-selection are to be looked into by the service providers. Acceptance of FMC will result in each consumer having a personal mobile phone by which calls can be transit over both the mobile phone network and fixed landline phone network.

Study conducted by Casson, C., et. al. (2001)[37] for various telecommunication services - fixed landline phone, mobile phone, pay phone, Internet, and facsimile machine, found that the usage pattern of telecommunication services is more a product of contingencies. Socio demographic factors like income, location, housing tenure and composition are much more responsible than the desire or need to opt for such services. Education, gender, age etc. emphasizes an inadequate framework and therefore stands as a secondary one in today's world of communal services. The study is based on 1,000 consumers surveyed via e-mail across four states in Austria, suggesting that telecommunication market and technology had impacted their lifestyles and the way they interact with family and friends, both in a positive and negative manner. Cost and accessibility is an important influencing factor for the households with no fixed landline phone connection while technology aware households consider access to these innovative telecommunication services as a necessity. Less infrastructure support and lack of availability affects the choice of rural households.

Mobile phone usage pattern of 24 high school and Japanese collage students was analyzed by Ito Mizuko (2005)[38], specifically in relation to the place of mobile phone

[37] Casson, C., et. al. (2001) "One Size Fits None: Telecommunications Consumer Profiles Research", Communications Research Forum, Rydges Lakeside Hotel, Canberra, 26-07 September.

[38] Ito Mizuko (2005) "Mobile Phones, Japanese Youth, and the Re-Placement of Social Contact", in Rich Ling and Per Perdem (Eds.) Mobile Communications: Re-Negotiation of the Social Sphere, New York, Springer- Verlag.

usage i.e. private space at home, public space, and virtual space. Study concludes that increasingly new norms are being set up for mobile phone communication in social places. Lack of privacy at home, school, and urban places has resulted in popularity of SMS. Economic factors, expressive functions, and styles also support the SMS usage. It has been successfully accepted as filling dead time with small conversation. Mobile phones are used at home as second fixed landline phone connection is expensive in Japan but in schools, only the necessary and urgent communication takes place through mobile phones and in places like public transportation and formal restaurants voice calls are less preferred as compared to non-voice services.

Rautiainen, P. (2001)[39] studied the role of mobile phone communication in the social networks of Finnish teenagers. The study found that the young people are active consumers of new media technology and the importance of mobile phone changes with age. They consider the importance of mastering of such gadgets as essential skill in modern information society. Finnish young mobile phone consumers organize their day-to-day activities and social relationship with the help of mobile phones. Frequent use of SMS, free of charge signal calls, and playing games differentiates them from the adults. The actual reason for the purchase of mobile phone handset is often willingness to communicate with friends among the teenagers. Gender variation in broad terms is present in the usage pattern of mobile phones. Updated technological development reports on mobile phone usage are often seen, used and discussed by the males but females value only the communication part. After the age of 16 years mobile phone consumers seem to follow a different trend i.e. less dependency on non-voice services and more on voice calls.

Recent study done by Madden G., et, al. (2003)[40] found that the fixed landline phone connection and mobile phones are substitutes. Further study concludes that the Australian

[39] 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.

[40] Madden, G.et. al. (2003) "Australian Household Usage Pattern of Telecommunication Services", Communication Economics and Electronic Markets Research Centre, Curtin University of Technology, Perth, Western Australia.

household usage pattern, suggests fixed landline phone subscription as inferior service i.e. demand for fixed landline phones falls as income increases but there is no effect on subscription and usage pattern with price increase in fixed landline phone calls. The study also emphasis that higher income households prefers to occupy complete set of available services, whereas low income earning households prefers to subscribe only fixed landline phone connections.

A study conducted by Chakraborty, P. (2005)[41] for awareness about mobile phones among youth in Vadodara city, was studied through questionnaire survey in the age group of 18 years to 30 years. Here the social impact in relation to awareness, personality, and behavior is been analyzed. Study shows that majority of respondents are using mobile phones since the last two years and Hutch, followed by Airtel are the highly accepted mobile phone service providers. More than half of the respondents own handsets of Nokia Company. 10 percent of the respondents spend 6 hours per day whereas 52.3 percent of respondents use their mobile phones for less than an hour. Inescapable percentage of response in relation to ease out of communication and information has been received while 53.8 percent agrees about the relationship of personality and mobile phone handset in use. In relation to terrorism and health hazards, respondents agree that every coin has two sides and therefore so has the technology.

Papaccioli, E. R. (2003)[42] studied the impact of major components of Italian society-infrastructure, economy, education, and culture on telecommunication services. Study concludes that acceptance of mobile phone services will be increasing in near future along with the presence of fixed landline phone. Availability of fashionable mobile phone handsets, inbuilt dictionary feature for SMS, better graphic displays, and financial infrastructure facilities will have considerable impact on mobile phone acceptance in Italy. But for educational purpose, fixed landline phone connections will be preferred

[41] 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.

[42] Papaccioli, E. R. (2003) "Tailoring Mobile Phones to Fit the Italian Lifestyle", Perspective in Business and Economics, Vol. 21.

more than the mobile phone connection and the basic reason for this is the accessibility to Internet connections through fixed landline phone.

A mobile phone study encourages exploration of world beyond local boundaries. First few studies emphasized on the age of mobile phone users. All over the world the age of possessing mobile phone is declining day-by-day. Beside age, another important demographic factor studied by many scholars is gender. Gender variation among teenagers and adults is emphasized here. Usage of various mobile phone services varies with these demographic factors. SMS is the highly acceptable mobile phone service by all mobile phone users irrespective of demographic factors. Besides SMS, usages of other mobile phone services are also studied. Cross-country variation in mobile phone usage pattern shows that, everyone and everywhere had accepted this technological gizmo, though the variation among acceptance and usage pattern occurs. Comparisons of mobile phone services along with other modern technological gadget are also studied beside the acceptance of the mobile phone services in business sector. Mobile phone advertising is also studied and the consumers have a similar opinion about the service. Overall satisfaction of mobile phone services is also studied by the scholars and the results of the same are varying from region to region. Acceptance of fixed landline phone and mobile phone services as complementary or substitute goods are discussed along with the FMC. Therefore it is seen from the various studies done by scholars in relation to gender, income, and age etc., there is a relation among these factors. The proceeding section deals with the socio-economic characteristics of the mobile phone consumers in the present study area.

4.3 Geographical Perspective of Areas under Study

The present section deals with the geographical perspectives of areas under study i.e. five talukas of Vadodara district - Dabhoi, Padra, Savali, Vaghodia, and Vadodara. Detail analysis of Gujarat state in comparison to all India level and also of talukas as per district level is emphasized. Populations, literacy rate, density ratio along with the tele-density rates are discussed.

Gujarat state is one of the most prosperous and developed state in India. Population of Gujarat state is 50,671,017 lakh (tenth highest in terms of population in India) and has a density of 258 person per square kilometers as on 2001. It has an area of 1,92,024 sq. Km. There are 25 districts, 226 sub-districts, and 18,539 villages in it. Official language of the state is Gujarati and Hindi. Its capital is Gandhinagar. It is the most industrialized state of India.[43] Gujarat borders Pakistan, and the states of Rajasthan to the north east, Madhya Pradesh to the east, Maharashtra and the Union Territories of Diu, Daman, Dadar and Nagar Haveli to the South. The international border with Pakistan is to the north-west. The Arabian Sea makes up the state's western coast.

Vadodara is the third largest district in Gujarat state, centrally situated 22.3 ^{0}N 73.26 ^{0}E. The district has a good network of educational institutions, industrial and commercial center, adding jewel to the Vadodara crown. With proper visualization and broadmindedness of its rulers - Gaekwads, today it is one of the cosmopolitan cities of India, called "*Sanskari Nagari*" by its residents. Thickly grown trees are one of the main attractions of the district.

Vadodara city is surrounded with industrial cluster of large scale and public sector units, making the area as the foremost industrial center. "Gateway of the Golden Corridor" is the title given to the city, as well network of connectivity, through railways and roads to other parts of the country exists. National Expressway, which is a dream talk of India, connects Vadodara to different cities of the states and also to other cities of the country. There are 12 talukas in Vadodara district namely - Chhota Udaipur, Dabhoi, Jetpur Pavi, Karjan, Kawant, Naswadi, Padra, Sankheda, Savali, Sinor, Vaghodia and the main urban city area i.e. Vadodara. In all there are 1,566 villages in Vadodara district, out of which 1,561 are revenue generating. Eight are non-fertile and twelve are in submerged area. Total area of the district is 7,550 hectors. Population of the district as per census 2001 is 36,41,802 lakh which has increased to more than three times after independence (1951-2001). Out of this, 18.97 lakh (52.10 percent) are male and 17.44 lakh (47.90 percent) are

[43] www.gujaratstate.com, 2007

females. The sex ratio of the district is 919 females per 1,000 male[44], making the state to be twenty-second rank as per sex ratio in all the states of the nation. Density of population (number of persons per sq. kms.) is 482 persons per sq. kms. This is more than the density of population of Gujarat state, which is 258 sq. kms.[45] Two types of climatic conditions can be experienced here. First one is dry and hot season while the other is winter season followed by monsoon.

Most of the land of district consists of plain land. Eastern part of the district i.e. Chhota Udaipur, Naswadi, and Kawant consist of undulated land, the southern part consist of fertile land and the rest is sandy land. Main crop under district is cotton, tobacco, maze, tuver dal and juvar. Two main rivers namely Narmada and Mahi have contributed towards the fertility of most of the land in Vadodara district.

Table 4.1 highlights the important factors on all India bases and the contribution of Gujarat state in the same. Also position of Vadodara district in Gujarat state is studied here on the basis of Census of India, 2001.

Table 4.1

Demographic Factors of Vadodara, Gujarat, and India (2001)

Particulars	Vadodara District	Gujarat State	All India
Population (Lakh Nos.)			
Male	19.0	263.9	5,312.7
Female	17.4	242.9	4,957.3
Literacy Rate (%)			
Male	80.0	79.7	75.3
Female	60.7	57.8	53.7

[44] Bhatt, S. C and Bhargava, K. G (2005) "Land and People – of Indian States and Union Territories Gujarat", Volume 8, Kalpaz Publication, Delhi.

[45] Das, N. P, et. al, (2003) "Taluka level facility survey of rural Vadodara district to facilitate Implementation of proposed safe motherhood and child survival project", Volume I, Project Undertaken by Population Research Center, Department of Statistics, M. S. University, Vadodara

Literacy			
Male	-	1,78,33,273	33,99,69,048
Female	-	1,19,94,477	22,67,45,947
Persons	-	2,98,27,750	56,67,14,995
Area (sq. Km.)	7,549.5	1,96,024.0	31,66,414
Density (per sq. Km.)	482.4	258.5	329
SDP/GDP (Current prices Rs.)	-	75,594	7,68,361

Source: Census of India, 2001

Efficient telecommunication network is a prerequisite for modern life and in this area Gujarat has not lagged behind. By the end of 2001, there were over 25.71 lakh fixed landline phone connections spread over 2,925 telephone exchanges in the state and over 37,650 STD/PCO booths in it.[46] Total number of telephone connections by December 2006 was 28,33,880. Out of this 2,34,356 were in Vadodara district.[47]

Gujarat is one of the few states maintaining a high tele-density of 5.22 telephone connections per 100 persons, during the year 2001. For the year 2006 (31st March), rural tele-density is 2.69 percent (Table 3.13). Contribution of Gujarat state in telecommunication sector is also emphasized in Table 3.20 to Table 3.24.

Availability of STD booths and fixed landline phone facility at the taluka level in Vadodara district was much lower than that of either radio or television. About 5 percent of the households in Vadodara, Dabhoi, and Sankheda talukas have a fixed landline phone connection. In Chhota Udaipur only 0.5 percent household have this facility. 80 percent of the villages of the district do not have STD booth facility. But the situation is slightly better in the present study areas.[48]

According to Lok Sabha unstarred question No. 3267, dated March 23, 2005, district wise funds allocated for telecommunication services for Vadodara district of Gujarat state in the

[46] Opcit, (2003)
[47] Center for Monitoring Indian Economy Private Limited (2006) "Monthly Review of Economy", Regional Monitory Service, December 2006, Ahmedabad
[48] Opcit (2003)

year 2001-2002, 2002-2003, 2003-2004, and 2004-2005 are 87.4 crore, 38.01 crore, 30.57 crore, and 12.79 crore respectively. In the year 2001-2002 in terms of funds allocation, Vadodara district was on sixth rank and in 2002-2003 it was on thirteenth rank. During the year 2003-2004 and 2004-2005 Vadodara district ranked as fourth.[49]

102 gram panchayat villages of Vadodara district are without the telephone facility and in state, 790 Gram panchayat are yet to be provided with telephone facility. Total number of tribal villages in Gujarat state is 5,496 and out of which 804 are in Vadodara district. Number of tribal villages without telephone facility in the state are 3,973 and that in Vadodara district are 474.

After discussing the geographical background of the state and overall status of telecommunication services in Vadodara district, the subsequent sub-sections discuss brief geographical background of all five talukas. The present study data has been collected personally through questionnaires method. Five talukas of Vadodara district Dabhoi, Padra, Savali, Vaghodia and Vadodara talukas were selected for the survey. Except Vaghodia taluka, other four study areas are well developed and therefore transportation facility was easily available. Reason for studying these areas is the availability of mobile phone service providers in the region. BSNL has its network all over the Vadodara district. But private mobile phone service providers of Gujarat state (Airtel, Idea Communications, Hutch, Reliance Infocom, and Tata Indicom), at the time of study had bare minimum availability of network quality in Vadodara district. Therefore only such regions where almost all mobile phone service providers had their network are taken into consideration.

4.3.1 Dabhoi Taluka

Dabhoi taluka is situated in southwest, 29 Kms. far from Vadodara city area. As per the census 2001, total population of the taluka is 1,83,829 lakh. It has total area of 632.2 Sq. Kms. with 118 villages. In terms of number of highest villages in Vadodara district, Dabhoi taluka stands on forth rank (maximum number of villages is 217 in Naswadi taluka followed by 211 villages in Jetpur Pavi and 118 villages in Sankheda taluka).

[49] www.indiastat.com, 2007

It has a well-developed network for industries and as a result tobacco, glass, fisheries and textile industries are established. Not only availability of basic infrastructure facilities but also other luxurious facilities add to the development of Dabohi taluka. Road transport is the only conveyance source available to the residents. Presence of Dhadhar, Orsang and Narmada rivers adjoin to the irrigation facility, making the land fertile for agriculture. Narmada district is on the south west of Dabhoi taluka whereas; all other boundaries have Sinor, Vadodara, Vaghodia, Sankheda, and Karjan talukas of Vadodara district.

Almost all mobile phone service providers network is available in Dabhoi taluka, with large number of retail outlets providing recharge coupons and new connection facility. The same scenario is found in all the talukas, in the present study areas.

4.3.2 Padra Taluka

Padra taluka is 15 Kms. far from the Vadodara city area. As per census 2001, Padra taluka stands as second highest in terms of population with 2,40,236 lakh in Vadodara district. 535.2 Sq. Kms. of area and 82 villages are in this taluka.

The existence of educational institution makes the taluka as one of the developed region in district. Not only educational institutions but also chemical industries have contributed in the development of the taluka.

Mahi River on south east border of the taluka with black soil results in making cotton as the main crop of the region. Anand district, along with Karjan taluka, and Vadodara taluka of Vadodara district are the regions surrounding Padra taluka.

4.3.3 Savali Taluka

Savali taluka with a population of 2,37,929 lakh (as per census 2001) stands as one of the most developed taluka of Vadodara district. It is 26 Kms. far from Vadodara city. It has an area of 792 sq. Kms. and 137 villages. The region is developed with all basic civic amenities and infrastructure facilities. Area of savali taluka is enriched with oil, glass, and mineral industries. Groundnut stands as a main crop of the taluka with Masri, Goma and Karad rivers from Mahi river providing irrigation facilities, for the agricultural.

Kheda, Godhra and Anand districts are on the western, northern and eastern sides of the taluka respectively, whereas Vaghodia and Vadodara taluka stand as neighboring one for Savali taluka of Vadodara district. Only road transport network connects the taluka with the near-by urban regions.

4.3.4 Vadodara Taluka

Vadodara city area also known as Baroda enjoys an important place in the state of Gujarat. It is counted as cultural and educational center of the state. The city is most populated in comparison to other areas of the district with 17,05,989 lakh of population. It has an area of 693.5 Sq. Kms. and had 94 villages.

Some of the indispensable and central facilities like district head office and taluka head quarters along with railway station; collages, schools, hospitals and aerodrome are just a few to count in the city. Besides dairy, medicine, engineering, and glass industries, district industrial zone situated at (Makarpura) region of Vadodara taluka helps in constant development of the region. Groundnut is the main crop. Dhadhar and Vishvamatri rivers and also Mahi river on east makes the area not only fertile but also solves the water scarcity problem. Savali, Vaghodia, Dabhoi, Padra, and Karjar are the neighboring talukas.

4.3.5 Vaghodia Taluka

Vaghodia is the only tribal taluka under study, is 17 Kms. far from Vadodara city. Total population of this taluka as per census 2001 is 1,33,240 lakh. 565.2 Sq. Kms. of area of district is occupied by the taluka. 94 villages are included in this taluka.

Engineering and fertilizers industries are situated on the outskirts of Vaghodia taluka. Black and alluvial soil results in making wheat as main crop. It is the only taluka of Vadodara district where no river passes but only Sayajilake on the extreme east of it is present. Panchmahal and Dahod districts along with Dabhoi, Vadodara, and Savali talukas are the regions surrounding Vaghodia taluka.

Variation among rural and urban areas of the district will result in a comparative study of both the regions. As the distance among all the talukas from the main city area is not

much, all of them avails the benefit of all the basic facilities essential to survive. A comparative picture of all five talukas under present study is shown in Table 4.2.

Table 4.2

Comparative Picture of Vadodara Talukas

Variables	Rural Talukas				Urban Taluka
	Dabhoi	**Padra**	**Savali**	**Vaghodia**	**Vadodara**
Population (Lakh)	1,83,829	2,40,236	2,37,929	33,240	17,05,989
Area (Sq.Kms.)	632.2	535.2	792	565.2	693.5
Total Villages	118	82	137	94	94
Irrigation Schemes	Dhadhar, Orsang, and Narmada rivers	Mahi river	Masri, Goma, and Karad rivers from Mahi	-	Dhadhar, Vishvamatri, Mahi river
Minerals and Industries	Tobacco, Glass, Fisheries, and Textile industries	Chemical industries	Oil and Glass mineral industries	Engineering and Fertilizers industries	Dairy, Engineering, Medicine, and Glass industries

Source: Census of India, 2001

The proceeding section discusses the socio-economic condition of the mobile phone consumers of all the above-discussed talukas of Vadodara district.

4.4 Socio-economic Factors of Respondents

The usage of mobile phones for social interaction has grown over a period of time. It has moved beyond being a mere device to a key social object, present in every aspect of our daily lives. Social and economic factors of the respondents refer to the very basic personal

details, through which consumer behavior can be analyzed with much more clarity. Thus, deeper understanding of the consumers' mobile phone usage pattern can be analyzed with the help of socio-economic factors. Socio-economic trends are having increasing reorganization in the business community, as they are important for marketing. These factors also scrutinize relatively well, the consumers' abilities and needs to adopt new innovations in every sphere of life.

Number of studies has been undertaken by scholars emphasizing one or another important socio-economic condition in relation with mobile phone usage pattern. Yusuf, F. and Naseri, M. B. (2003)[50] have studied age of head of the family, gender, country of birth, employment status, and income of Australian mobile phone consumers. While MARCO (2004) has studied the mobile phone usage pattern on the basis of wage earner in a family, educational qualification, and vehicle ownership of the respondents as socio economic factors.[51]

Present section emphasis the socio-economic factors of the respondents. As it defines people and household, it is generally assumed that the mobile phone consumers have some characteristics in common that distinguish them from non mobile phone consumers. Regional penetration of important socio-economic factors such as composition of household, demographic factors and standard of living of the respondents are discussed here in detail.

4.4.1 Composition of Household

Household is the basic unit of scrutiny in many micro-economic and government models. The composition of household includes the details about the persons living together in a house. The household or family was first defined in 1872 in Indian census as comprising of those who lived together and ordinarily cooked in the same kitchen (including servants and visitors). In 2001 census, a household is defined as a group of persons who commonly live together and would take their meals from a common kitchen, unless the exigencies of work prevented any of them from doing so. Average number of households in the country as per

[50] Opcit (2003)
[51] Opcit (2004)

census 2001 is 191.96 millions, out of which 138.27 millions is for rural and 53.69 million for urban areas.[52]

Household as per the Australian Bureau of Statistics, 2000 means a person or a group of persons living together and having common provision for food and other essentials of livings.[53] The United States census defines household as, separate living quarters i.e. those on which the persons live and eat separately from any other person in the building.[54]

Numbers of factors are studied as composition of household. Some of the important ones in relation to mobile phone usage pattern include - number of members in a family, number of mobile phone consumers in a family, number of earning members in a family, dwelling unit of the respondent, housing ownership pattern, geographical location of the respondent etc. To study the mobile phone consumers in Vadodara district number of members in a family, number of mobile phone consumers in a family, and the number of earning members in a family are included as composition of household factors and all five talukas (area of present study) are studied on these basis. Details of these factors in relation to rural and urban talukas are taken into consideration and the results are shown in Table 4.3.

4.4.1.1 Number of Members in a Family

Average household size (number of members in a family) as per census 2001, for rural and urban areas is 5.4 and 5.1 respectively whereas the total average of the same, for the country is 5.3. The projected figures of the household in India for the year 2007, 2009, 2011, and 2013 are 5.2, 5.1, 5.0, and 4.8 respectively. Thus the average household size is declining day-by-day, showing nuclear family as important household structure in future.

Telecommunication service status of U.S. household has been studied by considering household size as one member and more than one member in a family. Australian

[52] www.censusindia.net, 2007
[53] Opcit (2003)
[54] www.wikipedia.com, 2007

household usage pattern for telecommunication services as studied by Madden, G. (2003)[55] shows model household with one to four members in a family.[56]

In the present study, the number of members in a family ranges from 1-3 to 10-12. Total number of members in a family of the respondents as per the survey data is mentioned in Table 4.3. The Table shows on an average four members in the respondents' family (443 respondents), followed by five members (365 respondents) in a single family. As the number of members in a family increases, number of respondents starts declining. 18 respondents (1.44 percent) of Vadodara taluka have 10-12 members in their family whereas; in other talukas none of the respondents has these many members in a family. Though the maximum number of members in a family is 4-6 but only 54 respondents (4.32 percent) have 7-9 members and out of these 37 respondents (2.96 percent) are from Vadodara taluka. Thus in rural areas of Vadodara district, maximum number of members in a family are 1-6. In present study, numbers of nuclear families are more as compare to the joint family.

Vadodara district is following the adoption of nuclear family not only in urban areas but also in rural areas. Thus, the trend of nuclear family is common in the country irrespective of the region.

4.4.1.2 Number of Earning Members in a Family

More number of earning members in a family adds to the total income of a family. Today even lower income group consumers do not consider possession of mobile phone as luxury. Yusuf, F., Naseri, M. B. (2003)[57] in relation to mobile phone usage concludes a positive relation between dependent children and probability of having mobile phones in a family. Thus, as the number of dependent members in a family increases, the market penetration rate also increases.

Table 4.3 shows that in Vadodara district 1,072 respondents (85.76 percent) have 1-2 earning members in a family, out of which 699 respondents (55.92 percent) are from

[55] Madden, G.et. al. (2003) "Australian Household Usage Pattern of Telecommunication Services", Communication Economics and Electronic Markets Research Centre, Curtin University of Technology, Perth, Western Australia.
[56] Opcit (2003)
[57] Opcit (2003)

Vadodara taluka followed by 116 respondents (9.28 percent) from Savali taluka. 164 respondents (13.12 percent) have 3-4 earning members in a family. In rural areas only 8 respondents (0.64 percent) from Padra taluka falls in this category followed by Dabhoi and Vaghodia taluka with 7 respondents (0.56 percent) in each. 139 respondents (11.12 percent) of Vadodara taluka have 3-4 earning members in a family. None of the rural talukas has five and more earning members in a family and in urban area i.e. Vadodara taluka only 14 respondents (1.12 percent) falls in this category.

Number of earning members in a family is taken into consideration in the present study irrespective of the definition of the employment by the government. Number of dependent members in a family is also not taken into consideration. Here the number of earning members in a family has inverse impact on number of mobile phone consumers in it. As the number of earning members increases, number of mobile phone consumers in a family declines. This trend is applicable to both the urban as well as rural areas.

4.4.1.3 Number of Mobile Phone Consumers in a Family

Basic criterion for selecting a respondent for the present study is the possession of at least one mobile phone at the time of the survey. All 1,250 respondents are availing the benefit of possessing mobile phones.

A study conducted by Mante and Piris (2004)[58] on young mobile phone consumers in Netherlands, found that young mobile phone consumers starts using the gadget with one belonging to someone else in a family but within a short period of time (within a year) they purchase new mobile phone handset of their own. According to Kunz Heim (2003), most teens get their first mobile phone as a gift from their parents and very often it is an older model, no longer used by father, mother, or older siblings. Increase in the number of mobile phones in families represents the distribution or multi-possession. It also opens the possibility for those who actually use mobile phone at home belonging to another member of the family.

[58] Opcit (2002)

Out of total 1,250 respondents, 1,046 respondents (83.68 percent) had at the most two mobile phone consumers in a family while 187 respondents (14.96 percent) has 3-4 mobile phone consumers in a family (Table 4.3). As the number of members possessing mobile phone in a family increases, number of respondents' declines. Within rural talukas only Savali taluka has 1 respondent (0.08 percent) having 5-6 mobile phone consumers in a family whereas, in urban area 16 respondents (1.28 percent) falls in this category. Again an inverse relationship between respondents and the number of mobile phone consumers in a family exists and this relationship is applicable to both the urban as well as rural region.

Table 4.3

Distribution of Various Compositions of Household Factors

Variables	Rural				Urban	Total
	Dabhoi	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 Earning Members in a Family						
1 – 2	85 (6.80)	112 (8.96)	116 (9.28)	60 (4.80)	699 (55.92)	1072 (85.76)
3 – 4	7 (0.56)	8 (0.64)	3 (0.24)	7 (0.56)	139 (11.12)	164 (13.12)
5 and more	-	-	-	-	14 (1.12)	14 (1.12)
Total	92 (7.36)	120 (9.60)	119 (9.52)	67 (5.36)	852 (68.16)	1250 (100)
Number of Mobile Phone Consumers 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

Note: a. Figures outside the bracket are number of respondents
b. Figures in brackets are in percentage

4.4.2 Demographic Factors

To study the consumption pattern of the respondents, demographic factors are the base. Demographic environment is of major interest, as it involves people and people make up markets demography. Demographic factors are a frame of social analysis as well as business tool. It is a statistical and scientific study of changes in death, birth and other important factors over a period of time. Rodini (2002) studied the mobile phone usage pattern by considering the demographic information of the household in terms of age, gender of household head, and the number of members in a family.[59]

Studies on mobile phone usage pattern by Madden, G. et. al. (2003)[60], Gebreab, A. F (2002)[61], and Ward and Woroch (2004)[62] concludes that the demographic factors are important in the analysis of consumption pattern of the households. In the present study demographic factors such as age, education qualificational, gender, marital status, and occupation of the respondents are taken into consideration and the results are presented in Table 4.4.

4.4.2.1 Age

Age is the length of time that a person has lived. More general, time of life usually defined in years at which some particular qualification or power arises. The concept of age has been changing from census to census by the government of India. As per census 2001, life expectancy at birth i.e. average number of years a person lives is 61.6 years. For males it is 62.5 years whereas for females it is 63.3 years. For the rural areas, life expectancy at birth for males and females is 60.3 years and 61.8 years and for urban areas it is 66.3 years and 69.2 years respectively. The total urban and rural figure for life expectancy is 61.2 years and 67.9 years respectively. As per census 2001, life expectancy of Gujarat state is 63.3 years and in favor for males it is 62.3 years whereas for females it is 64.2 years.

---

[59] Opcit (2002)
[60] Opcit (2003)
[61] Opcit (2002)
[62] Opcit (2004)

Census 2001 divides the population on the basis of age group as 0-14 years, 15-64 years, and 65+ years and the percentage of population falling in these categories is 35.44, 59.77, and 4.79 percent respectively. On a broad spectrum, population can also be divided as dependent (including children up to 14 years and elderly people above 60 years) and independent (including persons in the age of 14 years to 60 years). Rationale for this bifurcation is independent population is seen as working or earning members. For the sake of convenience, in the present study, population is divided into three age groups namely, 11-30 years, 31-45 years, and 46-60 years. First category includes younger respondents' who are much more conscious and well acquitted with the market structure of the mobile phones as compared to the other two age groups.

Age is one of the most basic socio-economic factors considered in almost all the studies on the mobile phone usage pattern, Vision RI (2005)[63], Pakola, J., et. al. (2003)[64], Hashimoto, Y. (2002)[65], and Nurvitadhi (2003).[66] It is emphasized by Fortunati, L. and Mananelli, A. M (2002)[67] that young people in the age group of 15 years to 20 years and young adults between 25 years to 34 years has the highest rate of mobile phone usage in comparison to other age groups in Europe. Ramachandran, T. V. (2005)[68] found that the young ones in India are the early adopters of mobile phones and 54 percent of population using mobile phones is below 25 years whereas other 45 percent is below 19 years of age.

Out of 1,250 respondents, 390 respondents (31.20 percent) are in the age group of 31-45 years whereas 146 respondents (11.68 percent) are in the age group of 46-60 years (see Table 4.4). In rural and urban talukas 52 respondents (4.16 percent) and 94 respondents (7.52 percent) respectively are in the age group of 46-60 years. 714 respondents (57.12 percent) are from 11-30 years of age group, which means that easily traceable numbers of mobile phone consumers in Vadodara district are from younger age group. This might

[63] Opcit (2005)
[64] Opcit (2003)
[65] Opcit (2002)
[66] Opcit (2003)
[67] Fortunati, L. and Mananelli, A. M. (2002) "Young People and the Mobile Telephone", Revista de Estudios de Juventud, Junio, No. 57.
[68] Opcit (2005)

have occurred due to the acceptance of innovative technology by young age group in the present study area.

4.4.2.2 Educational Qualification

One of the basic requirements to survive in 21st century is the educational qualification. Government of India has made free and compulsory primary education for all, up to fifth standard. Even free meals are provided to the students in schools. As per census definition, any one who can read and write with understanding is treated as literate. However, children below the age of seven years have been treated as illiterate, even if he or she may be able to read and write with understanding.[69]

Literacy rates in Gujarat state, when compared as per census 1991 and 2001 shows an increase from 61.29 percent to 69.97 percent. If studied from gender basis male literacy was 73.13 percent in 1991 and 80.50 percent in 2001 but for females in 1991 it was 48.64 percent and in 2001 it is 58.60 percent. Literacy rate in Gujarat state is high as compared to all India average.

Literacy rate in Vadodara district for males in 1991 was 74.19 percent and in 2001 it is 80.65 percent, whereas for females it has improved to 61.24 percent in 2001 from 52.22 percent in 1991. Overall figures for the district under study were 63.73 percent in 1991 in comparison to 71.32 percent in 2001. Results of census survey for the period 1991 and 2001 shows the literacy rate of Vadodara district higher than the Gujarat state. One of the main reasons for such high literacy rate (when compared with other districts of the state) is the presence of many educational institutions in Vadodara district.

Numbers of studies are being conducted by different scholars all over the world for understanding the relationship between educational qualification and mobile phone usage pattern. Young generation mobile phone usage pattern is been studied by Hashimoto, Y. (2002)[70]; Nigel Scott, et. al (2004)[71], and Nurvitadhi (2003).[72] A study conducted by

[69] Ministry of Health and Family Welfare (2004) "Census of Gujarat 2001," Directorate of Economics and Statistics of Gujarat State Government, GOI, New Delhi.
[70] Opcit, (2002)
[71] Scott N., et. al. (2004) "The Use of Telephones Amongst the Poor in Africa: Some Gender Applications", Gender, Technology and Development 8 (2).

Donner, J. (2005)[73] on the usage pattern of mobile phones by private business owners in Kigali, emphases a significant inverse relationship between level of education of the user and the proportion of business calls on their mobile phones. None of these studies emphasizes on less educated population in their studies.

Educational qualification of the respondents in the present study is distributed in eight different categories-less than SSC, SSC, HSC, Diploma, Graduate, Postgraduate, Professional, and under graduates. Table 4.4 shows the taluka wise distribution of educational qualification of the respondents. As the maximum numbers of respondents are from young age group, the number of graduates (533 respondents) in the sample is more than any other educational qualification. Followed by the under graduate respondents (221 respondents). 118 respondents (9.44 percent) show their educational qualification up to school level i.e. 7 respondents (0.56 percent) have educational qualification as less than SSC, whereas 45 respondents (3.60 percent) have SSC and 66 respondents (5.28 percent) have HSC degree as their educational qualification. The data makes it clear that educational qualification has less impact on the acceptance of mobile phones in Vadodara district. But as the educational qualification of the respondents' increases, acceptance of mobile phone usage in every day life also increases.

4.4.2.3 Gender

Gender - increasingly used to distinguish a social role and personal identity from biological sex. It refers to the differences between roles, responsibilities, constraints, opportunities, needs etc. held by the men and women not only socially but culturally too. The Norwegian media and gender researcher Wencke Muhleisen shares his views, and claims that feminities and masculinities are not qualities that men and women are naturally born with, but rather positions which have been culturally associated with them. In principle, femininities and masculinities may be taken in by anyone regardless of physical sex. According to this point of view, one does not have gender, rather one does gender.[74]

---

[72] Opcit, (2003)
[73] Opcit (2005)
[74] Opcit, (2004)

Is there a real difference between the way males and females use mobile phone communication technology?[75] Rautiainen, P. (2001)[76], Proitz, L. (2004)[77], Igarashi, T. (2004)[78], and Ling, R. (2001)[79] studied the gender variation in mobile phone usage pattern. Not much variation can be seen among the acceptance of mobile phones in both males and females at young age by Geoff Potts (2004)[80] but the case is opposite in the study done by Rautiainen, P. (2001)[81] and Proitz, L. (2004).[82]

As per the census 2001, number of male and female population in Vadodara district is 19.0 and 17.4 lakh respectively. In the present study, only 269 respondents (21.52 percent) are females (Table 4.4). Low percentage of female respondents is only because this was random sample survey and gender bifurcation was not taken into consideration. Thus male mobile phone consumers in Vadodara district can be traced out much easily than the female mobile phone consumers. Maximum numbers of female respondents are from Padra taluka i.e. 36 respondents (30 percent), of the total 120 respondents (9.60 percent), whereas, in each Dabhoi and Savali taluka this ratio is 08 percent respectively, of the total 92 respondents and 119 respondents respectively.

4.4.2.4 Marital Status

In census 2001, the marital status of a person was recorded as never married, currently married, widowed, and separated or divorced. More than 50 percent of the respondents out of total 1,250 respondents are married and the trend is applicable to all the talukas (Table 4.4). Exception is Padra taluka, where 70 respondents (5.60 percent) out of 120 respondents (9.60 percent) are unmarried. In Vaghodia taluka, numbers of married and unmarried respondents are 36 respondents (2.88 percent) and 31 respondents (2.48 percent) respectively. In Vadodara taluka, 456 respondents (36.48 percent) are married and 396 respondents (31.68 percent) are unmarried.

---

[75] Opcit, (2004)
[76] Opcit, (2001)
[77] Opcit, (2004)
[78] Opcit (2004)
[79] Opcit (2001)
[80] Opcit (2004)
[81] Ibid (2001)
[82] Ibid (2004)

The result shows that as the number of members in a family increases, acceptance of new communication gadgets also increases. Though the difference among the marital status and possession of mobile phones is not very large but it still favors the married respondents in Vadodara district.

4.4.2.5 Occupation

In the present section, various occupations of the respondents are taken into consideration. Selection of the respondents for the present study was on the basis of their occupation. Three broad categories were formed to consider the impact of mobile phones usage according to the respondents' profession - Government employee, Private business/jobs employee, and student.

In a period of last five years, mobile phones have been transformed from being an expensive tool for the business person to a relatively affordable accessory for the consumer market in the country. As emphasized by Ramachandran, T. V. (2005)[83], the professionals are the heavy mobile phone consumers in India. Increasing number of professionals shows the requirement of high quality information as well as commerce and acceptance of business services and applications. Another important point for business class mobile phone consumers is that the outgoing lines are at their fingertips and can always be in reach.

Out of 1,250 respondents, 414 respondents (33.12 percent) are Government employees, 416 respondents (33.28 percent) are from private business/jobs while 420 respondents (33.60 percent) are students (Table 4.4). For rural areas, the total number of government employees are 130 respondents (10.40 percent), private business/job employees are 132 respondents (10.56 percent) and for student category, 136 respondents (10.88 percent). 284 respondents are surveyed in all three occupational categories for urban area. Government employees were traced out in their official premises and private employees were interviewed at their work place while students' category includes maximum hostel

[83] Opcit (2005)

residents from Vadodara taluka. These respondents are using the mobile phones in their day-to-day life and are aware of all the mobile phone services upto great extent.

Table 4.4

Distribution of Respondents by Various Demographic Factors

Variables	Rural				Urban	Total
	Dabhoi	Padra	Savali	Vaghodia	Vadodara	
Age						
11 – 30	49 (3.92)	81 (6.48)	59 (4.72)	35 (2.80)	490 (39.20)	714 (57.12)
31 – 45	31 (2.48)	31 (2.48)	38 (3.04)	22 (1.76)	268 (21.44)	390 (31.20)
46 – 60	12 (0.96)	8 (0.64)	22 (1.76)	10 (0.80)	94 (7.52)	146 (11.68)
Total	**92 (7.36)**	**120 (9.6)**	**119 (9.52)**	**67 (5.36)**	**852 (68.16)**	**1250 (100)**
Educational Qualification						
>SSC	1 (0.08)	-	-	-	6 (0.48)	7 (0.56)
SSC	1 (0.08)	4 (0.32)	5 (0.40)	-	35 (2.80)	45 (3.60)
HSC	7 (0.56)	2 (0.16)	14 (1.12)	4 (0.32)	39 (3.12)	66 (5.28)
Diploma	6 (0.48)	-	9 (0.72)	7 (0.56)	26 (2.08)	48 (3.84)
Graduate	38 (3.04)	46 (3.68)	60 (4.80)	37 (2.96)	352 (28.16)	533 (42.64)
Post Graduate	8 (0.64)	25 (2.00)	11 (0.88)	7 (0.56)	153 (12.24)	204 (16.32)
Professional	2 (0.16)	-	-	-	124 (9.92)	126 (10.08)
Under Graduate	29 (2.32)	43 (3.44)	20 (1.60)	12 (0.96)	117 (9.36)	221 (17.68)
Total	**92 (7.36)**	**120 (9.6)**	**119 (9.52)**	**67 (5.36)**	**852 (68.16)**	**1250 (100)**
Gender						
Male	85 (6.80)	84 (6.72)	110(8.80)	58 (4.64)	644 (51.52)	981 (78.48)
Female	7 (0.56)	36 (2.88)	9 (0.72)	9 (0.72)	208 (16.64)	269 (21.52)
Total	**92 (7.36)**	**120 (9.6)**	**119 (9.52)**	**67 (5.36)**	**852 (68.16)**	**1250 (100)**
Marital Status						
Married	51 (4.08)	50 (4.00)	69 (5.52)	36 (2.88)	456 (36.48)	662 (52.96)

Unmarried	41 (3.28)	70 (5.60)	50 (4.00)	31 (2.48)	396 (31.68)	588 (47.04)
Total	**92 (7.36)**	**120 (9.6)**	**119 (9.52)**	**67 (5.36)**	**852 (68.16)**	**1250 (100)**
Occupation						
Government	30 (2.40)	40 (3.20)	40 (3.20)	20 (1.60)	284 (22.72)	414 (33.12)
Private	32 (2.56)	40 (3.20)	38 (3.04)	22 (1.76)	284 (22.72)	416 (33.28)
Student	30 (2.40)	40 (3.20)	41 (3.28)	25 (2.00)	284 (22.72)	420 (33.60)
Total	**92 (7.36)**	**120 (9.6)**	**119 (9.52)**	**67 (5.36)**	**852 (68.16)**	**1250 (100)**

Source: Field survey 2005

Note: a. Figures outside the bracket are number of respondents

b. Figures in brackets are in percentage

4.4.3 Standard of Living

The dictionary meaning of standard of living is the amount of money and the level of comfort that a particular person or group has.[84] Thus access to goods and services is one of the indicators of people's living standard. On the basis of this definition, income and possession of assets of all the respondents is studied. Here income refers to the family income, as 420 respondents (33.60 percent) are students and none of them are earning.

Today, goods these are available in the last decade or so represent a strong link with household income. Here ownership of assets refers to the possession of durable goods such as fixed landline phone connection, two wheelers, four wheelers, computer, C.D. player, television, and house by the respondent. In society, durable goods/fixed assets are some expensive, technologically sophisticated goods, whose utility is over time rather then being completely used up at the moment. Ownership of fixed assets shows the regional penetration of consumer durable goods. Cost of such goods is higher than non-durable goods, but the possession remains life long, as they are non-perishable goods. Latest market trend shows that price of durable goods is declining day-by-day. The main reason for this is the competition in the global market.

[84] Opcit (2006)

After 1991, the GOI adopted the policies towards liberalization, privatization, and globalization, which resulted in the entry of Multi National Companies (MNC) in Indian market. Entry of MNC not only declines prices but also increases the competition, quality, and availability of alternatives. The main purpose of studying the possession of durable goods is to understand the relationship among such goods and possession of mobile phones. It is expected that the better off states/districts will have larger proportion of ownership of these assets. Gujarat state shows the share of 5.02 percent in national household for national total of consumer durables.[85] Influence of these high tech durable goods on urban and rural consumers is studied separately. All these factors are been studied collectively and the results are shown in Table 4.6.

4.4.3.1 Income

In United States, market researchers use household income to define socio-economic factors. Not only the primary reason of the usage of mobile phones (making and receiving calls) but also for VAS usage pattern, income of the respondent and the household stands as an important analyzing factor. Expenditure level on mobile phones of the consumers can be judged easily with their income level. As a result of improved level of affluence during the period 1995-2002, nearly 100 million people in the country became part of the consuming and rich class. Besides this, faster fall in cost of acquiring mobile phones has resulted in its acquisition by lower income groups even.

In the present study income represents the total household income and not that of the individuals. Further on the basis of income category, lower-income group (Rs.1,000 - Rs.5,000), lower middle-income group (Rs.6,000 - Rs.10,000), middle-income group (Rs.11,000 - Rs.15,000), higher middle-income group (Rs.16,000 - Rs.20,000), and higher income group (Rs.20,000 and above) are considered.

Out of total 1,250 respondents, 217 respondents (01 from Padra, 23 from Savali, 13 from Vaghodia, and 180 from Vadodara taluka) have not reported their income. Thus, only 1,033 respondents' income is studied further. 184 respondents are from higher income

[85] Mohanty S. K. (2006) "Population as Marker of Consumer Goods: Understanding the Potential Market of Selected Consumer Durables in India", Annual Conference of Population Association of America, March-April 2006.

group while 68 respondents are from lower income group (Table 4.5). In Vaghodia taluka, none of the respondent falls in the higher income group, while 172 respondents from Vadodara taluka falls in this category. Total 243 respondents are in the middle-income group. 417 respondents are in the lower middle-income group (Rs.11,000 - Rs.15,000). As income increases, the number of respondents starts declining. This trend is followed till middle-income group level and again starts increasing. The proportion of higher income group respondents is almost double than that of lower income group. Household income is the only variable statistically different by location.

Table 4.5

Income (Standard of Living) of the Respondents

Particulars	Rural				Urban	Total
(In Rs.)	Dabhoi	Padra	Savali	Vaghodia	Vadodara	
1,000 - 5,000	5 (0.48)	7 (0.68)	13 (1.26)	3 (0.29)	40 (3.87)	68 (5.44)
6,000 - 10,000	54 (5.23)	54 (5.22)	58 (5.61)	38 (3.68)	213 (20.61)	417 (40.37)
11,000 - 15,000	25 (2.42)	34 (3.29)	16 (1.55)	10 (0.97)	158 (15.30)	243 (23.52)
16,000 - 20,000	6 (0.58)	19 (1.84)	4 (0.39)	3 (0.29)	89 (8.62)	121 (11.71)
20,000 and above	2 (0.19)	5 (0.48)	5 (0.48)	-	172 (16.65)	184 (17.81)
Total	**92 (8.90)**	**119 (11.51)**	**96 (9.29)**	**54 (5.23)**	**672 (65.05)**	**1033 (100)**

Source: Field survey 2005

Note: a. Figures outside the bracket are number of respondents

b. Figures in brackets are in percentage

4.4.3.2 Possession of Fixed Landline Phone

Historically, at the time of introduction in the market, mobile phones were truly luxuries. Poor transmission quality, lack of geographical coverage of area, non portability of handsets besides high prices has made its acceptance rate relatively slow, as compared to the ratio of fixed landline phone connection, at the time of their launch in the market. But the present rate of acceptance of mobile phones shows a steady increase day-by-day, as the performance of service providers and technology has increased tremendously. Huge reduction in prices supports the trend positively.

In the present study at least one respondent in a family should have mobile phone at the time of survey, but the possession of fixed landline phone is a substitute. Basic difference between fixed landline phone and mobile phone is the mobility i.e. a person can carry mobile phone anywhere but the case is not so with fixed landline phone connection. It is an immovable telecommunication service, which if once installed cannot be moved outside the premises of installation.

The users preferred a fixed landline phone connection because they could define an intimate area within public zones, which allowed them to talk in a more confidential, considerate, and attentive mood, away from worries of cost and from any interruptions or interference from the environment. The fixed landline phones provided a time and space that favored personal and emotional expression, as well as long and intimate conversations. In contrast, the mobile phone was used for shorter and more functional calls. Mobile phone is convenient because it allowed them to do away with common courtesy rules, as well as allowing them to cut short a conversation that they did not want to continue. The mobile phone was a colder or less friendly medium per se. Rather its use reflected a more general tendency for communications of an efficient business nature. Similarly, the mobile phone provided an excuse to remove those conventions and obligations symbolizing reciprocity, which still applied to the social interpersonal communication usually governed by common courtesy. Because of the technical constraints of the mobile phone (e. g. that it was uncomfortable, costly, dangerous to use

when driving, etc.), they managed to avoid any aspect of conversation that was irrelevant, Haddon (1998).[86]

Fixed landline phone service was emphasized as the basic infrastructure facility by the GOI and therefore, only public sector service provider i.e. DOT was responsible for the growth and development. After the introduction of private mobile service providers (NTP 1994), followed by the Universal Service License (NTP, 1999), resulting in the share of fixed landline phone development by private service providers. As a result of its introduction, availability, and quality of fixed landline phone connection has improved. New features like cordless, push button, caller id, speaker and many more were introduced in fixed landline phones. Results of such advance technological introduction can be understood by considering the importance of fixed landline phone connection in the premises, even after the introduction of mobile phone services.

Percentage of households possessing fixed landline phone connection in Gujarat state as per census 2001 is 10 to 15 percent. State's share in national total consumer durable for fixed landline phone connection is 6.85 percent whereas, interstate variations in ownership of fixed landline phone shows 9.14 percent and for Gujarat state this figure is 12.47 percent. Within the state Reliance Infocom; Tata Indicom and BSNL are the providers of fixed landline phone connection. With the change of time and necessity of being in contact has affected the popularity of fixed landline phone connection to a great extent. A study by Vehovar, Vasja, et. al., (2004)[87] highlights the declining trends of coverage of fixed landline phone by about 60 percent in some countries, while acceptance of mobile phones is increasing at a steady rate.

In the present study out of total 1,250 respondents, 980 respondents had fixed landline phone connection in their premises. This is about 78 percent of the total sample under study (Table 4.6). In Padra taluka, 108 respondents (out of 120 respondents) possess fixed landline phone connection whereas in Vaghodia taluka, 47 respondents (67

[86] Haddon, L. (1998) "The Experience of the Mobile Phone", XIV World Congress of Sociology, "Social Knowledge: Heritage, challenges, prospects', Montreal, July 26 - August 1, 1998.
[87] Vehovar, V., et. al. (2004) "Mobile Phone Surveys: The Slovenian Case Study", Metodoloski Zvezki, Vol. 1.

respondents) avails the benefit of fixed landline phone connection. Thus, with the increasing availability and usage of mobile phones in Vadodara district, fixed landline phone connections are still preferred.

Basic purpose to own fixed landline phone or mobile phone is not just to make or receive calls but also to be in contact with kith and kin and also with society. The two services have achieved a co-existence in the market, each with its unique features having its own important place. Trends of acceptance of both the services (fixed landline phone and mobile phone) shows relationship among themselves, which can be studied by taking both as complementary goods; Garbacz, Christopher, H. G., Thompson Jr. (2005)[88], Ahn, Hyungtaik, and Myeong. H. L. (1999)[89] or supplementary goods; Ward and Woroch (2004).[90]

4.4.3.3 Possession of Two Wheelers

Till mid 1990s, only one or two companies were well recognized with its two wheelers in market and hardly 10 models were available. At present there are many companies with different models, depending upon the need of the consumers. Alternative choice on the basis of their preferences in relation to gender, income group, and features and above all choice are offered. 1,193 respondents (95.44 percent) possess two wheelers in the present study, emphasizing the importance of means of transport along with the communication technology (Table 4.6). 819 respondents of Vadodara taluka possess two wheelers, followed by 113 respondents of Savali taluka. Out of total 67 respondents of Vaghodia taluka, 61 respondents possesses two-wheelers.

State share in national total of consumer durable for scooter, motorcycle, or moped is 9.05 percent. 11.71 percent of household owns scooter, motorcycle, or moped. When interstate variation in ownership of consumer durables is calculated, Gujarat state share is 21.10 percent. According to CMIE report (2006)[91], in Vadodara taluka, the number of registered two wheelers as at the end of January 2006 is 68.23 lakhs. This shows that not

[88] Opcit, (2005)
[89] Opcit, (1999)
[90] Opcit, (2004)
[91] Center for Monitoring Indian Economy Private Limited (2006) "Monthly Review of Economy", Regional Monitory Service, Ahmedabad, April 2006.

only in urban areas but also in rural areas, percentage of possession of two wheelers in Gujarat state follows the same trend.

4.4.3.4 Possession of Four Wheelers

Higher income group people were supposed to have the ownership of four wheelers. But the present scenario is completely vice versa. The main reason for this might be the drop in prices and easy availability as per ones need. Wide ranges of models are available in both family cars and sports cars. Number of four wheelers on the basis of price, trend, features, model, and choice are readily available in the market. Percentage of owning four wheelers is closely related to income, as well as sex, age, stage of life cycle and location. Percentage of household owning car is less than 10 percent in Gujarat, as per census 2001. State share in national total of consumer durables for car, jeep, or van is only 6.89 percent.

In Table 4.6 rural-urban distribution of sample size of the present study, shows the possession of four wheelers in Vadodara district. Owning of four wheelers in comparison to two wheelers is still very less (95.36 percent owns two wheelers and only 22.00 percent owns four wheelers). Only 3 respondents of Savali taluka and 9 respondents of Vaghodia taluka possess four wheelers. Out of total 852 respondents of Vadodara taluka, only 241 respondents own four wheelers. With the number of respondents owning four wheelers one cannot judge the popularity of the same. Rather the case is of affordability and choice.

4.4.3.5 Possession of Computer

Along with the acceptance of other communication technology, computers are also showing an increasing rate of possession. Even school going kids are very well acquainted with how to use this electronic gadget and to play games on it. Removable data disk are available even on general shops and galleries. Just on a click of a button person gets connected to the world and can have details of anything in the world. Being in the list of top three largest cities in Gujarat state, one can easily imagine the acceptance of this new technology in Vadodara district.

A study conducted by Nurvitadhi (2003)[92] shows the relationship between possession of mobile phones and portable durable goods including walkman, radio, discman, and notebook personal computer, and concluded that laptops are next most preferred portable device by students in Japan and U.S. Universities.

Number of respondents possessing computer is very less in the present study area. In rural area of Vadodara district only 44 respondents (11.05 percent) and in urban areas 378 respondents (44.37 percent) possess computer in their premises. Thus, acceptance of new technology is more in urban area than in rural areas. Some of the technology savvy people in the present study area uses personal computer notebook. i.e. laptop.

4.4.3.6 Possession of C. D. Player

In early 1980s, radio was introduced in India and those who wished to own one, needed to have license from the government agency. With the increasing technological awareness and competition tape, stereo, deck, two-in-one etc comes into the Indian market, making previous gadgets as outdated. But now a-days the trend is of C. D. player, with which one can listen audio tracks. In Vadodara taluka 64.20 percent of the respondents (547 respondents) possess C. D. players while in rural talukas 26.18 percent are availing the benefit of this new musical gadget (Table 4.6). In comparison to computers, C. D. players are more acceptable in Vadodara district.

4.4.3.7 Possession of Television

In general almost all the households possess television set. With the improvement in technology, its features, size, and looks everything is changing day-by-day. It has become a basic need of today's generation and is no more considered as a luxury good, even by lower income group family. More than 100 Channels are available, not only in one but also in other languages. Mobile phones have achieved the level of penetration much faster than was the case of television. Average household ownership rate for television, is similar in urban and rural areas. Percentage of acceptance of television is highest in comparison to all other durable goods. As emphasized by TRAI, there is no country other

[92] Opcit, (2003)

than India where cable television connections exceed fixed landline phones.[93] Thus, indicating huge demand for entertainment and multi sourced news and information gizmo in the country.

As per census 2001, 30 percent to 40 percent of households are possessing television set in Gujarat state. This represents 6.15 percent as state share in national household figure of 9,643,989. Its popularity can be seen even in the present study. 95.60 percent of the total respondents possess television set (see Table 4.6). Under present study average household ownership rate is similar in both the urban and rural regions.

4.4.3.8 Possession of House

Owning a house is no more a dream, with competition and for making house various alternatives are available in the market like loan facility, housing schemes etc. Not just to have possession of a house but all necessities and luxuries in it are easily accessible in today's global market.

Table 4.6 shows taluka wise number of respondents who owns house. As the numbers of respondents are more in Vadodara urban area, utmost respondents of this region only possess housing facility of their own (686 respondents). While in Vaghodia taluka, only 58 respondents had their personal housing facility.

Table 4.6

Frequency of Various Standard of Living Factors

Particulars	Rural				Urban	Total
	Dabhoi	Padra	Savali	Vaghodia	Vadodara	
Fixed landline Phone	75	108	71	47	679	980
Two wheelers	87	112	113	61	819	1192
Four wheelers	10	12	3	9	241	275

[93] Telecom Regulatory Authority of India (2005) "Study Paper on Indicators for Telecom Growth", Study Paper No. 2/ 2005, New Delhi.

Computer	3	27	4	10	378	422
C. D. Player	38	64	45	37	547	741
Television	89	118	112	65	811	1195
House	84	104	105	58	686	1037

Source: Field survey 2005

Note: a. Figures outside the bracket are number of respondents

b. Figures in brackets are in percentage

Study of mobile phone consumers and their socio-economic factors shows an inverse relationship between increase in the number of respondents and the socio-economic variables (number of members in a family, number of mobile phone consumers in a family, number of earning members in a family, age, gender, marital status, occupation of the respondents, family income, possession of fixed landline phone connection, two wheelers, four wheelers, computer, C.D. player, television, and house). Both rural and urban talukas of Vadodara district follows the same trend. Similar pattern exists for all the variables of composition of household, demographic factors, and the standard of living. Education is the only demographic factor showing a variation among itself in rural talukas. As the maximum numbers of respondents are from urban area of Vadodara district, still the same trend is followed by rural areas. Final household profile of the consumers will help in analyzing the diverse impact of mobile phones in their day-to-day life.

4.5 Conclusion

Mobile phone market is at a boom all over the world. Studies by various scholars from all over the world, highlights the importance of telecommunication services with special emphasis on mobile phone services. These studies show the acceptance and development of mobile phone services. The mobile phone study encourages exploration of world beyond local boundaries. All over the world the age of possessing mobile phone is declining day-by-day. Beside age, another important demographic factor studied by many scholars is gender. Gender variation among teenagers and adults is emphasized here. Usage of various mobile phone services varies with these demographic factors. SMS is

the highly acceptable mobile phone service by all mobile phone users irrespective of demographic factors. Besides SMS, usages of other mobile phone services are also studied. Cross-country variation in mobile phone usage pattern shows that, everyone and everywhere had accepted this technological gizmo, though the variation among acceptance and usage pattern occurs. Comparisons of mobile phone services along with other modern technological gadget are also studied beside the acceptance of the mobile phone services in business sector. Mobile phone advertising is also studied and the consumers have a similar opinion about the service. Overall satisfaction of mobile phone services is also studied by the scholars and the results of the same are varying from region to region. Acceptance of fixed landline phone and mobile phone services as complementary or substitute goods are discussed along with the FMC. Therefore it is seen from the various studies done by scholars in relation to gender, income, and age etc., there is a relation among these factors.

Geographical perspectives of five talukas namely Dabhoi, Padra, Savali, Vaghodia and Vadodara are discussed here. Except Vaghodia taluka, other four study areas are well developed and therefore transportation facility was easily available. Reason for studying these areas is the availability of mobile phone service providers in the region. Almost all mobile phone service providers network is available in these talukas of Vadodara district, with large number of retail outlets providing recharge coupons and new connection facility.

This chapter also discussed the socio-economic factors in general and of the respondents in particular. It makes the picture of mobile phone consumers in Vadodara district. Inverse relationship among all the factors of composition of households (number of members in a family, composition of household, number of mobile phone users in a family etc.) exists. This upward sloping trend is related among all the factors. If there are less number of members in a family their will be less earning members and few mobile phone users in it. These figures are an indicator of the growing nature of the market and also the pointer to the fact that there lies a big opportunity for all the mobile phone service providers.

Mobile phone market is at a boom all over the world. Study of the socio-economic conditions of the consumers in the present chapter; emphasize the mobile phone usage pattern in Vadodara district. Study of mobile phone consumers and their socio-economic factors shows an inverse relationship between increase in the number of respondents and the socio-economic variables (number of members in a family, number of mobile phone consumers in a family, number of earning members in a family, age, gender, marital status, occupation of the respondents, family income, possession of fixed landline phone connection, two wheelers, four wheelers, computer, C.D. player, television, and house). Both rural and urban talukas of Vadodara district follows the same trend. Similar pattern exists for all the variables of composition of household, demographic factors, and the standard of living. Education is the only demographic factor showing a variation among itself in rural talukas. As the maximum numbers of respondents are from urban area of Vadodara district, still the same trend is followed by rural areas. Final household profile of the consumers will help in analyzing the diverse impact of mobile phones in their day-to-day life.

Presence of gender variation among mobile phone users along with the mobile phone usage pattern among teenagers is also studied here. Features that influence young mobile phone consumers are emphasized and studied separately. Demand and usage of fixed landline phone connection beside the role and acceptance of FMC in future is also taken into. Trend of acceptance of mobile phone services and each and every socio economic factor of the consumers emphasizes a unique relationship in both the rural and urban areas.

Besides usage pattern, consumer preference for mobile phone services (pre-paid and post-paid) along with the penchant for mobile phone handsets are also emphasized here. Mobile phone consumers of Vadodara district prefer post-paid services more than the pre-paid ones. The technical innovations in mobile phone have been accepted in consumers every daily life, at every place including the work place.