

Television Industry Life Cycle in Emerging Economies: A Survey of Television Market in Karachi, Pakistan

Submitted to Mr. Yokoyama Kenji

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Abstract

With the advances in internet technology and connectivity, computers and mobile devices have become primary competitors of a television set due to their ability to download, stream, store and play back all forms of media from small video clips to entire TV shows and TV series while providing the user the option to do it almost anywhere anytime.

Versatility and mobility advantages provided by these devices are beginning to attract a lot of users away from television sets and towards these devices who now prefer to watch movies and other TV shows on these devices instead of their television sets. Consequently global television sales are currently experiencing a downward trend. However, there are other reports that show that even though overall global television sales are declining; in some parts of the world particularly emerging economies television market is experiencing quite an opposite trend. Here television sales are increasing as higher numbers of users begin to be able to afford new television sets as a result of increasing per capita income.

Also often due to slow internet speeds and affordability of internet connected devices in these economies, television sets still reigns supreme as the primary entertainment device for watching media.

Through a survey of television market of an emerging economy namely Karachi, Pakistan this research tries to gauge the general trend and present stage of television industry life cycle in emerging economies.

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Abbreviations

The following abbreviations have been used in this report.

CCFL	Cold Cathode Fluorescent Lamps. It is a source of lighting for LCD televisions.
CRT	Cathode Ray Tube or a television set that uses this display technology.
CD	Compact Disc. It is a storage disc that can be used via a CD player.
DVD	It is a storage disc is of a higher capacity than a CD. Requires a DVD player to be used.
HD	High Definition. In essence sharper picture quality
HDMI	High Definition Multimedia Interface. An interface for interconnecting an HDTV with a PC/laptop and other devices.
HDTV	High Definition Television. A television that can display pictures at a higher resolution than standard resolution.
LCD	Liquid Crystal Display or a television set that uses this display technology.
LED	Light Emitting Diode or a television set that uses this display technology.
OLED	Organic Light Emitting Diode or a television set that uses this display technology.
PC	Personal Computer.
SD	Standard Definition. Most televisions display pictures in this resolution.
SDTV	Standard Definition Television Set. A television that can display pictures at standard resolution.
TV	Television.
USB	Universal Serial Bus. It is a form of connector/port for interconnecting electronic devices.

1.0 Introduction

If it is said that television has come to represent the word entertainment from second half of the 20th century, it won't be wrong. Even though commercial television sets were available since late 1920s, television sets as they are known today i.e., a square box with a big screen and dials/buttons did not enter the world market until late 1950s (Television History-The First 75 years, n.d.).

Since then television has come to be viewed as a device for both social and personal entertainment, for passing time and for relaxation. Possibly one of the primary reasons why television replaced the radio as the main form of entertainment was its ability to display moving images.

Today of course a lot of other electronic devices are available for entertainment. Some require a television as a complementary product while most do not. For Example, video game consoles like Xbox and PlayStation require them to be connected to a television to function whereas devices like Personal Computers (PC) , Laptops, Tablets, iPads to name a few do not require it. Indeed the technology of internet has made it possible for these devices to become smaller personal television sets. Any program or media that can be played on a television can be streamed or downloaded on these devices through the internet. These devices even have games available to be played on them that are comparable in technology and sophistication to any gaming console thus essentially removing the need of a television set for that form of entertainment as well.

Therefore, it won't be incorrect if it is said that television is facing a lot of competition from its smaller cousins. Now the question whether television is being replaced by these devices or is it a different product catering to a different market is another issue. Current views on this question are still divided. For example, an old article by Lee (2007) says that according to a survey television sets offer a better alternative for some users who perceive them to be a more convenient medium than a computer or a laptop. To these users; large screen and sitting room setting represents television as more of a machine for social gatherings and watching television programs, movies etc. whereas a computer or a laptop is considered a personal gadget. If they want to watch a show with friends and family, they do it on a TV set up in the sitting room. Interestingly some of the ideas forwarded by Lee in this article on how television manufacturers can become more competitive and innovative are being implemented today in the form of Smart TV where you can browse and download movies and TV shows directly from the internet on to your television set but more on it later.

Another more recent article by Caruana (2010) says that according to a survey in Australia, users are more willing to give up their television sets rather than their laptops. A factor to note about this research though is that this does not indicate if users prefer to watch programs on their laptops or are they doing it because of other reasons like saving money by spending on versatile devices. The research results simply indicate that they consider laptops to be more important in their lives than TV sets. This is hardly surprising considering that 21st century is an age of Facebook, Twitter and other forms of social networking. In this age, laptops and iPads have become an important part of personal, social and business activities and it is logical that if today a user has to choose one and only one, he will choose a laptop over a television since television

is only suitable for entertainment purposes whereas a laptop is a versatile machine and can be used for entertainment, work and social networking.

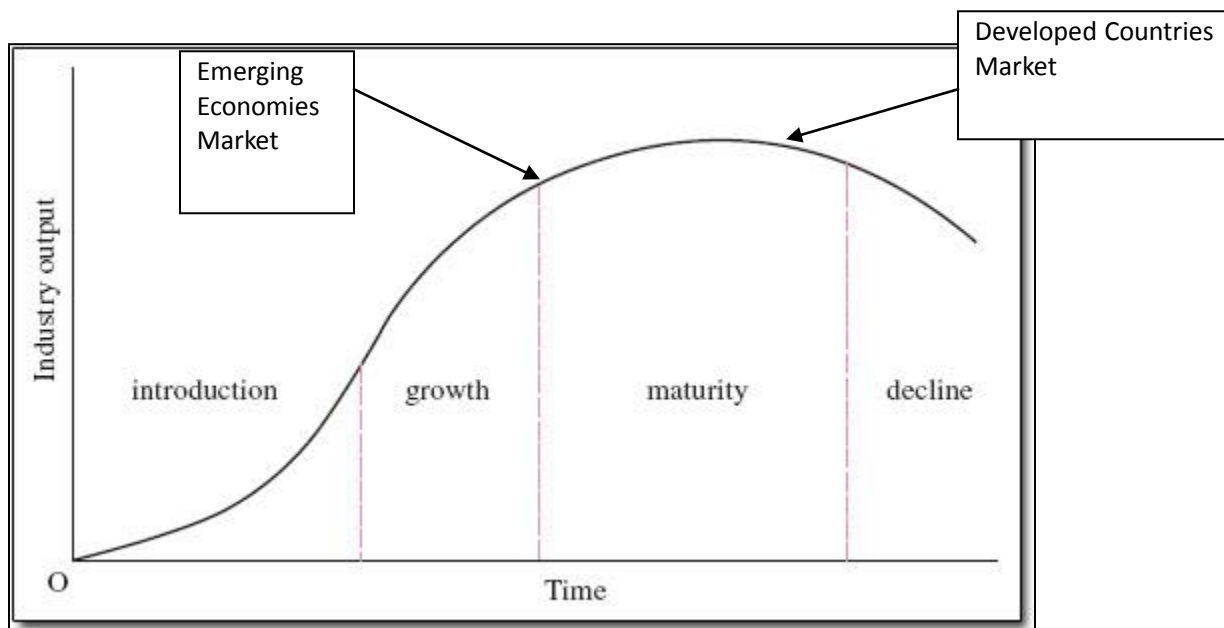
Another article by Ojalvo (2010) shows that according to a survey in USA, Americans still prefer to watch their favorite TV shows and movies on a television rather than on computers/laptops.

As it can be seen, battle between television and PC/laptop is nowhere near conclusion. However, considering the financial crunch that the world is facing these days, it is possible that consumers may choose a PC/laptop over a television and forgo the convenience of a TV room setting over a machine that can perform several vital important functions instead of providing only entertainment.

If global television market statistics are examined, conflicting signs are found there as well. For example, according to Reisinger (2012), overall television shipments fell in 2nd quarter of 2012 by 8% as compared to 2nd quarter of 2011. Primary reasons given were worsening economic conditions worldwide and slower price erosion, which have both effected consumer demand. But on the other hand, according to Rapoza (2013), in emerging economies where per capita income is increasing, there is potential for growth in television market as more and more users will be able to afford a television set or upgrade from CRT televisions to LCD and LED televisions also called flat panel televisions. Perhaps this is the reason that relatively cheaper CRT television sets from lesser well known manufacturers (mostly from China) are still available in markets of emerging economies as a cheaper alternative to the expensive LCDs, LEDs from Samsung, LG, Sony and other leading television manufacturers, who have stopped manufacturing CRT television sets (Evans, 2009). They are obviously targeting a large proportion of that population

in those countries who cannot afford flat panel television sets.

Based on these conflicting signs and reports, it can be said that television industry appears to have matured in developed countries whereas it is still growing in emerging economies where per capita income is rising and consumers are either starting to experience this technology for the first time in the form of CRT televisions or are upgrading their existing CRT televisions sets to flat panel televisions given that they can afford it thus giving us an industry life cycle as illustrated below.



Based on above analysis, it can be said that television market in emerging economies still has potential for growth given that price of LCDs and LEDs either comes down as they get older with new emerging technologies like OLED or income levels in emerging economies continues to rise.

Therefore, the purpose of this research is to find out if the above model is true or not by observing demand for television sets in an emerging economy.

The above model is tested by doing a survey in Karachi, the largest city of Pakistan, a developing country and an emerging economy (ISI, 2014) with an increasing per capita income (Pakistan Economic Survey, 2014). This research tries to answer the following questions

1. Is demand for television sales increasing or decreasing?
2. Are customers buying CRT television sets or are they shifting towards LCD/LED and other flat panel television sets?
3. What do programs do they prefer to watch on their television sets as compared to computers/laptops or other mobile devices and why?

This research will prove useful to television manufacturers in finding out the trend of television market growth in Karachi and to gauge if a shift is taking place in TV technology from CRT to LCD and LED in Karachi television market and develop their strategies for Pakistan and for other emerging economies, which share similar characteristics.

This research report is structured such that first a discussion is presented regarding what is happening in the global television market i.e., which are the leading brands, what television technologies can be found in the market and what new technologies are waiting to be introduced; what factors are responsible for growth or decline in demand for television sets etc.

After that methodology used in carrying out research in Karachi, Pakistan and limitations of this research are discussed. Finally results of the research are presented and conclusion is drawn from those results.

2.0 Overview of Global Television Market

First technologies that are prevalent in today's global television market will be discussed followed by some important factors that are proving to be crucial in determining demand for television sets across the globe. Lastly a discussion will be presented regarding the trend of innovation that television manufacturing industry has appeared to follow in their quest for improvement.

2.1 Technologies

Television manufacturers have always competed on a wide array of attributes such as screen size, TV set design, display and sound quality, new features like remote control etc.

The old technology of CRT was such that a company could not do much with TV set design since the internal mechanisms were bulky and heavy. Thus apart from changing the panel design and making it more appealing, the overall design remained the same across all manufacturers. With the advent of digital technology, bulky knobs and dials got replaced by buttons and over the time remote control was introduced.

If history of television industry is observed, it is noted that technologies related to features do not remain confined to a single manufacturer for long. Almost all television manufacturers transitioned from analog to digital and introduced remote control with their television sets at the same time once the technology was refined. Therefore, features were never a defining competitive advantage in the television industry. In the end the battle for supremacy revolved around display quality, sound and cost. This same trend can be seen today.

Even though SHARP was the first company to develop and introduce LCD television sets, everyone soon caught up and introduced LCD models of their own. However, Korean companies namely Samsung and LG were faster in realizing the potential of LCD technology in television applications and consequently heavily invested in LCD production lines with Korean Government funding while leading Japanese companies with the sole exception of SHARP were late to realize the potential of LCD technology in television applications (Myers, 2013).

TV sets can be divided into following categories based on the type of display technology they use.

- CRT (Cathode Ray Tube) TV
- Rear Projector TV
- LCD (Liquid Crystal Display) TV
- PDP (Plasma Display Panel) TV
- LED (Light Emitting Diode) LCD TV
- OLED (Organic Light Emitting Diode) Display-Experimental
- 4K or Ultra HD

2.1.1 CRT (Cathode Ray Tube) TV



This is the traditional box style television that has come to symbolize television since 1960s. CRT television sets are heavy and consume higher amount of electricity but are very reliable and have a long life with proper maintenance. Ambient light has very little effect on picture quality. Biggest advantage of CRT television is that image quality does not decrease with viewing angle. Screen types range from standard curved screen to flat screen. Flat screens have better picture quality but are also more expensive. However CRT flat screen television sets are still cheaper than LCD flat screen television sets. Note that in current times, flat panel television does not mean a flat screen CRT television set. It solely refers to LCD, LED and in some cases Plasma television sets.

Screen resolution ranges from standard definition to high definition. High Definition television sets also called HDTV display images at a higher resolution. HDTV technology was created to display high definition movies clearly on television screens since standard definition or SDTV sets were unable to display HD movies in full detail.

CRT televisions have all but disappeared in developed countries where market has shifted towards Plasma, LCD and LED technology. However, in emerging economies television markets

where consumer purchasing power is still low, CRT televisions are still in demand but even there middle and upper income television users are increasingly shifting towards LCD displays (Doval, 2014).

2.1.2 Rear Projector TV



These television sets work on a similar principle as that of a cinema screen i.e., they use projectors to display images. Whereas cinema screens use front projections, these television sets use rear projection to display images. They are all large sized televisions with screen size ranging from 45-inch to 80-inch. Two types of models are available. One uses rotating lamps in the projector and other uses Light Emitting Diode (LED) in the projector to project images on the projection screen. Models with lamp wheels require high maintenance but are relatively less expensive. LED models however are expensive but require no maintenance. LED models also have better picture quality than lamp models.

In today's market, Rear Projector television usually means LED Projector TV. For best image quality from these television sets it is necessary that there should be as little ambient light as

possible. Because of their higher price, projector television sets are aimed at high income users.

Both SD and HD versions are available.

2.1.3 LCD (Liquid Crystal Display) TV



Liquid Crystal Display or LCD uses a complicated technology of liquid crystals and Cold Cathode Fluorescent Lamps (CCFL) to project images on the screen. These television sets are thin, light weight, are wall mountable and use the least amount of electricity. However, their picture quality is optimum only in well-lit rooms. In dark rooms, their picture quality goes down dramatically. LCD televisions also have inherent limitations in displaying fast images. This problem has been minimized with higher refresh rates in newer models. Both SD and HD versions are available. Screen size varies widely from hand held to 80-inches.

2.1.4 PDP (Plasma Display Panel) TV

This technology has now been phased out due to advances in LED and LCD display technologies. Plasma televisions are no longer being manufactured and new plasma television sets in the market are all accumulated inventory on account of consumer preference shifting towards LCD

or LED televisions. Sony stopped plasma TV production line back in 2006 and Panasonic halted its plasma TV production line in 2012. Samsung and LG have also decided to concentrate on growing LCD and LED-LCD television market instead of plasma displays (ET Bureau, 2011 & Yoshida, 2012). Chinese manufacturers are also following this market trend.

A plasma television uses plasma ionized gas to display images. These television sets are large screen machines typically from 45-inches to 60-inches. They have excellent picture quality regardless of ambient light and are thin in appearance just like a plain LCD or an LED television. However, they are very expensive and are heavy and thus are not wall mountable. They consume higher electricity (even higher than a CRT) and have a definite life span. Although both SD and HD versions are available, now a days it may be difficult to find SD versions because of production line halts by major television manufacturers.

2.1.5 LED (Light Emitting Diode) LCD TV



This is an improvement of LCD technology. Whereas plain LCD television sets use Cold Cathode Fluorescent Lamps (CCFL) as a light source, these television sets use Light Emitting Diode (LED) as a light source. This results in a picture quality, which is at par with plasma displays but at a much lesser cost. Just like CCFL LCD televisions, these television sets are also wall mountable.

However, they cost much more and are aimed at higher income users. LED light source also addresses the handicap of ambient light issues that CCFL LCD or plain LCD televisions suffer from. Thus their picture quality is not affected in dark rooms. Although both SD and HD models are available in the market, their price and high income target market usually leads to customers buying HD models.

2.1.6 OLED (Organic Light Emitting Diode) Display



This is a new display technology, which is still in experimental phase for most television manufacturers. However, it is being predicted to be the display technology, which will replace LCD and LED technology in the coming years. The above graphic gives an idea of difference in picture quality between an LED and an OLED television set.

Almost all major television manufacturers are investing in this technology. Among the new comers, Chinese companies are investing heavily in this technology (Larsen, 2011).

Samsung and LG commercially launched OLED televisions in 2013. Being based on new technology, they are very expensive and technology is still immature and certain problems are expected to be faced by users and consequently resolved by manufacturers (Rogowsky, 2013).

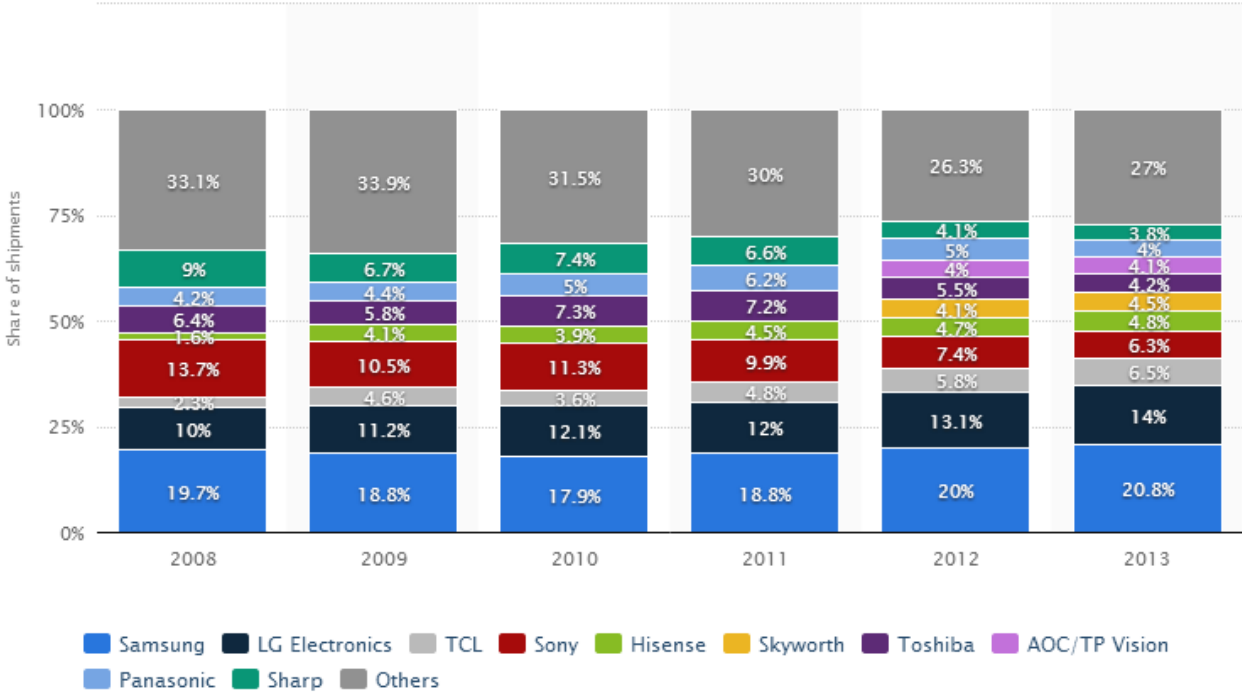
2.1.7 4K or Ultra HD

4K or Ultra HD technology is not really a screen technology like those discussed above but it is a picture resolution improvement. A picture on a television screen is made up of tiny boxes called pixels. Higher the number of pixels in a picture; the smaller the size of individual pixels that make up that picture consequently refining picture quality. Whereas an HDTV can display resolution of up to 1080 pixels, 4K can display pictures to the refinement of 4,000 pixels.

2.2 TV Sales and Market Shares of Television Manufacturers

According to Statista (2014), the global market shares held by flat panel TV brands from 2008 to 2013 are as follows.

Global market share held by LCD TV manufacturers from 2008 to 2013



Source: Statista 2014

As the graph shows, Samsung has not only been maintaining its leadership position but has also been steadily increasing its market share since 2008 with slight ups and downs. Major Japanese television manufacturers namely Sony, SHARP, Panasonic and Toshiba on the other hand have been losing market shares to their Korean competitors namely Samsung and LG. A new development in the pattern can be seen in 2012. In that year a Chinese electronics companies namely Skyworth increased its market share to the point of being separated from ‘Others’

category and was indicated under its own name. Besides Samsung and LG, only three Chinese companies namely TCL, Hisense and Skyworth seem to be steadily increasing their market shares but still have much catching up to do to reach Samsung and LG.

This competition for flat panel market share is going to get more intense since according to IHS (2013), global TV shipments/sales are expected to decline in both developed countries and emerging markets. They are expected to decline to 226.7 million units in 2013 from 238.2 million in 2012.

Of these the worst hit is CRT television market, which is expected to decline by 40%.

Some of the primary reasons for downfall in flat panel sales in developed countries is economic recession and market maturity i.e., most of the households have already bought flat panel televisions. In emerging economies however, the reasons are somewhat different. In these countries, vendors are increasingly reluctant to sell CRT television sets seeing the technology as obsolete and being afraid of getting stuck with unsold inventory of CRT televisions. However, large numbers of consumers in these countries are usually not able to afford LCD/LED televisions and thus have no choice but to wait for prices to come down to their affordable range. This demand and supply situation may correct itself and television market is expected to grow in 2014 as prices of mature flat panel technologies i.e., LCD and LED come down with the arrival of new ones like OLED.

2.3 Factors Affecting Television Demand

Here three important factors are discussed that have an effect on demand for televisions namely

- Demand for console video games
- Role of internet speed.
- Availability of digital alternatives and popularity of DVD.

2.3.1 Demand for Console Video Games

According to ESA (2013), video games are played by 58% of Americans and 51% of US household own a dedicated game console and those that do own dedicated gaming consoles usually own two consoles on average basis. According to Miglani (2013), 66 million US households are expected to use game consoles for connecting to the internet and playing Blu-Ray discs. This is due to the fact that modern gaming consoles are becoming more like a one solution box. The new Xbox One by Microsoft has a built in internet explorer that the user can use to browse the internet, chat on Skype etc. It even allows users to use its Kinect controls and browse the internet through voice and hand gestures (Makuch, 2013). This multipurpose ability of consoles is supposed to make it attractive for users who don't want the hassle of maintaining multiple gadgets i.e., one for playing games, another for playing discs, another for browsing internet etc.

Sales figures for video games and consoles also give us a clue about the size, popularity and growth of the video games industry. According to Nayak (2013), video games market generated revenue of \$58 billion in 2013, which was up from \$57.2 billion in 2012. And these figures for

video games did not include mobile games on smart phones and tablets. These included only video games for consoles and PC. The leading video games developing companies like Electronic Arts, Take Two Interactive and Ubisoft reported annual revenues of \$3.79 billion, \$1.22 billion and 1.26 billion Euros respectively.

If console sales figures are examined, it is noted that Sony had sold 7 million pieces of its new PlayStation 4 or PS4 by April 2014 while Xbox One by Microsoft, which was also launched in November 2013, had sold 3 million pieces by January 2014. PS4 was launched in November 2013. (Tassi, 2014).

According to Sparkes (2014), among top 20 bestselling entertainment titles, video games were able to procure five titles while thirteen titles were held by movies. In 2013, the bestselling entertainment title was a video game called Grand Theft Auto V, a console exclusive game i.e., this game is not available on PC. Within 24 hours, this game was able to generate worldwide revenue of £500 million and after 3 days it passed the £1 billion mark. In one year it sold around 3.7 million copies. This essentially meant that it surpassed Hollywood blockbusters as a revenue generator.

According to Rettinger (2013), video games console market is expected to grow with lifting of a ban of 13 years on gaming consoles in China. Video game console revenues are expected to reach \$55 billion by 2015 i.e., an expectation of 24% growth rate as compared to 2013 and 49% as compared to 2012.

All these reports indicate that video games are a large growing market with video game consoles being the dominant segment. Now televisions are a complementary product to

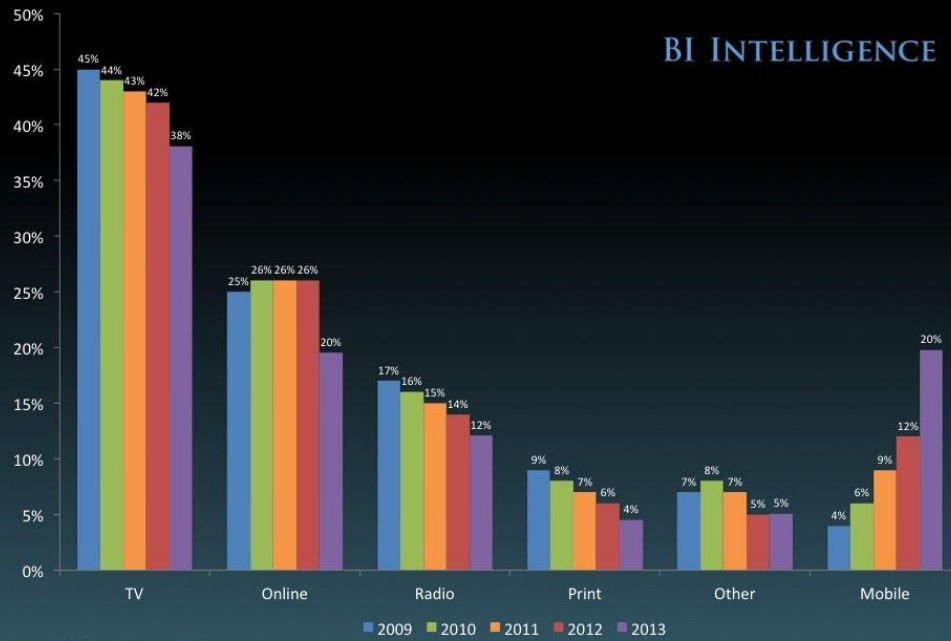
console video games since console systems do not have a display of their own and a user is required to connect a television set to a console system to play games. Most video games also require a HDTV or a High Definition TV that has an HDMI (High Definition Multimedia Interface) input to display images in a higher resolution. Therefore, with an expected growth in video game console sales as discussed earlier, it can be safely said that it can be expected that there will be growth in demand for HDTVs on account of being a complementary product.

2.3.2 Role of Internet Speed

Another factor that can play a part in determining the demand for television sets is the internet speed. In the developed world, as internet speed has gone up, users have shifted to streaming content off the internet, which they traditionally used to watch on their television sets through cable networks or CD/DVD players. Digital streaming has become more convenient as mobile devices like laptops, Tablets and mobile phones have become more and more advanced. Before availability of these digital alternatives, users had to carry their DVDs with them if they wanted to listen to or watch their favorite content away from their homes or while travelling. These digital alternatives have enabled users to stream or download their favorite content from the internet and play them on their mobile devices anytime anywhere thus perfectly complementing fast paced age of modern times in developed countries. Taking USA as an example of the developed world, this phenomenon is evident from the following two charts. These charts show that television viewership is declining while mobile viewership on Tablets, iPhones, mobile phones is increasing.

Eyeballs are moving to digital, especially mobile

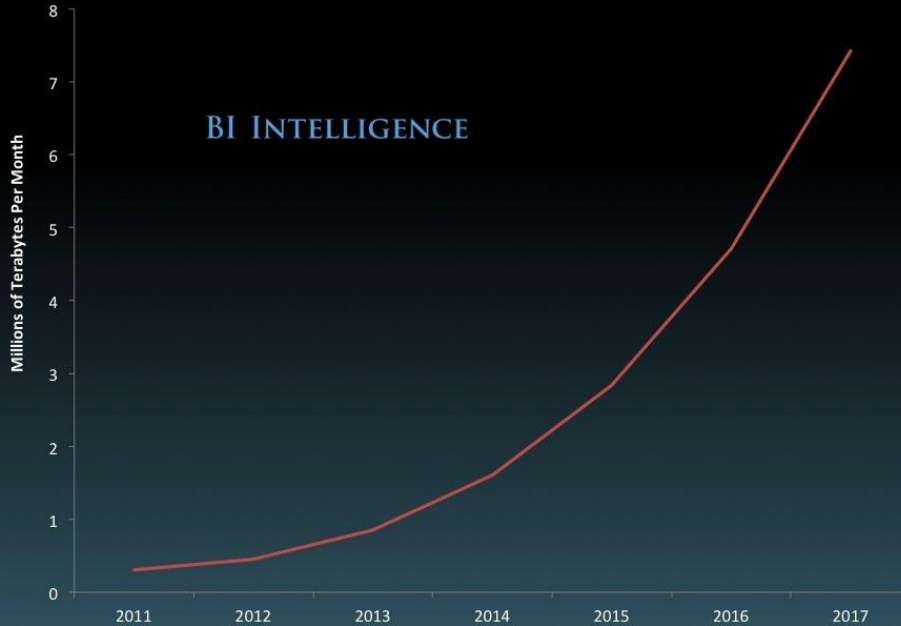
U.S. Consumer Media Consumption Share



Source: Edwards (2013), Business Insider

Mobile video is booming...

Global Mobile Video Traffic Will Continue To Surge



Source: Cisco, 2013

BUSINESS
INSIDER

Source: Edwards (2013), Business Insider

However, for Tablets and other mobile devices to offer this serious competition to television sets requires fast internet speeds. In developing countries or emerging economies, internet speed is comparatively a lot slower. According to Ookla (n.d.), in Western countries and developed Asian countries like Japan, South Korea, Singapore, Taiwan; average internet download speeds are above 23 Mbps and in numerous countries they are above 40 Mbps whereas in developing countries, average internet download speed is below 15 Mbps. In emerging economies like India for example, average download speed is 5.1 Mbps and in

Pakistan it is 2.7 Mbps. These speeds are too slow to stream or download movies or TV programs. The user usually has to keep the download running overnight to download a movie in good picture quality. This slow internet speed can be a primary reason why television is still the preferred equipment to watch movies and TV shows. It is more convenient for the user to watch TV programs and movies through cable or a DVD player in developing countries.

Perhaps this is why flat panel television sales in India are increasing and flat panel market overtook CRT television market and flat panel sales are expected to reach 9 million units in 2014 as compared to 5 million units sold in 2012 (Doval, 2014).

2.3.3 Availability of Digital Alternatives and Popularity of DVD

DVD popularity can be another factor that affects television popularity in a region. Again taking USA as an example of the developed world, according to following chart given by Fritz (2014), both DVD sales and DVD rentals have gone down in US and are replaced by digital purchases or subscription streaming.

Watching the Trends

2013 U.S. home entertainment revenue, by type



Now both of these digital alternatives bring laptops, Tablets and other mobile devices in competition with television since it is often very difficult or in some cases impossible to use these digital alternatives directly on television sets. Also as was discussed earlier, these alternatives have their own set of advantages i.e., users no longer need to carry around their DVDs with them. Thus these options trade convenience over viewing experience. However, they do obviously require high internet speeds to work efficiently.

As was discussed earlier; in the developing world, internet speeds are considerably lower than that available in developed countries. Therefore, digital alternatives are not popular in developing countries. DVDs however, still reign supreme in developing countries not only due to non-feasibility of digital alternatives but also due to piracy. According to Doctorow (2011), developing countries have the highest ratio of piracy. The reason is quite simply that users

cannot afford to buy copyrighted DVDs at developed world prices. For Example, a movie DVD costs around 1,500 to 2,500 yen in Japan whereas in Pakistan a pirated DVD of same movie of same print quality costs around 50 yen. These pirated DVDs even have the same menu options as a copyrighted DVD. There is no difference in quality of two DVDs except for the casing (from researcher's own knowledge and experience on account him being a resident of Pakistan).

Therefore, in developing countries, usually when users buy movie DVDs, they either play them on their PCs or television sets. Here televisions usually win due to better viewing experience and comfortable sitting unless the viewer is specifically looking for privacy and has access to only a family television. This can also be a prime factor why television sales are expected to grow in developing countries and emerging economies.

2.4 How are Television Manufacturers Fighting Back?

According to Wolk (2013), television companies have started to fight back through refining their Smart TVs i.e., television sets that have the option to be connected to the internet. Television companies have refined both the interface for connecting a Smart TV with the internet and the interface for surfing the web to find required programs etc. Both of these interfaces used to be very cumbersome. Following an old strategy, they have imitated the competition and their new interface closely resembles the interface used in Tablets and this new interface is expected to attract users back to their televisions for streaming their favorite programs on the large screen.

Even televisions that are not internet capable provide a number of different options to the user for watching movies and programs as opposed to availability of only two options not too long

ago i.e., Cable and DVD/VHS player. According to Smith (2014), today owner of a modern television set can directly connect a USB flash drive or an external hard drive to his television through a USB port provided in the TV set thus enabling the user to directly play movies and TV programs on his television that have been saved on the hard disk provided they are in the supported video format. This interface saves the user from the hassle of setting up a TV to computer connection setup.



Source: Smith (2014), Wondershare

Another option for owners of HDTVs i.e., televisions that display pictures in high definition is to connect their television with their computer/laptop through an HDMI connection provided at the back of their television sets. The HDMI cable provides both video and audio connection. This way a user can indirectly connect his television with the internet through a PC/Laptop and thus enjoy the best of both worlds i.e., digital streaming and better viewing experience provided by a television. This method is preferred by users who either don't have an internet capable television or want to use the familiar PC interface for surfing the web on their TV.



Source: Smith (2014), Wondershare

Modern consoles such as Xbox One that allow users to surf the web also provide an alternative to surfing the web on an otherwise Non-Smart TV and consequently digitally stream contents on television sets.



Source: Smith (2014), Wondershare

2.5 Innovation and Television Industry

From our previous discussion it seems that due to development and advances in digital media streaming and internet speeds, television sets started to face competition from devices that used to be outside its main line of competition i.e., computers, mobile phones, tablets in developed countries. This development appears to follow the disruptive innovation model of Clayton M. Christensen.

According to Christensen (1997), disruptive innovation in an industry is an innovation that improves technologies in areas that are not related to technologies that have traditionally been the focus of innovation in that particular industry. Sustained innovation in an industry on the other hand is an innovation that seeks to improve technologies in areas related to each other and that have traditionally been the focus of innovation in that particular industry.

Disruptive innovation at first glance seems to be focused on a separate market and only after it is given time to develop does it manifest its effects on the market of established firms.

Television sales have traditionally been closely linked with demand for TV programs available on cable networks and movies released on VHS tapes, CDs and DVDs. Consequently innovation in television industry prior to 21st century had been focused on catching signals for as many TV channels as possible, improving picture quality and sound quality. The idea of making a television set being connected to the internet was there but was not really something that manufacturers focused on. Thus innovation taking place in TV industry was sustained innovation.

As VHS tapes gave way to CDs and DVDs because of their better storage capacity and

consequently better sound and picture quality, television manufacturers provided interface to connect to CD and DVD players using the same three colored plugs that they used to connect to VHS players. However, arrival of CDs and DVDs gave way to one new phenomenon i.e., enabling computers/laptops to play movies and programs that had previously only been the domain of television. Thus began a new subculture and a niche market developed where users wanted to view movies and programs on their laptops or PCs. Reasons were diverse including but not limited to privacy provided by a PC or laptop since television is usually a family gadget in most households, higher resolution of computer monitors, spending time while travelling, not owning a separate DVD or CD player for home TV etc.

This separate market merged with television market with advances in internet technology in the form of internet download speeds and wireless internet connections i.e., Wi-Fi. This enabled users to view sports and news programs on their laptops and PCs. This multipurpose aspect of computers started to attract the financially conservative households who began to see that a laptop or a computer can do almost everything a television can do and much more provided the user can wait for TV programs to be released on DVDs. Thus multipurpose computers/tablets began to take the place of separate televisions setup i.e., one TV for children and one TV for adults. The substitute setup of one TV for home and separate laptops/tablets for each family member seemed a more attractive option considering the versatility of PC/laptops/Tablets and their much higher screen resolution as compared to SD TV typically found in most households.

Around this time, digital piracy of movies also started to cut into television viability. It was more convenient and cheaper albeit unethical to download or stream movies and TV cable programs

from the internet and watch them on a PC/laptop right then and there rather than waiting for those movies to appear on TV movie channels.

With the arrival of NetFlix, Hulu and other digital streaming services, the option of watching TV shows on your own time, less advertisements and lower cost became available on PC/laptops/tablets and other mobile devices thus increasing attractiveness of watching programs on those devices.

Television manufacturers had not apparently conceived competition coming from that side. That can be a reason why they took so long to provide an interface for internet connection on their television models. These earlier interfaces were too cumbersome and technical to use until recently (Wolk, 2013). This shows that this technology was probably rushed in fear of mobile devices taking over. They had been focused on sustained innovation of improving screen size, picture and sound quality without realizing that innovations in internet speed and connectivity will bring computers/laptops and other mobile devices in direct competition with their industry. Thus television manufacturers took a long time in bringing internet connectivity in TV sets and making it user friendly. This analysis gives a sign that innovations in internet industry (speed and wireless internet) and innovations to bring widespread connectivity to mobile devices such as Tablets and Mobile phones acted as disruptive innovations for the television industry.

Now however, television manufacturers have tried to make the option of connecting a TV with the internet more attractive and user friendly by providing several options i.e., either by simplifying the interface on Smart TVs or simplifying connectivity of a PC/laptop and external

hard disk to a TV through HDMI cables and USB ports respectively. Console manufacturers, by allowing web browsing on their systems have also proved to be a boon for television manufacturers. However, there is still the factor of costs. Smart TVs and HDTVs are expensive and a PC/laptop can still do much more in that price. So for the time being these devices still have an edge in price if not the actual viewing experience. If global economic situation improves or prices of televisions come down, an increase in television demand may be seen. Otherwise the trend of a shift towards versatile mobile devices will continue in developed countries.

In developing countries however, where digital alternatives are usually not an option due to slow internet speed, television market is still strong and PCs/laptops are used only by users who prefer privacy while watching movies and TV programs and do not have access to a separate television set besides the family TV.

3.0 Methodology of Research

Research was carried out in Karachi, Pakistan using survey method of research. It was carried out through questionnaires. Questionnaires were distributed among middle and upper income class citizens of Karachi. These income classes include white collar workers, middle managers, entrepreneurs, CEOs and owners of private companies. Two methods were utilized for distributing questionnaires i.e., mail and personal interviews. In mail method; questionnaires were dispatched through e-mail to target respondents and they sent back filled questionnaires at their own convenience. In personal interviews method, distributors visited the target respondents' houses and got the questionnaire filled on site. Similarly during visits to one university, students present at the campus were approached and requested to fill the

questionnaires by the distributors.

A complete questionnaire is provided in the Appendix for reference.

Out of 300 questionnaires distributed through both methods, only 93 filled questionnaires were received back. Most of these were the ones that had been filled by the distributors on the spot i.e., distributed through personal interviews. Very few of the filled questionnaires were mail questionnaires. This lower response rate encountered by mail questionnaire method in this research shows that this method may not be very useful when conducting a survey in Karachi, Pakistan. Therefore, it is recommended to take into consideration this possibility of encountering a very low response rate when utilizing mail method of distributing questionnaires in Karachi for any future research.

These 93 questionnaires were collected from households located in Gulzar-e-Hijri, Gulshan-e-Iqbal, Gulistan-e-Jauhar, North Nazimabad, Federal B. Area, Sindhi Muslim society, Sakhi Hasan, North Karachi, P.I.B. Colony and Defence neighborhoods. One Business University was also covered located in Defence area where students primarily from upper and upper middle income class come to study.

Citizens of lower income classes in Karachi generally include the labor class and blue collar work force. These income classes cannot usually afford a computer/laptop or other internet capable mobile device and thus their primary entertainment option remains television sets. Also all of those television sets are new or used CRT televisions since both new and used LCDs and LEDs are usually unaffordable for them.

Since the objective of this research is to find out if television is being replaced by PCs/laptops or other mobile devices and to find out the popularity of LCDs and LEDs in Karachi market, it was decided to exclude lower income class citizens since they don't have a choice due to affordability issues.

Sampling method used is a mix of convenience sampling and judgment sampling. Mail questionnaires were distributed based on convenience sampling i.e., they were emailed to friends, family members and acquaintances of the distributors and they in turn were asked to email them to their friends, family members and acquaintances. This method was chosen because of its perceived low cost and expected high response rate based on exploiting personal relationships. However, as results suggest, this did not work out and response rate was very low.

Judgment sampling method was used for getting questionnaires filled through personal interviews. Here the distributors selected certain neighborhoods that were perceived to be favored among middle and high income class citizens. The distributors then randomly picked houses to visit from those neighborhoods and got questionnaires filled. One University, which the distributors visited for this purpose was also chosen with this perception. At the university, respondents were chosen randomly.

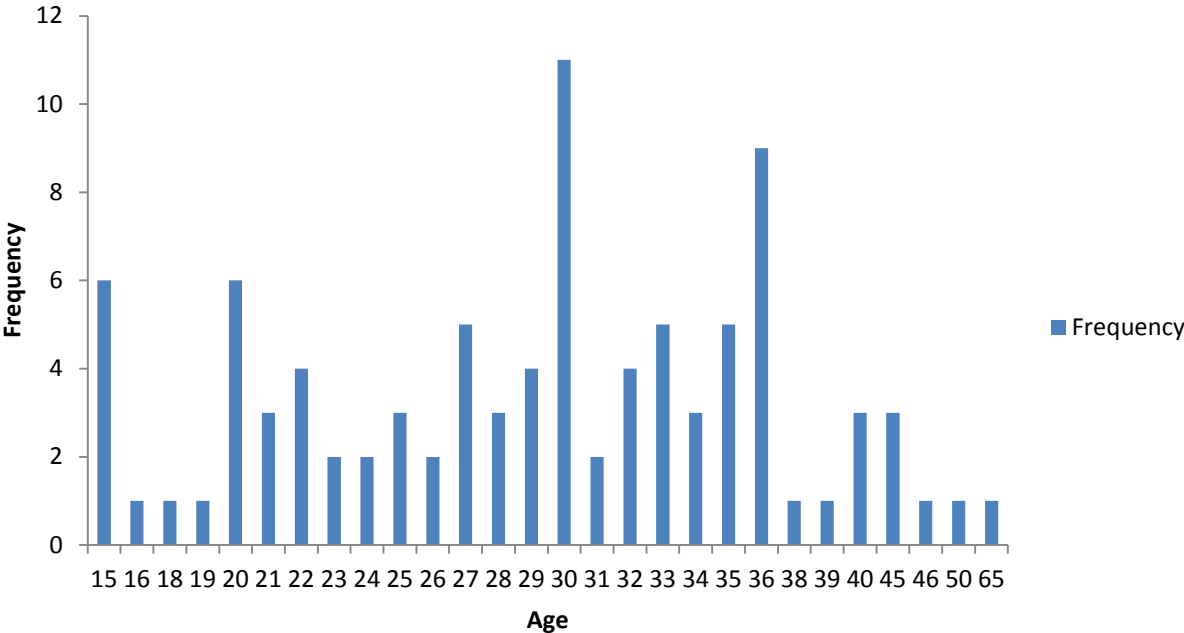
4.0 Limitations

Sample size is a limitation for the findings of this research. For a city with a population of 23,500,000 (Amer, 2013), a sample size of 93 is not large enough to be a representative of population even for the targeted income levels. Thus even for the targeted income groups, not all possible localities were covered. However, given the financial and time limitations of the research, obtaining a higher sample size proved impossible.

Another limitation is that this research cannot be used to analyze what effects do income levels have on models of television sets being used in households. Due to law and order situation in the city, participants were not willing to divulge financial information in personal interviews or in other methods where their identity is not anonymous. Since methods used for getting the questionnaires filled for this research were email and personal interviews, this question was not asked in view of this sensitivity. Income levels of respondents are assumed to be middle to high solely on the basis of where they live or study.

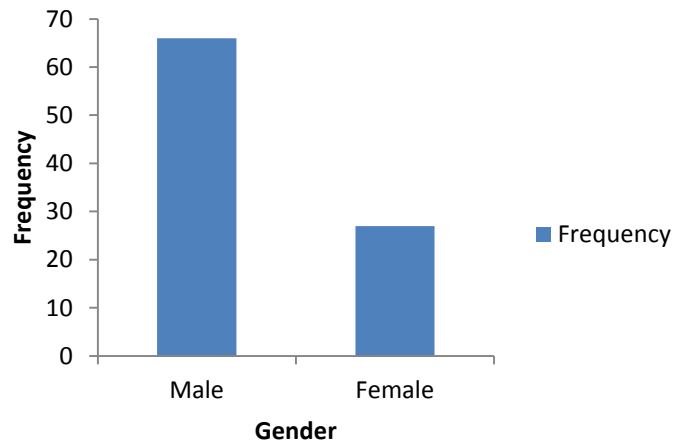
5.0 Presentation of Results

5.1 Age



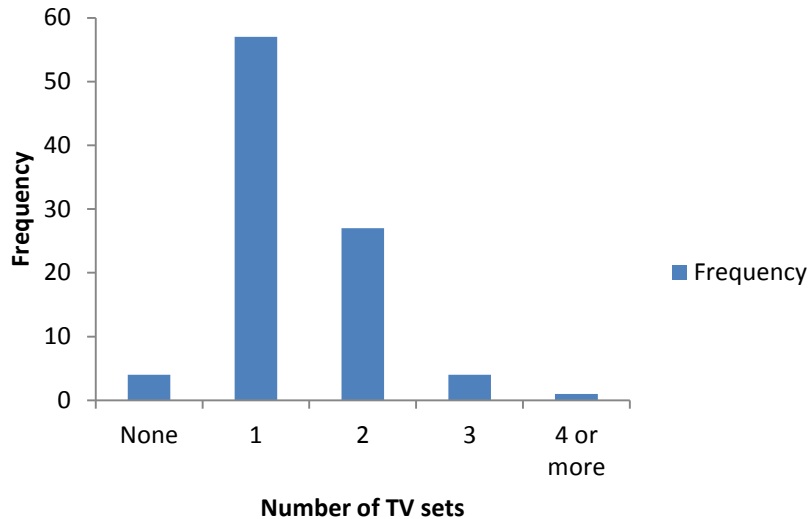
As the above graph shows, largest group of respondents belonged to age group of 27 to 32 years old. A total of 29 respondents belonged to this age group followed by 33 to 39 years old age group, which contained 23 respondents. Two other large age groups are 15 to 20 years old with 15 respondents and 21 to 26 years old with 16 respondents. Consequently it can be said that this research covers a large number of young to middle aged individuals and thus can be used to gauge market preferences for coming years as these young users grow up and become decision makers for their respective households.

5.2 Gender



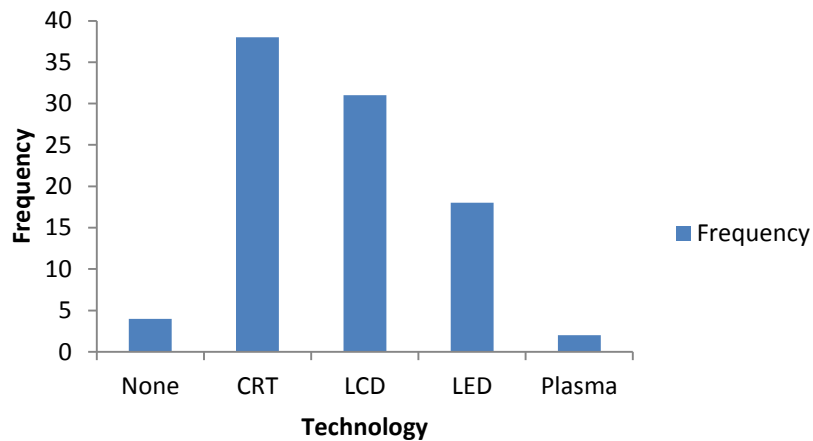
Out of 93 respondents, 66 were male and 27 were female. Effort was made to keep both ratios equivalent but unfortunately that could not be accomplished due to lower response rate of female respondents. Reasons for this are several. Because of local Islamic culture, male distributors were not able to approach female members of household to get the questionnaires filled during personal interview. Consequently most of the 27 females who responded were either covered by female distributors or were intercepted at one University, which was covered in the research.

5.3 Number of TV sets



As the graph shows, out of 93 respondents, 57 respondents had only one television set in their homes whereas 27 respondents had two television sets. 4 respondents had 3 televisions while only one respondent had 4 or more TV sets in their home. Out of 93, 4 respondents did not own a television. Out of those 4 respondents, one respondent was planning to buy a new LCD television in near future while 3 were not willing to buy a television set saying that they did not need one. Thus if this sample size is assumed to be representative of market, it shows that 61% of middle to high income class households have demand for only one TV set whereas 29% have a demand for 2 TV sets in their homes while a very small percentage has demand for more than 2 TV sets.

5.4 Number of CRTs against Number of Flat Panels



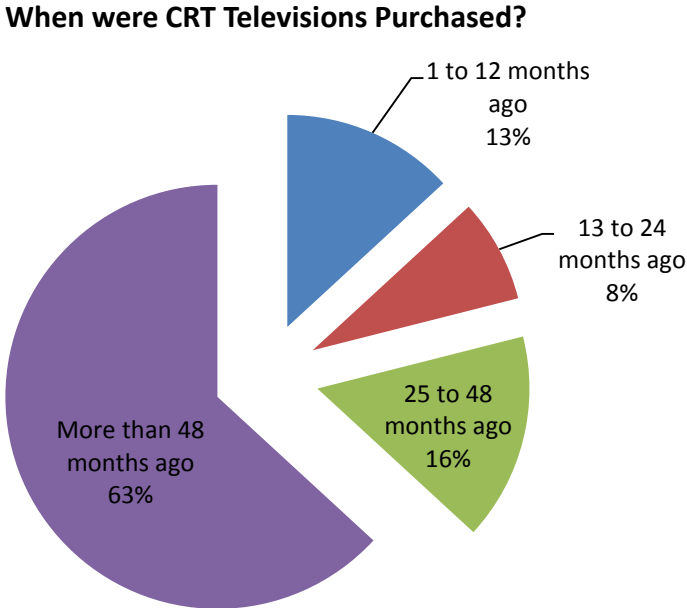
In this graph, 4 respondents had no television sets as was discussed earlier. 38 respondents had CRT televisions and LCD and LED televisions were owned by 31 and 18 respondents respectively. Only 2 respondents owned Plasma TV. Since Plasma televisions consume the most electricity out of all televisions types and electricity is expensive in Pakistan, this can be the reason for less number of Plasma television users. In this research, the total flat panel TV users came to be 49 as compared to 38 CRT users. Of those 38 CRT users, 12 users were planning to upgrade to flat panel televisions in near future with one of them planning to buy a Plasma TV instead of a LCD or LED (Please refer to questions 8 and 9 in sample questionnaire provided in Appendix).

Assuming that this sample is representative of the market, it can be said that flat panel televisions are becoming more popular than CRT televisions in Karachi, Pakistan. Thus here the trend seems to follow that of India (Doval, 2014) where users are replacing CRT televisions with flat panel televisions

5.5 Purchase Trend and Screen Size

Here first purchase trend for CRT and flat panel televisions will be examined i.e., how recently were they purchased by their users. Then most popular screen size will be examined. Finally it will be discussed if screen size has any relation to technology of TV being purchased i.e., if users are going for a larger screen size and consequently spending more on a television set, do they have a preference for a particular technology or does larger screen size does not influence their choice for a particular type of television.

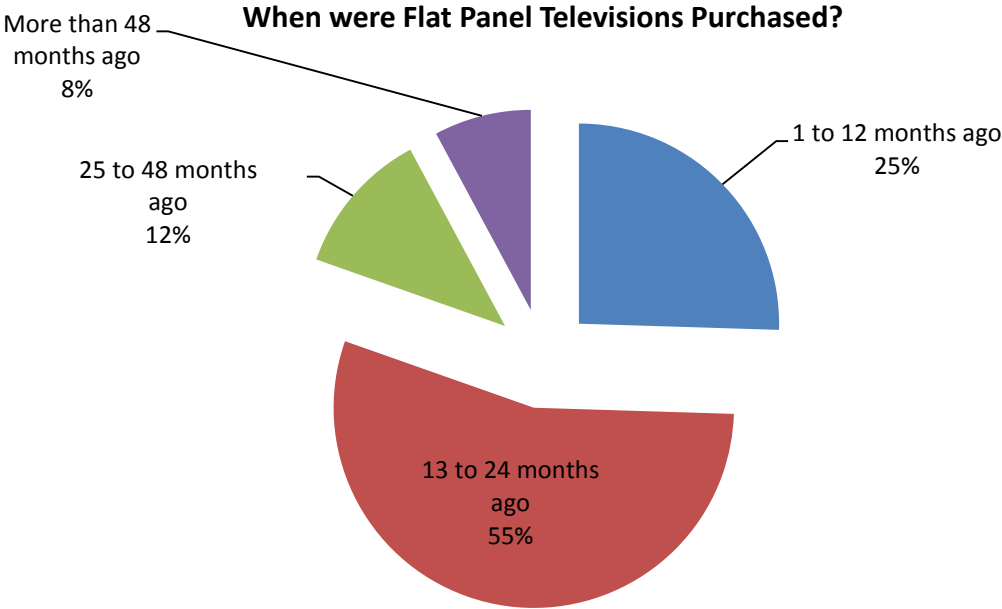
5.5.1 When were CRT Televisions Purchased?



From the graph it is clear that most of the respondents, who have CRT televisions, had purchased their machines more than 4 years ago. 24 out of 38 users fall in this group. Only 5 users out of 38 CRT users had bought their TV sets within a year. All these users rated lower

price aspect of a television as being most important to them on the rating scale (Please refer to question 13 in sample questionnaire provided in Appendix). On account of them rating low cost aspect of a television being most important for them, these 5 respondents most probably belonged to middle income class. This shows that due to low cost aspect of CRT televisions, they are still in demand in developing countries where LCDs and LEDs remain unaffordable for a large portion of the population i.e., low to middle income classes.

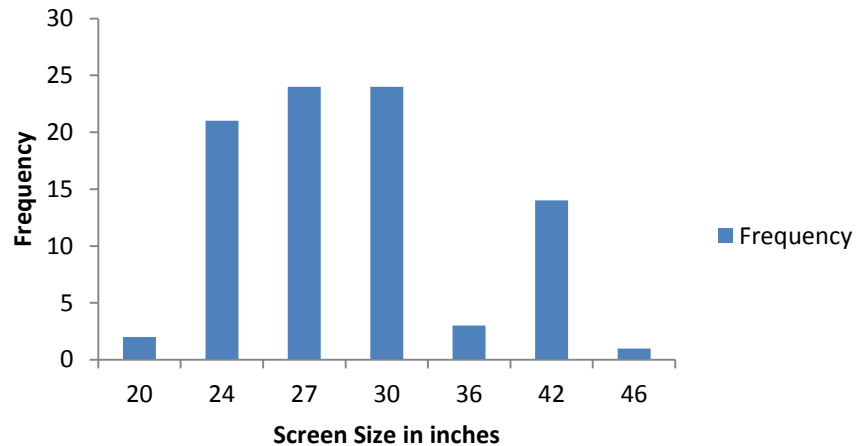
5.5.2 When were Flat Panel (LCD, LED, Plasma) Televisions Purchased?



The flat panel televisions purchase trend is almost opposite of CRT televisions purchase trend. Of 51 flat panel television users, 28 users had bought their televisions within last two years while 13 users had bought their flat panel TVs within a year. This purchase trend in Karachi is

almost similar to the one being observed in India where users have relatively recently started to replace their CRT televisions with flat panel televisions (Doval, 2014). This is not surprising since both countries have very similar culture and both are developing countries.

5.5.3 Popular Screen Size



From the graph, it seems that screen sizes of 24, 27 and 30 inches are most popular. 24 inch screen sizes were being used by 21 respondents and 27 and 30 inch televisions were being used by 24 respondents each. 14 respondents had television sets of 42 inch screen size. Here it needs to be pointed out that a lot of respondents were confused if their television sets were of 30 inch screen size or 32 inch screen size. Thus it was decided to merge 30 inch screen size and 32 inch screen size responses into one and brought under heading of 30 inch screen size.

These findings are not surprising since typically middle and upper middle class homes in Pakistan do not have large enough rooms to make 42 inch screen size appealing. Consequently 42 inch and larger screen size televisions are usually found in houses of upper income classes, which tend to have more expansive rooms. This may be the reason for lesser number of

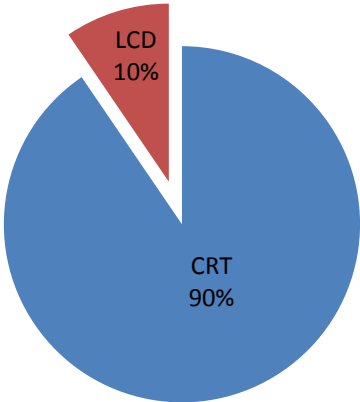
respondents owning 42 inch and larger screen size television sets.

5.5.4 Screen Size and Technology Comparison

According to the survey, three most popular screen sizes are 24, 27 and 30 inches. Through the following graphs that compare screen size with technology, it is gauged if screen size has any relation to the technology of televisions being purchased by the respondents.

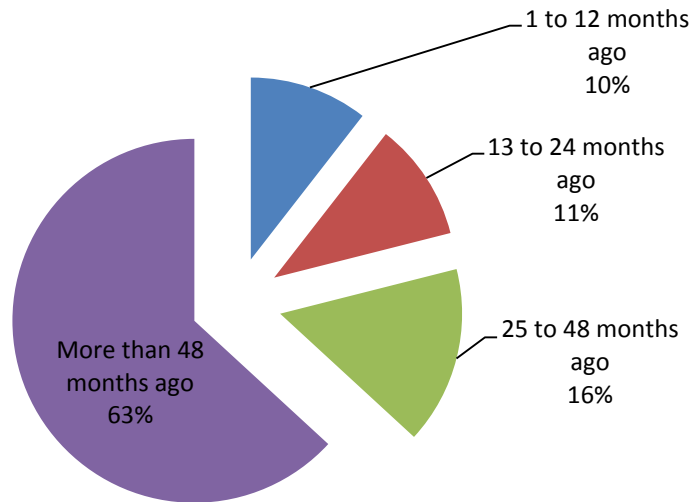
5.5.4.1 24 inch screen size

Technology composition for 24 inch
Screen size



For 24 inch screen size, CRT televisions seem to be more popular. Out of 21 respondents who used 24 inch screen size televisions, only 2 had LCDs. The rest had CRT televisions. Another set of data indicates that out of these 19 users of 24 inch CRT televisions, 12 users or 63% of respondents had bought their televisions more than 4 years ago. Only 4 users had bought their televisions relatively recently i.e., within 2 years. This is clear from the following graph.

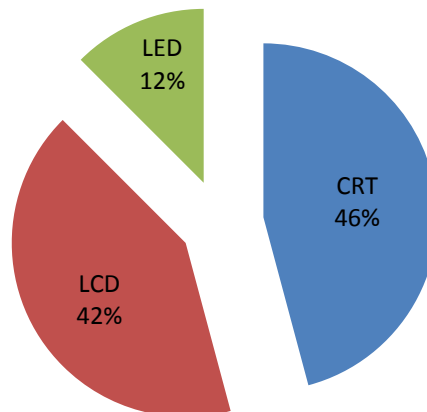
When were 24 inch CRT TVs Purchased?



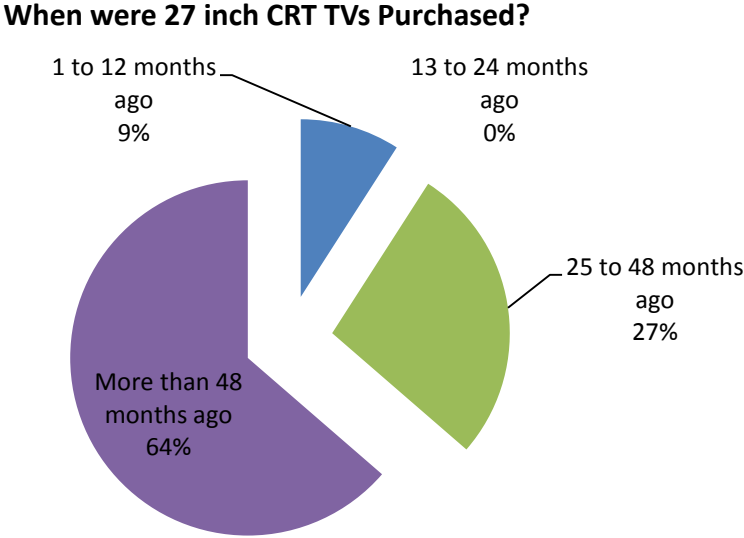
Assuming that this sample is representative of population, these findings indicate that very few users of 24 CRT televisions had purchased these televisions recently. Most of these users had purchased their televisions more than 4 years ago.

5.5.4.2 27 inch screen size

Technology composition for 27 inch Screen size

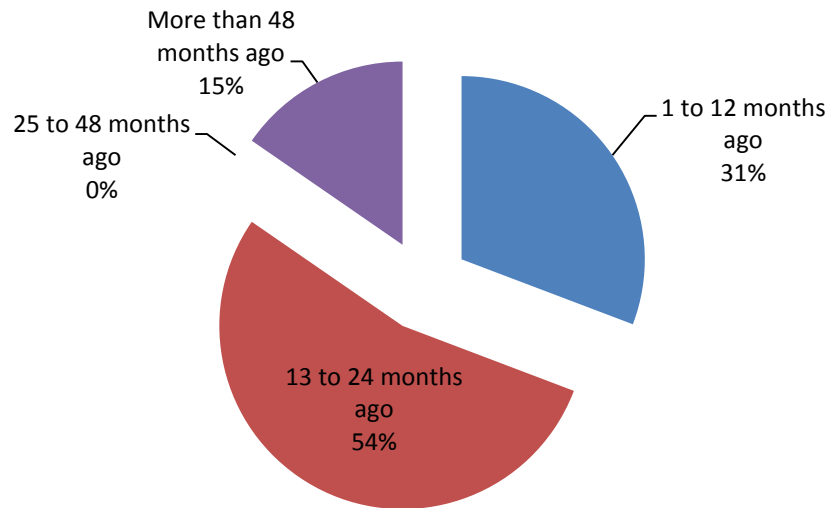


For 27 inch screen size, preference for LCD and CRT is very much balanced. Out of 24 respondents who used televisions of this screen size, 11 had CRT televisions and 10 had LCD televisions while 3 had LED televisions. However, thing to note is the purchase time for CRT and flat panel televisions of 27 inch screen size.



This graph is similar to the one for 24 inch CRT televisions. Here out of 11 users, 7 users or 64% of respondents had purchased their televisions more than 4 years ago. Thus here again, these findings indicate that very few users of 27 inch CRT televisions had bought these televisions recently. Most of these users had purchased their televisions more than 4 years ago.

When were 27 inch Flat Panel TVs Purchased?

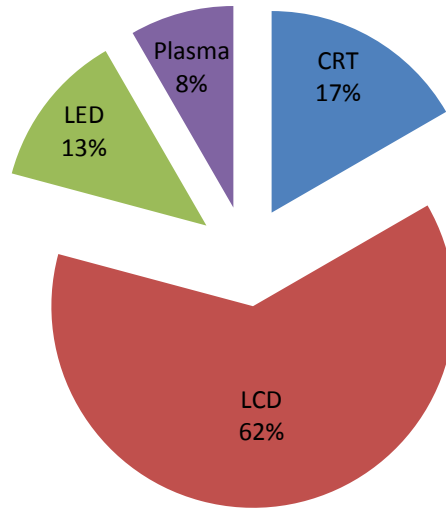


Purchase trend for flat panel televisions however, is quite the opposite. Here out of 13 users of 27 inch flat panel televisions (LCD and LED), 11 users had bought their televisions within a span of 2 years. Only 2 users' televisions were more than 4 years old. Considering that flat panel televisions were not common in Pakistan 4 years ago, it can be said with a high probability that these 2 users belong to a high income class family who could afford to buy flat panel TV sets at a time when these televisions were relatively more expensive in Pakistan.

These two purchase trends for 27 inch CRT and flat panel television sets indicate that today if users are planning to buy a 27 inch television, they are most likely to buy a flat panel television rather than a CRT television. Probable reason can be that when users are planning to spend a higher amount than is absolutely necessary on a television (27 inch screen size is considered a luxury in medium income classes in Karachi), they would rather spend it on new technology rather than on old CRT technology.

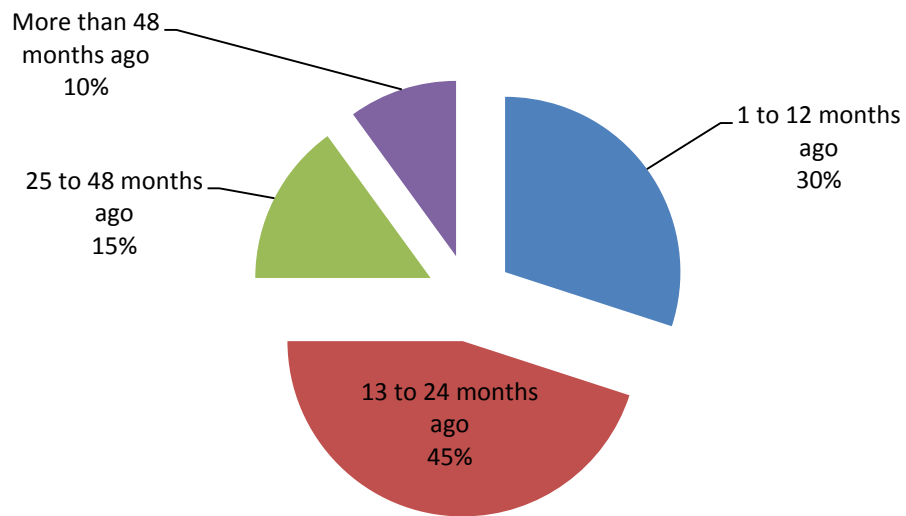
5.5.4.3 30 inch screen size

Technology composition for 30 inch Screen size



For 30 inch screen size, flat panel televisions take the lead. Here out of 24 users, only 4 used CRT televisions and they were all purchased more than 4 years ago. Purchase trend for flat panel televisions is given below

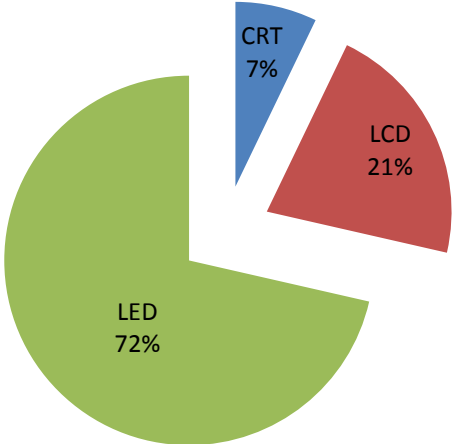
When were 30 inch Flat Panel TVs Purchased?



As the graph shows, out of 20 users of 30 inch flat panel televisions, 15 users purchased their TV sets within a span of 2 years. Thus this purchase trend, like the one for 27 inch flat panel televisions, also indicates that today if users are planning to buy a 30 inch television, they are most likely to buy a flat panel television rather than a CRT television. Again most probable reason is that when users are planning to spend a higher amount on a television, they would rather spend it on new technology rather than on old CRT technology

5.5.4.4 42 inch screen size

Technology composition for 42 inch Screen size



For 42 inch screen size television users, LED seems to be the preferred choice. Since 42 inch TV sets are usually found in well to do homes in Pakistan, these findings indicate that high income class consumers in Pakistan usually like to keep their electronic items updated with new technology like everywhere else in the world.

To summarize, these findings (for medium to higher income classes) indicate that

- As screen sizes increase, preference for LCD and LED also increases. This indicates when users are planning to spend more money than necessary on a TV set e.g., larger than medium screen size, they usually opt for flat panel TV sets.
- Most of the recent TV purchases are those for flat panel televisions. This indicates that when users are planning to spend money on a television set, they want to spend it on newer technology rather than on old technology given that they can afford it. This can be due to rising per capita income in Pakistan, which according to Pakistan Economic Survey (2014) has been on the rise since 2009.
- It would not be beneficial for TV manufacturing companies to offer CRT televisions in screen sizes larger than 27 inches in Pakistan since very few television users are buying new CRT televisions in that screen size.

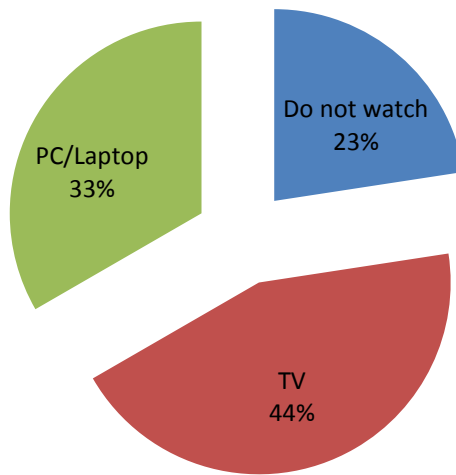
5.6 What do they watch on their TV sets?

Question No. 7 of questionnaire tries to find out which programs or media do the respondents prefer to watch on their televisions and which ones do they prefer to watch on their PCs/laptops and other mobile devices. As was discussed earlier that in developing countries, slow internet download speed limits digital alternatives and availability of cheap and high quality pirated movies and TV shows on DVDs makes televisions a superior option for watching these shows given that the user is not focused on privacy. Also it was discussed earlier that growing market of console video games will also boost demand of HDTVs as a complementary product. This section discusses if these factors hold true in Pakistan or not.

5.6.1 Movies

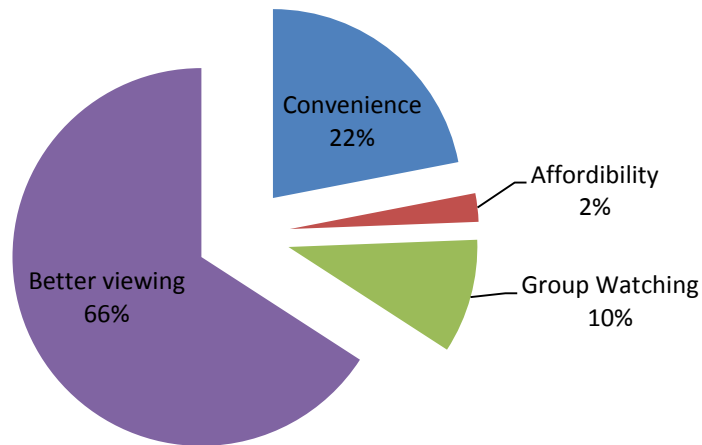
The following graph shows preference of respondents for a television or a PC/laptop when it comes to watching movies.

Preferred medium for watching movies



This graph shows that there is tough competition between televisions and PCs/laptops. Out of 93 respondents, 72 respondents watched movies and out of those 72 movie watchers, 41 preferred to watch them on television and 31 preferred PC for watching movies. The main reasons given by them for these preferences are summarized in the following discussion.

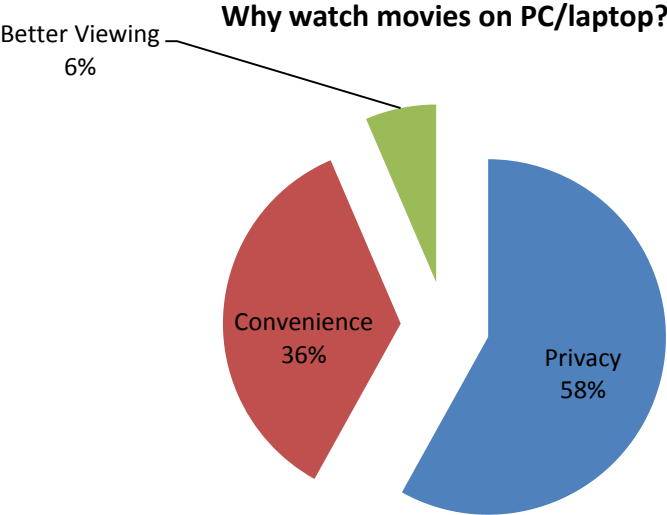
Why watch movie on TV?



The above graph indicates that majority of respondents who watch movies on TV sets, do it due to better viewing experience that their television provides in terms of screen size, atmosphere and the comforts of a couch. Better viewing experience of watching movies on a television takes precedence over convenience of watching movies on a PC/laptop since digital alternatives are not feasible in Pakistan due to slow download internet speed. Thus majority of respondents prefer to buy DVD movies (which are usually pirated DVDs) and play them on their TV connected DVD players and usually don't go to the hassle of downloading movies through the internet. Downloading movies here refers to downloading them through pirated websites and does not refer to digital alternatives like NetFlix etc. since these services are not available in Pakistan. Of course all these options are available on a PC/Laptop as well but these machines trade comfort for some other attribute and vice versa e.g., a user can watch movies on a laptop while sitting on a couch but then screen size becomes smaller and so on.

Respondents who chose convenience as prime motivation for watching movies on TV sets chose this option since they prefer to watch movies on cable networks like HBO, Star Movies etc. while surfing channels during anytime of the day and usually do not buy movie DVDs or download movies from the internet unless they want to keep an old collection or want to watch a recent release.

Now the following graph shows why other respondents preferred to watch movies on their PCs/laptops



Here two largest reasons are convenience and privacy. Out of 31 respondents who prefer watching movies on PC/laptops, 18 respondents chose privacy as their prime motivation while 11 respondents chose convenience. Thus that it can be said with a high probability that if these 18 respondents had access to a private television, they may switch to using a television for watching movies. The 11 respondents who chose convenience are users who either do not own a DVD player for their television and thus use DVD player of their PC/laptop or download

movies from the internet and watch it on their PC/laptop rather than go to the hassle of burning those files on a DVD first so that it can be played on a TV connected DVD player.

On the basis of above discussion, assuming that this sample is representative of population, it can be said that majority of users in Karachi prefer to buy relatively cheap pirated DVDs (original movie DVDs are not available in Pakistan). It should be noted that cheap here does not mean low print quality. These movies are usually of high definition movie quality unless the movie has been recently released. This preference is mainly due to slow internet download speed, which usually requires the user to leave torrents running overnight to download movies in high quality and availability of cheap alternative of high quality movie DVDs kind of makes this effort unfeasible. Thus the average user is discouraged to hunt for torrents and go through the hassle of sorting through dead download links. This is especially true for relatively older movies. For these movies DVDs are usually the only option. Torrents are usually used only for new releases or for releases that are not popular enough to be released on pirated DVDs.

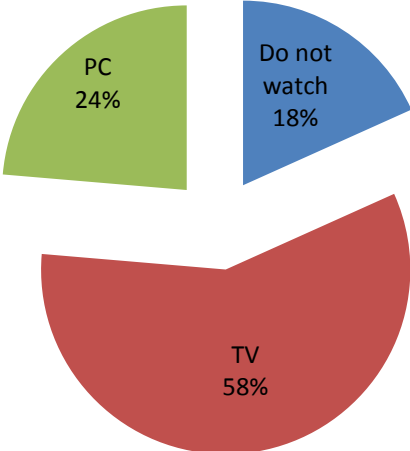
Thus based on popularity of pirated DVDs and better viewing experience provided by TV, most of the movie watchers in Karachi would prefer to use a television given that they have access to a private television and a DVD player.

5.6.2 Sitcoms/TV Series

Pakistan has a large and well established local TV Sitcoms industry. Foreign sitcoms, TV series and comedy shows are also popular and are watched on cable networks and on DVDs. However, local Sitcoms and TV programs are not released on DVDs and therefore people have to either watch them during their airing time or watch them online through video streaming websites for

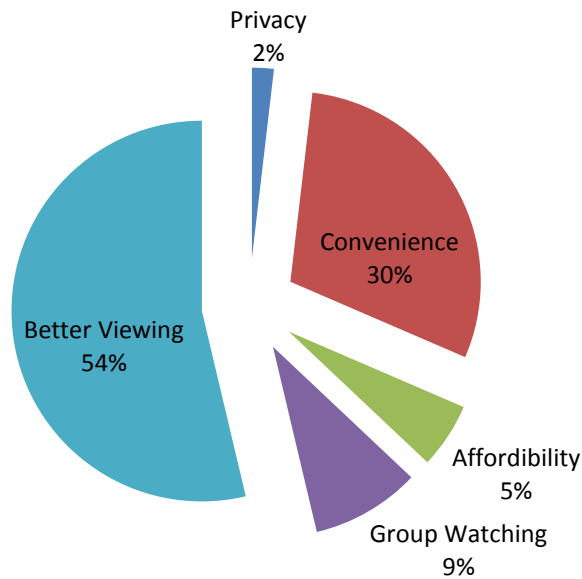
Pakistani shows. The following graph shows preference of respondents for TV or PC/Laptop when it comes to watching Sitcoms/TV Series.

Preferred medium for watching Sitcoms/TV Series



The graph shows that television has a clear lead when it comes to watching Sitcoms/TV series. Out of 76 respondents who watched TV Sitcoms, 54 preferred to watch them on a television and 22 preferred to watch them on PC/Laptops. The reasons given by those who preferred TV over PC are as follows

Why watch sitcoms/TV series on TV

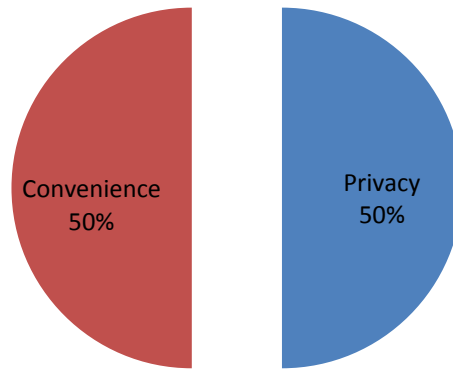


Again better viewing experience provided by television wins here but convenience is also a deciding factor for a large number of respondents who prefer a television for watching these programs. Out of 54 respondents favoring televisions, 29 chose the machine due to better viewing experience and 16 chose it due to convenience factor. These 16 respondents found it more convenient to watch foreign Sitcoms/TV programs on their televisions because such shows are either not available for download or are too large in terms of file size (megabytes) to make it feasible to download them given slow internet speed. Thus they either watch them as they air on cable channels or buy DVDs from shops and watch later on TV connected DVD players. For local TV shows that are not available on DVDs, they prefer to watch them as they air during their prime times since they are not available on DVDs and websites that stream these shows online do not usually upload them in good picture quality.

The following graph shows why other respondents preferred to watch Sitcoms/TV series on

their PC/Laptop

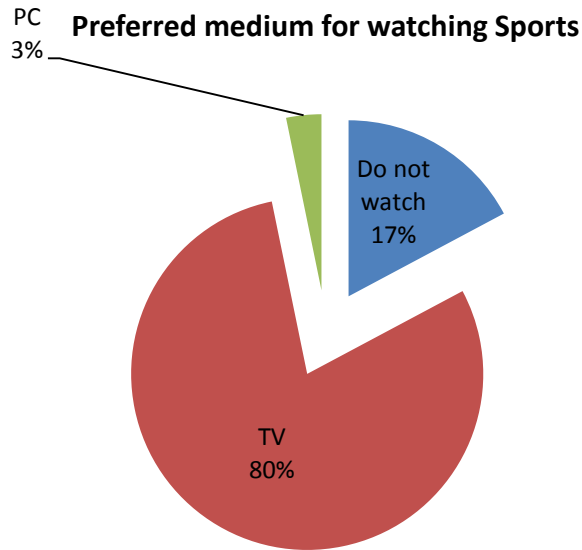
Why watch sitcoms/TV series on PC/Laptop?



These respondents are equally divided between privacy and convenience. Respondents who chose convenience did so for local TV shows since watching them on a PC/laptop saves the viewer from sitting through numerous commercial breaks. Those who chose privacy as primary motivation may prefer a television to watch sitcoms/TV shows if they have access to a private television similar to privacy conscious respondents among movie watchers.

5.6.3 Sports Events

The following graph shows preference of respondents for TV or PC/Laptop when it comes to watching sports events.



The above graph shows that TV is definitely the preferred medium. This is not surprising since for live sports streaming, fast internet is a basic requirement and as was discussed earlier, Pakistan’s internet download speed lags far behind that of developed economies. Thus when it comes to sports events, there is no alternative besides watching it on TV as this data shows.

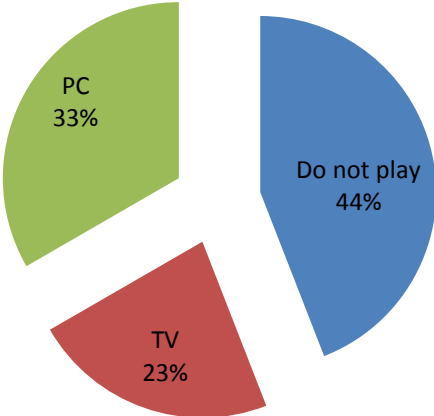
5.6.4 Video Games

When it comes to video games industry, piracy again plays a role in determining user preferences. Pirated DVDs of PC video games are very common in Pakistan just as in the case of movies and foreign TV series/Sitcoms. However, when it comes to consoles, pirated DVDs create a lot of problems. All leading console manufacturers i.e., Sony, Microsoft and Nintendo make sure that their software cannot be pirated through embedded technology in their console machines. Consequently either their video games cannot be pirated as in the case of Sony, whose PlayStation video games run on Blu-Ray DVDs or as in case of Microsoft’s Xbox system, due to embedded hardware securities, it becomes such a huge hassle to successfully run them

that it becomes unfeasible. Thus most of the times, users have to buy original DVDs. Since original DVDs of video games are very expensive for an average Pakistani gamer, usually video game consoles are confined to upper middle and high income classes.

The following graph shows preference of respondents for TV/Consoles or PC/Laptop when it comes to playing video games.

Preferred medium for playing video games



Out of 93 respondents, 52 played video games and out of those 52 gamers, 31 preferred to play on their PC/Laptops and 21 preferred to play on their consoles. Thus PC leads consoles and consequently the television in this case by 10%. Assuming that this sample is representative of the population, it can be said with a high probability that in case of consoles, piracy has worked against television.

6.0 Conclusion

Assuming that this sample is representative of population, this research indicates that in Pakistan there is a growing demand for television sets. Middle income class consumers are upgrading to flat panel television sets given that they can afford it. These consumers are refraining from spending more than what is absolutely necessary on CRT technology and if they plan to spend a high amount on television set e.g., larger screen size like 27 inch and larger, better picture quality etc., they prefer to spend on flat panel televisions.

High income classes are definitely going for flat panel technologies and on the basis of this research it can be safely said that most of them have upgraded their television sets. However, there is a possibility of successfully persuading them to upgrade to larger screen flat panel television sets.

Low income classes are still relying on CRT television sets since prices of flat panel televisions are still too high for this class thus making them unaffordable. Even large screen CRT televisions are most of the time a luxury that citizens of this income class cannot afford. Thus 20 to 24 inch CRT televisions are in high demand in Pakistani low income class citizens. Even among medium income class citizens, there is a significant portion that may be willing to purchase CRT televisions if they have to purchase a new television. However, they may not be willing to spend more than bare minimum on CRT technology i.e., screen size tends to be from 24 inch to 27 inch but not larger.

These findings show that television market has not yet matured in Pakistan and is still in growth

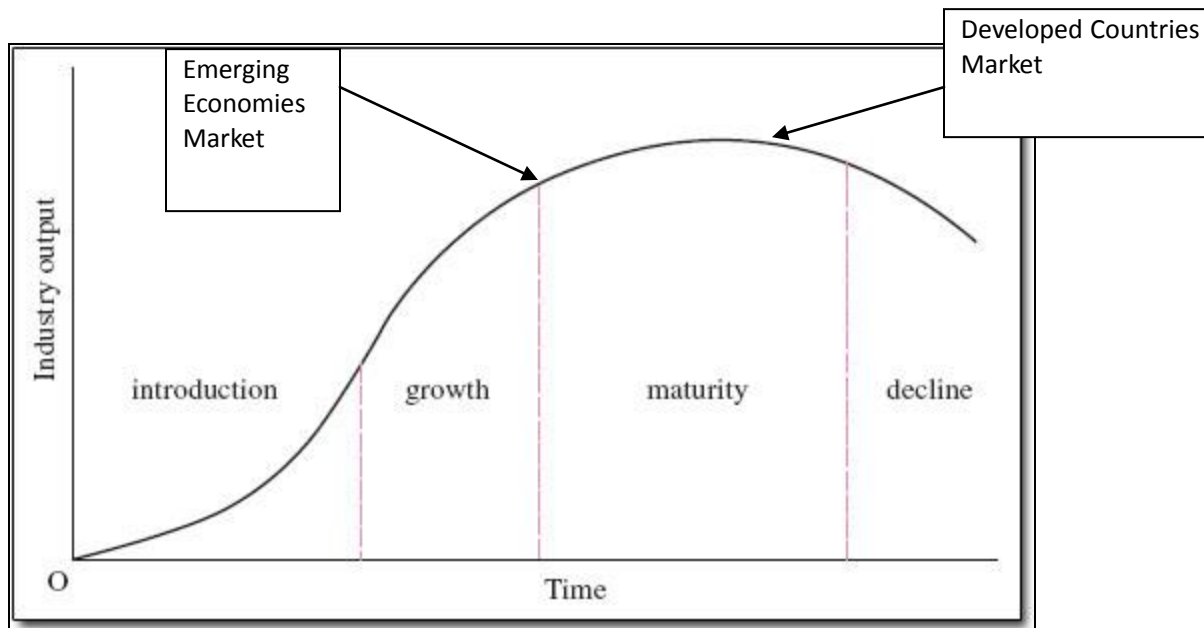
phase.

Why Pakistani television market is growing while in developed world it has matured is due to several factors such as

- Slow internet download speed makes digital alternatives attractive only for music, short length videos, news stories in the form of e-paper etc. and makes it unfeasible for streaming/downloading full length movies, TV series and other TV programs consequently making DVDs and cable network popular means of watching these forms of media. When it comes to DVDs and cable networks, televisions are more convenient to use and also provide better viewing experience. Thus PC/laptops are only used by privacy conscious users for these forms of media.
- Coupled with low internet download speed, low income of an average consumer as compared to an average user in developed world and unhindered availability of low priced pirated foreign movie and TV series DVDs in high definition makes DVDs a very popular option for these forms of programs and consumers who prefer this option often select their television due to better viewing experience and convenience.
- Increasing per capita income has allowed a lot of low income consumers to start buying televisions for the first time and since price of LCD and LED televisions makes them unaffordable, they are going for CRT television sets. At the same time, middle income consumers are for the first time able to buy LCD and LED televisions as their income is increasing and prices of LCD and LED televisions decrease with maturity of technology and new upcoming technologies in television displays like OLED etc.

- Even though more Pakistani video gamers prefer to play games on their PC/Laptops, console gamers are not too far behind in numbers. Preference for PC/laptops is largely due to affordability since consoles often require users to buy original game DVDs and investment in a good television set to display games in proper resolution. On the other hand, pirated PC games are very popular and usually the user does not need to make any additional investment on a home computer or personal laptop to play games. Consequently console gamers are very rare in the middle income class of Pakistan. Most of them belong to the upper middle and upper income classes. Besides the issue of affordability, it also comes to gamer preferences since the control surfaces of a PC/Laptop are very different from that of a console. PC gamers are usually those who prefer to use a keyboard and mouse whereas console gamers are those who usually prefer gamepads and the comfort of a couch.

From the above discussion and results, it can be said that the industrial life cycle model for television, which was discussed during the introduction, holds true.



To reiterate, this model assumes that television industry appears to have matured in developed countries due to competition from digital alternatives, which are growing in popularity thanks to advances in internet speed and connectivity. However, television industry appears to be still growing in emerging economies where digital alternatives are relatively less popular mainly due to slow internet speeds and affordability of internet capable computer devices. Also in emerging economies, per capita income is rising and consumers are either starting to experience this technology for the first time in the form of CRT televisions or are upgrading their existing CRT televisions sets to flat panel televisions given that they can afford them.

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Appendix (Sample Questionnaire)

This Questionnaire is for TV market survey to find out user preferences for televisions against computers, laptops and other mobile devices.

Age in years: _____

Gender:

Male

Female

1) How many family members do you have (Please only include yourself, your spouse and children)?

I am unmarried

2-5

6-9

10 or more

2) How many total laptops and computer systems do you own for home use?

None

1

2

3

4 or more

3) How many television sets do you have for home use?

- None
- 1
- 2
- 3
- 4 or more

If you have answered "None", please proceed to "Question 6"

4) Please tell us about TV sets in your home. Please also indicate the appropriate resolution for your TV set i.e., High Definition or Standard. High Definition TV sets have HD mentioned on the panel and have an input called HDMI. If you do not know about anything, just write "Don't Know"

If you have more than 5 TV sets, please tell us about those 5 TV sets that you have most recently purchased.

Brand Name	Closest Screen Size (inches)	Technology (CRT, LCD, LED, Plasma)	Resolution (HD or SD)	Availability of USB Port in TV	About how many months ago did you purchase this TV set?

5) On average how many hours do you spend watching TV on daily basis?

- Less than 1 hour
- 1-3 hours
- 4-6 hours
- 7-9 hours
- 10 hours or more

6) What type of Internet connection do you have and on average how much time do you spend using the Internet at your home on daily basis?

- Dial-up/Modem/Wireless Modem _____ usage (hours)
- DSL Broadband _____ usage (hours)
- Wi-Fi Broadband _____ usage (hours)
- I do not have Internet connection

7) Please indicate the device you would most prefer to use for watching following list of programs (Please choose only one device for each category).

Program Category	This category does not apply to me	TV	Laptop/ PC	iPad or similar device	Most probable reason (Convenience, Better experience, Privacy, Affordability etc.)
Family programs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sitcoms/TV Series	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Morning Talk Shows	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Movies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Music shows	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
News	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sports events	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Video Games	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

8) Are you planning to buy a new TV set sometime in the future?

- Yes No

If you have answered "Yes", please skip "Question 11". If you answered No, then please proceed directly to "Question 11".

9) What type of TV set are you planning to purchase and in what screen size and resolution?

Type of TV Technology	Number of TV sets planning to purchase	Largest Screen size planning to purchase	Resolutions of TV sets planning to Purchase
CRT			
LCD			
LED-LCD			
Plasma			

10) Are you planning to purchase a New TV set or a Used TV set?

New Used (Please specify reason) _____

11) Why are you not planning to buy a new television? (Please choose only one)

- Financial Issues
- My current TV is fulfilling my requirements
- I recently purchased a new TV set
- I don't need a TV

12) How much influence do you have when it comes to buying TV sets in your family (including the decision regarding make and model)?

- High Influence Moderate Influence Low Influence
- I cannot influence the decision

Please skip the next question if you don't have a TV set and are not planning to buy one

13) How would you rate the following factors in terms of importance to you when/if you decide to purchase a TV set on a scale of 1-7 with 1 being most important?

Lower Price of TV set	
Large Screen size	
Picture and sound quality	
Features such as Internet and USB connectivity	
Brand name	
Appealing design	
Home delivery upon purchase	

Thank you for your time