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# Influence of Cell Phone in ICT Sector of Pakistan towards Advancement

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## Abstract

Developments in technology have led to the creations that have made our lives easier. Mobile phone or cell phone was developed to overcome landline or fixed connections in the way that it may be able to move and a person can carry out. Now mobile phone is not only a device for just a call or messaging rather it has become a smart device providing numerous features in a single component. Depending on its growth the researchers have developed applications based on all aspects of life like emails can be sent and received; internet can be accessed and many other functions have been included. Pakistan is one of the potential markets for the mobile operators as an enormous growth has been seen in mobile use during last decade. Pakistan being a huge market for mobile phones and network usage, this paper aims towards the study of ICT trends with mobile operators working and statistics in Pakistan from 2002 to 2017. This paper is about the telecom operators of Pakistan and their subscribers and also 3G and 4G statistics. The reasons of growth in number of subscribers are presented. Pakistan's mobile telecom operators are providing various value added services and affordable tariffs which motivate people to opt for that particular operator. The services such as packages, tariffs, and tele-density of mobile phones are studied and other services like branchless banking and microfinance involvement are also given in detail for all the telecom operators which contribute towards economic growth of the country.

**Keywords:** Mobile, Tele-density, Subscriber, Mobile operators, Tariffs.

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## INTRODUCTION

Developments in Information and Communication Technologies (ICT) have led to the era of wireless communications, and internet which have a major / crucial role in social and economic developments [1], [2]. Researches have been carried out to provide better solutions in various aspects of lifestyle like health [3]–[7], transport [8] and others. Now a days mobile phone is known as smart phone because it is not just used for call or for text messages as in previous era but it is now equipped with variety of softwares that make it even more useful [9]. Some domains are listed as:

- (i) Accessing social networking sites or applications[10]
- (ii) Health Care [3]–[6]
- (iii) Transportation[8]

Mobile phones are not only used for voice calls but there are added features like sending and receiving of messages, emails, accessing internet and other [11]. A survey shows that mobile phone users make most calls from home (57%), followed by from work (41%), with only one tenth (9.4%) of the users regularly speaking over mobile phones in the streets [12].

The usage of mobile phone is considered as the 21<sup>st</sup> century's leading non drug addiction [13]. The mobile phone has become a vital necessity of daily life for people instead of just an accessory because of its gigantic usage worldwide [1]. Due to development of social networking sites, people got attracted as they are not charged for it. Only the subscription of internet is required to get connected with their loved ones [13]. Mobile service providers are providing internet so that subscribers or users can have access on the go. Subscribers or users are an important element of the mobile service [14].

According to International Telecommunication Union (ITU) ICT Facts and figures 2014 report, the number of mobile subscriptions worldwide is approaching the number of people on earth [15]. Reportedly mobile subscriptions have reached to 7 billion globally and the penetration rate is 97%. Approximately 3.2 billion people are reported to have accessing internet by the end of year 2015 [16]. Pakistan is a developing country and the use of mobile phone services is growing [17]. In Asia Pakistan has emerged as the fastest telecommunication growth in the recent years. There has been a great competition in telecom sector which resulted in tariffs to be lower in prices and also low cost mobile handsets [18]. Mobile phone usage has become a vital part of life now-a-days. It is a tool for educational systems [19] and also a device that can be used as a medical device for the treatment of mental disorder treatment. The advantages of mobile phones are categorized as [20]:

- (i) Transformational
- (ii) Incremental
- (iii) Related to Production

The transformational is related to something new offered. Incremental is towards improvisation of network speed in what people are interested and selling services, selling mobiles come in the category of production [20]. Apart from communications and applications the mobile phone sector is also contributing towards economic growth and towards urbanization. If a country needs to generate revenue then it needs to enhance this sector. Pakistan is a developing country but its telecom sector has enhanced and contributed towards the betterment of the country. As necessity and as a source of entertainment and communication in different ways the mobile phone sector of Pakistan has grown vast resulting in making Pakistan's telecom industry becoming one of the rapid growing industries in the world. Apart from provision of basic services there are various facilities that are introduced by the mobile phone operator of Pakistan.

This paper focuses on the telecom operators in Pakistan and provision of their services to users with comparison of monthly packages of mobile service providers in Pakistan.

## **BACKGROUND STUDY**

In [21] methods of transfer of money provided by two mobile cellular companies working in Pakistan have been discussed. In this paper security analysis are discussed. The services provided by mobile companies are called branchless banking. Mobile banking and transfer of funds has been investigated. The results show that branchless banking is cheaper than banks by 26%. In [22] the authors have carried out research of usage of mobile phone impact on the learning of students. This study was based on the phones being used by students in class room during the lecture. The students were divided into three study groups: (i) High distraction (ii) low distraction and (iii) Control. Two assignments were assigned to students but before that they had to watch a video lecture and take notes on this lecture. The candidates who were not using their cell phones were able to write 62% more detailed notes as well as able to recall more detail from lecture when they were compared to the candidates using cell phone frequently. In a multiple choice session the students using cell phones actively were able to score 13% less than those not using the mobile phones. 93% outstanding answers were the results by candidates not using cell phones. Overall 62% better notes taking results were produced by the students not using their mobile phones. The results suggested that the students must concentrate on the lecture rather than on the cell phone. In [23] Chinese service markets have been explored. The authors have tried to study the behavior of the customers towards switching of their mobile phone service. Customer's switching behavior and quality of service are the two significant factors on which company's profit depends. They conducted a survey from 400 customers. Seven factors have been mentioned in this research which according to the authors cause the customers to switch from one mobile phone service to another. They are: (i) inconvenience (ii) competition (iii) family or friends influence, (iv) ethical problems (v) core service failure (vi) service encounter failure. In [24] the preferences of the customers and mobile phones services have been studied for the people of Quetta. The study reveals that there are two factors that influence the users (i) low call rates and (ii) instant connectivity.

## **HISTORY AND CURRENT STATUS OF MOBILE PHONES IN PAKISTAN**

As the prices of the mobile phones came down and low-cost tariffs of mobile networks have contributed to rapid increase in mobile subscribers in Pakistan [22]. Pakistan ranks on 8<sup>th</sup> in the world in mobile phones usage, having connection ratio of 77 per 100 persons. A total number of 131,412,658 mobile phone users have been reported in Pakistan by Pakistan Telecommunication Authority. Figure 1 shows the growth in cell phone users increased by the years in Pakistan from the year 2003-04 to 2015. There were 5022908 users by 2003-04 and at the end of 2016 the number was 133,241,465[25].

There are several reasons of rapid growth in this sector like call rates, short message service (SMS) packages and internet / data packages. Table 1 illustrates the percentage of the urbanization statistics of Pakistan. As the time is moving the urban population percentages are increasing day by day. 50% of the total population of the country is expected to be urbanized by the year 2030 [26]. This is happening because of the facilities available in the urban areas like banking sector for daily, monthly or occasional transactions and many more.

Thanks to the involvement of microfinance systems and branchless banking systems involvement with the telecom operators in Pakistan. Pakistan has got literacy rate 60% of the total population which is not enough to be in state of development. Traditional banking systems require literate person to have an account in banks. The involvement of branchless banking and microfinance system by telecom systems was an easy option for every one including both literate as well as illiterate population because it does not require certain requirements and paper work as by the banks and their charges are affordable for a middle class people also. The microfinance systems allow people to transfer money to all parts of the country even in least developed areas also. Not only transfer of money is the only option by microfinance but even an account can be opened and at any time anywhere money can be collected through retails shops, franchises and through ATM cards. All these factors contribute and motivate a customer to opt for a particular telecom operator(s) [27].

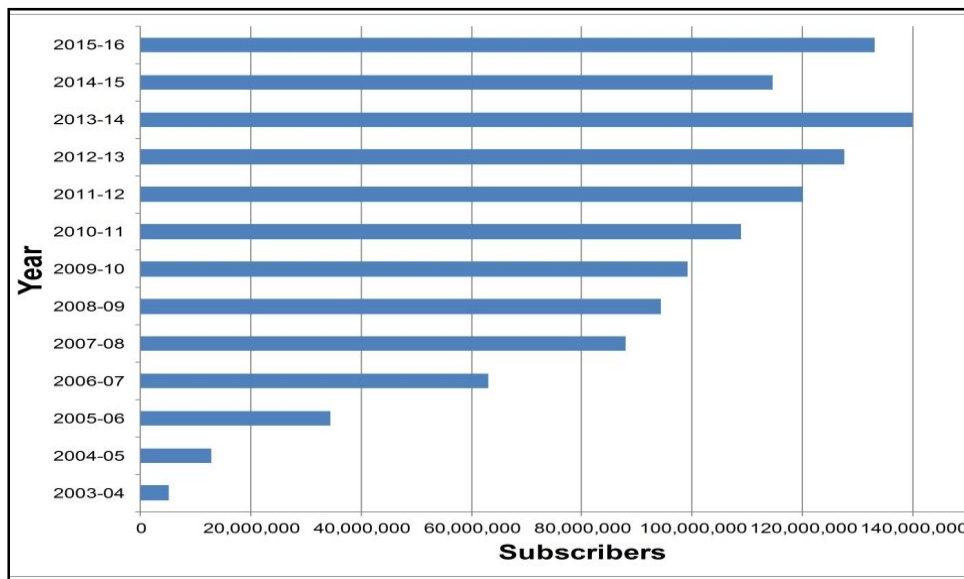


Figure 1: Mobile phone users in Pakistan from 2003 to 2016

Table 1: Urban Population Percentage of Pakistan

Year	Urban Population (%)
2013	37.9
2017	40.54
2030	50 (Estimated)

## TELECOM OPERATORS IN PAKISTAN AND THEIR SERVICES

Currently five mobile operators Zong, Ufone, Telenor, Warid and Mobilink are operating and providing various services to their subscribers such as message and call services, 3G and 4G etc. Additional value added services like branchless banking and microfinance systems are also important factors towards the selection of a particular mobile network. Due to involvement of international brands the telecom operators of Pakistan are offering Subscriber Identity Modules (SIMs) in micro and Nano sizes also.

### Zong or China Mobile Pakistan

Paktel was purchased by China Mobile Pakistan in 2007 from Milicom and Paktel was rebranded under the name Zong [28] in 2008. At the end of March 2016 there were approximately 24,669,917 subscribers of Zong. This was possible due to major changes and policies and strategies. It is the only service provider having 3G and 4G licenses [25]. Zong offers many services like local messages, international messages, Group messages, call forwarding, call waiting, conference calling, insurance, kashtkar service for farmers, cloud clinic service which provides web-based experience that help doctors and support staff to operate in the most efficient manner with all their records stored safely with very simple access, listen to music in their local native i.e. Punjabi, Sindhi, Pashtu, Saraiki and Balochi, 3G and 4g broadband internet.

Zong, in collaboration with Askari Bank, started branchless banking services named *Timepey* (On time). Timepey provides payment of utility bills, money transfer anywhere in the country, deposit and withdraw cash money in accounts. Zong is offering “All in one Monthly package” which costs PKR 500. This single package contains four services such as (1) 1500 Zong to Zong call minutes, (2) 150 call minutes from Zong to other networks, (3) 1500 short messages to any network in Pakistan and (4)1500 MB internet. The validity is 30 days.

### Ufone

Ufone [29] started its operation in 2001 by Pakistan Telecommunication Company Limited (PTCL). After the privatization of PTCL, Ufone became a part of the Emirates Telecommunication Corporation Group in 2006. There are approximately 20,820,301 subscribers of Ufone at the end of March 2016. It has also got 3G license [25]. Ufone offers many services like nationwide messages, international messages, music, and 4G broadband internet, Upayments with the support of various banks namely HBL, Summit Bank, Soneri Bank, Bank AL Habib, Apna Bank and Askari Bank. This service allows users to conveniently make transactions using Ufone SIM. Ufone is offering a monthly Super Card package which is costing PKR 500. The validity of this package is 30 days. This package provides 1000 Ufone to Ufone call minutes, 150 call minutes from Ufone to other networks, 100 short messages to any network in Pakistan and 1000 MB internet.

## **Telenor**

Telenor [30] is owned by Telenor Group and started its operation in 2005. Telenor offers conventional services, in addition an educational program launched named as *Telenor Taleem* which is a comprehensive Educational Portal aiming to provide content order to improve literacy, 3G internet. The number of Telenor subscribers has risen up to 36,784,001 in March 2016. It is also having 3G license [25]. Telenor introduced Easy paisa, which was the first mobile based branchless banking service launched in Pakistan. It was aimed to provide ease and convenience to its customers. Telenor started Easy paisa in collaboration with Tameer Microfinance Bank. This facilitates users with bank transfer, money transfer, and bill payments. In start of this service people had to show or submit their Computerized National Identity Card (CNIC) to receive the amount. Now ATM cards are also provided through this system to subscribers so that they may withdraw cash from anywhere at their ease. This facility has boosted the use of easy paisa much more as it only requires a Telenor number to be registered on customer's identity. Easy paisa gained attention throughout the country because money transfer had to be done through conventional way that is through bank draft or bank transfer. Those people who do not had their accounts in bank had to suffer for this. Now there are about 70,000 shops all across the country which is offering easy paisa transactions making it a very suitable option for money transfer to loved ones and payment of utility bills. Telenor is offering a monthly package providing 500 Telenor to Telenor call minutes, 50 call minutes from Telenor to other networks, 500 short messages to any network in Pakistan and 500 MB internet. This package is of PKR 500. The validity of this package is 30 days.

## **Warid**

Warid [31] belongs to the Abu Dhabi group and started its operations in Pakistan in 2005. It offers mobile internet sharing, 3G internet, messages (national and international) and much more like BIMA personal accident insurance policy. The total number of subscribers of this network up to March 2016 was 11,020,537.

Warid in coordination with Bank Alfalah launched Mobile Paisa which offers payment of utility bills and sending/receiving money anywhere within Pakistan. Warid offers a monthly package costing PKR 500, with validity of 30 days. This package provides 1000 Warid to Warid call minutes, 250 call minutes from Warid to other networks, 1000 short messages to any network in Pakistan and 1000 MB internet.

## **Mobilink**

Mobilink [32] is first GSM-based cellular operator in South Asia and leading GSM network in Pakistan having 38,117,902 subscribers throughout the country. Mobilink also has 3G license [25].

Mobilink offers many services like local messages, international messages, call forwarding, and Call waiting, Conference call, and 3G internet. *Mobicash* was launched by Mobilink in collaboration with Waseela Microfinance Bank Limited (WMBL) providing services like bank deposit, bill payment, money transfer, mobile top-ups. Mobicash ATM card is also available for Mobicash customers. Mobilink offers a monthly package providing 1200 Mobilink to Mobilink call minutes, 100 call minutes from Mobilink to other networks, 1200 short messages to any network in Pakistan and 1000 MB internet. This package is of PKR 380. The validity of this package is 30 days.

### **COMPARISON OF MONTHLY PACKAGES OF ALL TELECOM OPERATORS IN PAKISTAN**

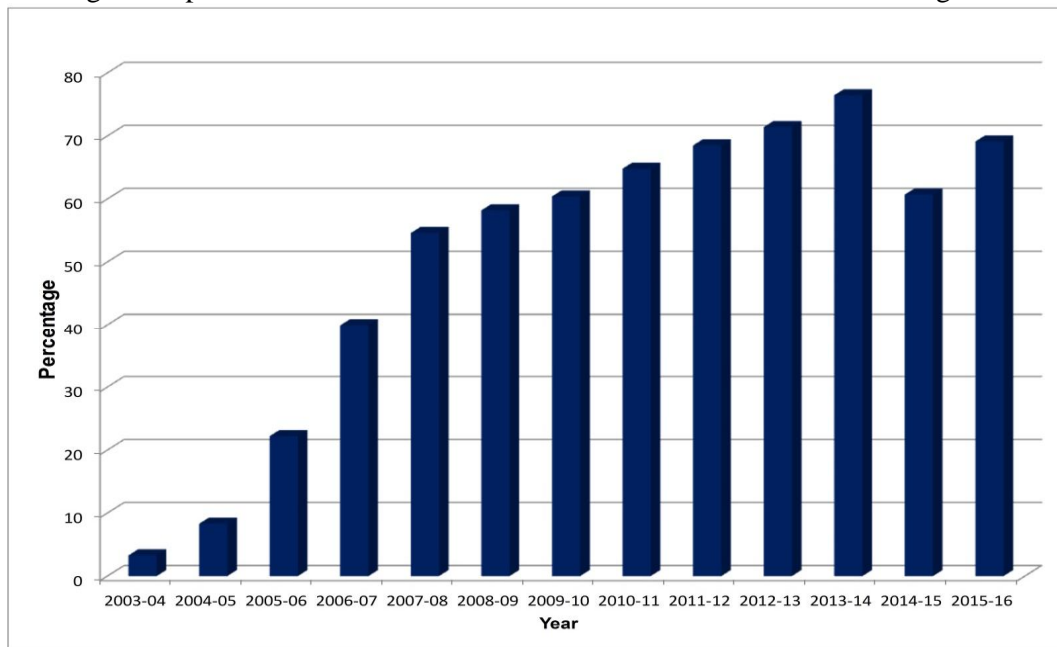
Pakistan is a country where majority of people have low or middle class standard of living. Before deciding to opt for a telecom operator people first want to know the tariffs which matter a lot in Pakistan. Thanks to the competition in telecom operators that several call and message packages that are so low in cost that they are affordable for much of the population. A short comparison of the tariffs and monthly package of entire telecom operators in Pakistan is given in table 2 [28]–[32]. This comparison is made for how much a person can get in a normal cost in a month. Four parameters are selected for comparison i.e. on net minutes, off net minutes, SMS and Internet data. On net minutes refer to call to same network operator and off net refers to other networks. From the table 2 it can be observed that how much cost effective Pakistan is in terms of services provision in comparison to cost. A person having any of the five networks available in Pakistan can have the package listed in table 2. The packages not only provide calling and message facility but also internet in megabytes so that subscriber can surf on internet as well.

**Table 2: Monthly Packages of all Telecom Operators in Pakistan**

<b>Operator</b>	<b>On net Minutes</b>	<b>Off net Minutes</b>	<b>SMS</b>	<b>Internet MBs</b>	<b>Validity (Days)</b>	<b>Package Name &amp; Cost</b>
<b>ZONG</b>	1500	150	1500	1500	30	All in one Monthly PKR 500
<b>UFONE</b>	1000	150	1000	1000	30	Super Card PKR 500
<b>TELENOR</b>	500	50	500	500	30	Easy Card PKR 350
<b>WARID</b>	1000	250	1000	1000	30	Monthly Bundle PKR 500
<b>MOBILINK</b>	1200	100	1200	1000	30	Monthly Offer PKR 380

### TELE-DENSITY

Tele-density refers to number of connections for every hundred persons. The tele-density in Pakistan from 2003 to 2016 is illustrated in figure 2. The mobile tele-density in 2016 has grown up to 69.12 % from that of 3.29% in 2003–04 as illustrated in figure 2.



**Figure 2: Mobile Tele density in Pakistan from 2003 to 2016**

### Reasons of Downfall in 2014-15

The Tele density in 2013-14 was reported as 76.46% which decreased to 65.96% at the end of 2015 as shown in figure 3. This was the first time ever that Tele density got reduced in Pakistan. This was due to terrorist activities; a decision was taken by Nation Action Plan in point 13 which are stated as “Communication network of terrorists will be dismantled completely”. Then the biometric verification of SIMs was started in mid-2014. This was in collaboration with National Database and Registration Authority (NADRA) which is National Database Organization of the country. As people had SIMs without any registration or registered on the names of other person were blocked. After a certain amount of time allocation about 27.5 million active SIMs were blocked by Pakistan Telecommunication Authority (PTA) [33]. More than half of total population resides in rural areas in Pakistan and the people living there had very little or no access to the machines which were used for the purpose of the biometric verifications of the SIMs which was also a reason that they did not verify their numbers on time causing in blockage of the SIMs. Some of the people were residing in foreign countries and the numbers were



issued on their identity cards and they were not present for biometric verification and caused in SIM blockage. These were major causes of the downfall in subscribers and Tele density in the year 2014-15.

### PAKISTAN IN YEAR 2017

In 2017, a vast development in the mobile users has been observed. Figure 3 represents the monthly development and growth of subscribers of all the five telecom operators in Pakistan during the first three months of the year 2017 i.e. January to March. There were a total of 133,241,465 subscribers at the end of 2016. At the end of March 2017 the number of subscribers was 139,108,694 which means that **5,867,229** subscribers increased in just three months. This is due to the value added services which have been introduced by telecom operators. The introduction of 3G and 4G in 2015 was a motivation for the subscribers. Telecom operators in competition to each other provided vast coverage to almost every corner of the country. The internet facility to rural areas was not provided by landline systems earlier and if provided then the formalities (applying for landline number and paying advance charges) were so time consuming (approximately three months) that is why few persons had it. With the involvement of telecom operators providing internet services have given an ease to a common person that there is no any extra formality.

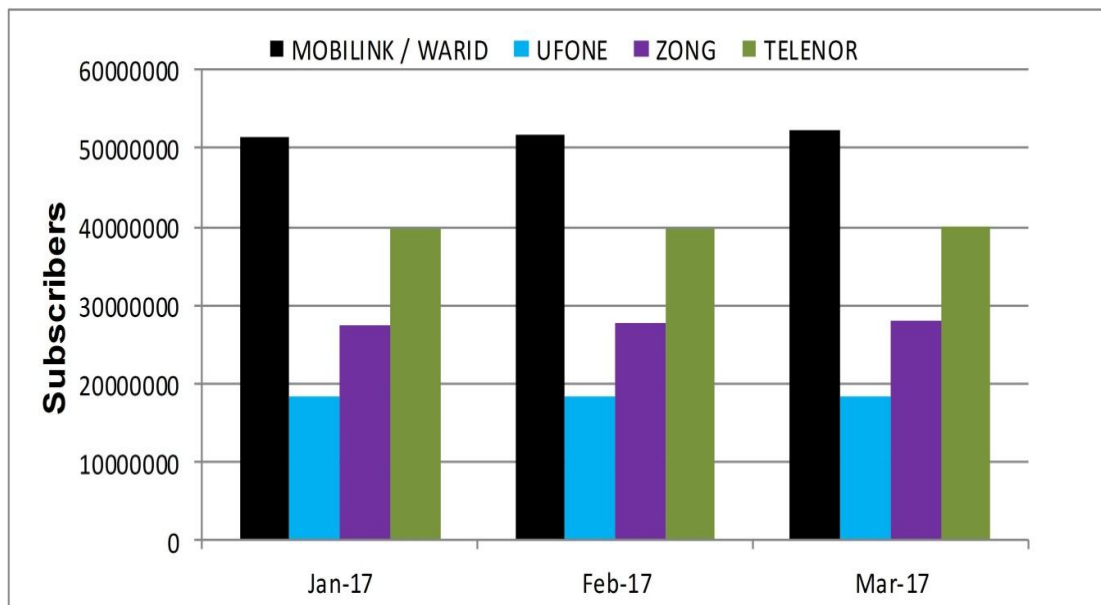


Figure 3: Subscription of mobile operators in 2017

There has been a growth of mobile services, introduction of 3G and 4G with affordable internet packages have enabled users to use more and more mobile. The growth of subscribers from the end of 2016 till end of January 2017 is about 3853887 subscribers, increase in just one month January to February is about 696369 and from February to March 2017 there is an increase of 1316973 subscribers [25].The mobile Tele density in 2017 has

grown up to **72.36** % at the end of March 2017 from that of **71.46** % in year 2016 means 0.9% increase from that of December 2016 in just three months of 2017.

### REASONS OF UP RISE IN MOBILE SUBSCRIBERS

The telecom operators in Pakistan have been providing the variety of services not only focusing on call or message packages but also towards 3G and 4G services. Due to the involvement of 3G /4G services and increasing trends towards social networking is also a factor of increase mobile users and also students’ access internet services to search the lectures and materials wherever they are without any need of having computer or laptop. Figure 4 illustrates that how much the growth in internet subscribers (3G / 4G) has gone from January 2017 to March 2017 provided by telecom operators. This increase is because the services are much cheaper and no more complexity and formalities are needed.

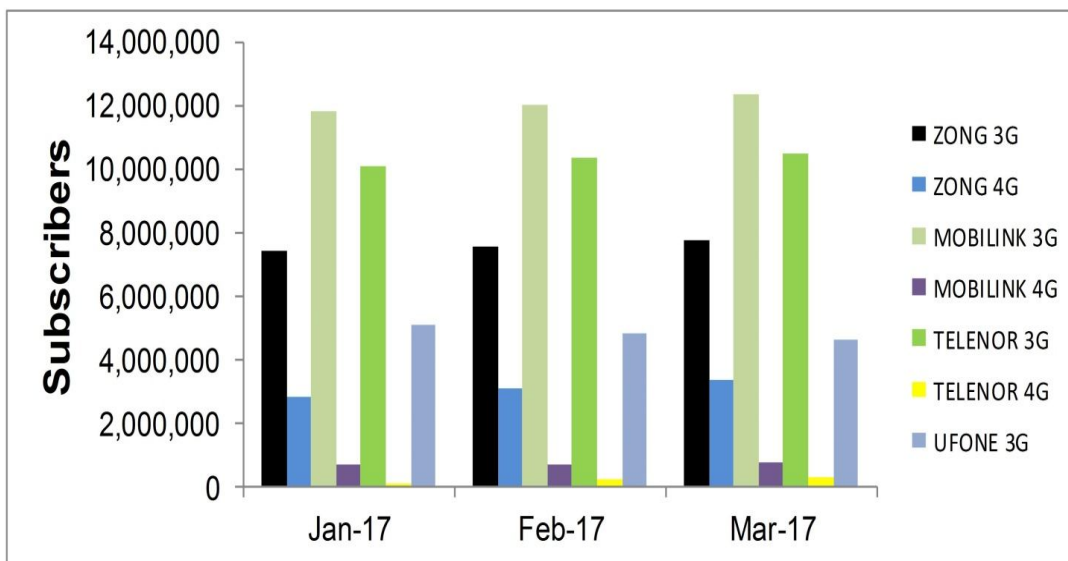
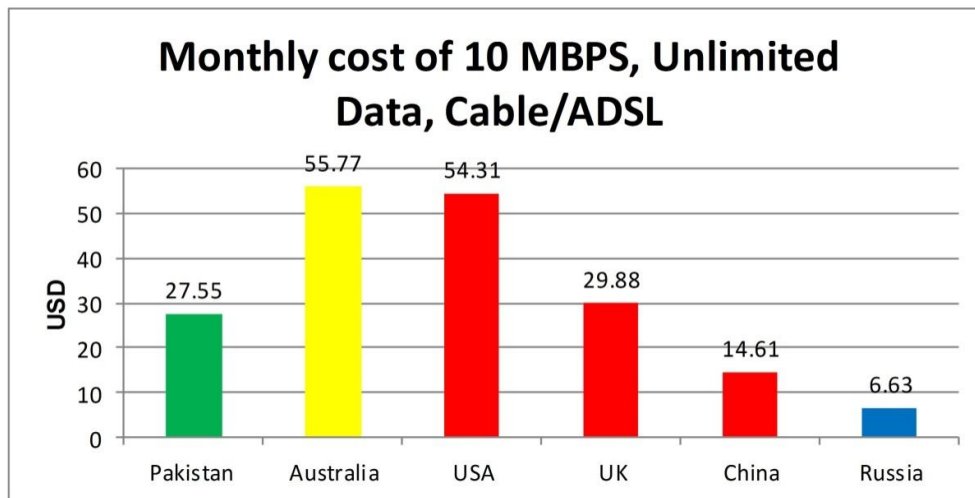


Figure 4: 3G/4G subscribers

As there is increase in the number of mobile subscribers proportionally the number of 3G / 4G subscribers also increase as well. Pakistan is providing normal cost of internet data plans. Social media, online searching and online shopping are main factors that motivate people to use internet. The cost of internet in Pakistan is low when compared to most of the developed countries as shown in figure 5 [34]. The data packages offered by entire telecom operators in Pakistan are contributing towards the rise of users of mobile subscribers.



**Figure 5: Monthly cost of data**

During the process of publishing this paper Warid has been merged into Jazz.

## CONCLUSION

Mobile cellular communication has become a compulsory part of our living and is introduced in every part of the world. Pakistan being one of the developing countries of the world has adopted mobile communications very vastly. From the time of start of telecom industry the number of subscribers increased rapidly. This caused other telecom companies to launch and the number reached to five. In competition, these telecom operators reduced their call and messaging rates. This in return increased more subscribers to use mobile phones thus increasing Tele density. Pakistan's mobile industry faced a little downfall when due to terrorist activities the SIMs was biometrically verified. Due to introduction of 3G and 4G services this industry has risen up again and is touching the sky by providing not only call, SMS or internet services but also internet banking and much more services for entertainment and learning also. As Pakistan's telecom sector is growing rapidly therefore it is going to beat its competitors in the world.

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