

# Identifying the Best Mobile Combo Tariff Plan for Professional Students: An Application of Conjoint Analysis

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## Abstract

Telecommunication network is one of the important and emerging industries in the world. India is holding the second position in terms of largest telecom network in the world. It is based on the number of telephone users. India is having 1.206 billion subscribers as on 30th September, 2017. In India, there are many telecommunication service providers. India is the second largest in number of telecom users. Every telecom customer prefers their network provider mainly depend upon various factors like network coverage, customer service, tariff packages and offers. But the utility of various factors be differing by person to person. But even there are many offers provided by various service providers but many customers are feeling dissatisfied with the same. This study is to find out the optimum combination of Data/Voice/SMS which is preferred mostly by post graduate and under graduate students and to explore the usage of it by them. In the field of market research, conjoint analysis is one of the top most tool in that area. Basically, it deals with how the decision making process of peoples been done and what are the important factors that they are considering while selecting a products and services. conjoint analysis helps the peoples to determine various options of alternatives for their choices. And then analyzing the factors influenced for those choices or alternatives. It is found that, better network and low cost are the main reasons for their choice of service provider. Most of the respondent's having highest importance to free minutes followed by data packs and SMS while they have least importance to price factor. The combo offer proposed

from the study is for Rs. 450, 400 minutes free with 300 MB free data and 600 SMS.

**Keywords:** Mobile Tariff-Plans, Conjoint Analysis, Professional Students, SMS, Call, Data

## Introduction

Telecommunication network is the most important sector in the world. India is having the second largest telephone users in the world (both fixed and mobile phone) with 1.206 billion subscribers as per the data's of 30 September 2017. In India, the call tariffs are very low as compared to other countries in the world. It is basically because of the increased competitions between the telecom operators in the world. According to the internet user-base, India is holding another second position in the world. As on 31 March 2016, in India there were 342.65 million internet subscribers (TRAI, Indicator Report, 2016).

Indian telecommunication industry having the major sectors like telephone, internet and television broadcast industry in India. Which is in an ongoing process involves the transformation into next generation network adopts an extensive system of modern network elements such as digital telephone exchanges, mobile switching centers, media gateways and signaling gateways at the core, which are interconnected by a wide variety of transmission systems using fiber or microwave radio relay networks. The access network helps to connects the subscriber to the core, which is basically highly diversified with different copper-pair, optic-fiber and wireless technologies. DTH,

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which is relatively a new broadcasting technology has attained very much different and important significant popularity in the television segment. The introduction of private FM has considered as the catalyst to the radio broadcasting in India. India's telecommunication in has greatly been supported by the Indian National Satellite System (INSAT) of the country, which is one among the world's largest domestic satellite systems. India is having a diversified and combined communications system, which connects each and every parts of the country by telephone, internet, radio, television and satellite (TRAI, Highlights of Telecom Subscription Data, 2012).

Telecom industry of India has undergone an accelerated market liberalization and growth since the 1990s. Now, India has become the highly competitive and fastest growing telecom industry in the world. (Dharmakumar, 2011; Kannan, 2010). The Industry has grown over twenty times in just ten years, from under 37 million subscribers in the year 2001 to over 846 million subscribers in the year 2011. According to the mobile phone user base, India is holding the second largest position in the world with 929.37+ million users according to the data's of May 2012. According to the size of the internet user-base in the world, India is having the second position with 300+ million as of June 2015. (ITU, 2011; Express).

The development of socio-economic sector of India enabled with the help of telecommunication system of the country and has played the vital role to reduce the urban-rural digital divide to some extent. It also has helped to increase the transparency of governance with the introduction of e-governance in India. At that time, the government found some modern telecommunication facilities. Which results in to the delivery of diversified education programmes, hence supported the rural segment of India (Thomas & Wolpert, 2006).

The main target of telecommunication service providers are the youth segment. Because it is a segment in which competitiveness will be higher. Also the size and demand among this segment is better than any of the other segments. Basically the members of youth segment showing the willingness to spend according to the changes irrespective of limitations. In 2013, all of the telecom companies re-launched their product offerings. Actually it is like an integrated lifestyle on the segment as opposed to the charges for call/SMS is very cheaper. During that time the

important eateries was network partners. While the retail outlets providing discounts and offering that you are being a part of the network that selected. However, this better package helps the people to become loyal to a particular brand. The choices of students mainly influenced by the rates, offers and the quality of the network.

## Statement of the Problem

In India there are many telecommunication service providers. India is the second largest in number of telecom users. Every telecom customer prefers their network provider mainly depend upon various factors like network coverage, customer service, tariff packages and offers. But the utility of various factors be differing by person to person. But even there are many offers provided by various service providers but many customers are feeling dissatisfied with the same. Because, majority of the service providers are failed to identify the needs and wants of the customers.

## Objective

- To find out the optimum combination of Data/Voice/SMS which are preferred mostly by post graduate and undergraduate students who are doing professional courses.

## Review of Literature

The main objective of the present study is to find out the relative importance and utility of telecommunication features, students associate in making a decision. If a customer may wish to select a telecom package will have to make judgments about the preferences for various attribute combinations such as price of the package, call rates, data rates, SMS charges and so on.

(Miettala & Moller, 1990) Personal nature of wireless devices helped the success of mobile commerce. The mobile and communications industry/sector developed like anything. It's only because of the technology changes according to the needs and the wants of the customers of common peoples.

(National Telecom Policy, 1999) By the rapid growth of the telecommunications sector, the consumers and customers were increased day by day. It's suggested that

around a total of 75 million telephone users will come into the service by 2005 and 175 million of users by 2010. Indian telecom sector has already achieved 100 million lines. With over 100 million telephone connections and an annual turnover of Rs. 61,000 crores, our present tele-density is around 9.1%. The growth of Indian telecom network has been over 30% consistently during last 5 years.

(Welenius & Stern, 2001) We all know that, the main factors for production was capital and labour. But according to the present scenario, information plays a vital role in the same. Information accessing is a newly grown up sector of developing countries. Such information also been plays a role in Gross Domestic Product (GDP) in the economy.

(India G. o., 2002-2003) It is basically mentioned two very important goals of telecom sector as delivering telephony in low cost to the individuals in a largest number and delivering low cost and high speed computer networking to the firms also in a largest number. The tele-density is basically means that the number of phone lines per 100 persons of the population, has rapidly improved from 43.6 in March 2001 to 4.9 in December 2002.

Adam and Michael (2003) focus that the telecom service providers even in United States also face a sea of troubles in their course of actions. The total outlook for United States wireless carriers is challenging. They cannot grow longer by acquiring new customers in the industry; in fact, their new customers having a tendency to be migrated from other carriers. Indeed, churning will already accounted for as much as 80% of new customers in 2005. At the same time, the Average Revenue per User (ARPU) of the carrier's is falling because customers have.

Dutt and Sundaram (2004) studied that in order to boost and encourage the business communication, the new modes of communication are now being introduced and installed in various cities of the country. E-mail, Voice-mail, Cellular Mobile Phones, Radio Paging, Video, Text and Video-Conferencing now operational in many cities are helped very much to the businesses and industries. Value-added hi-tech services, access to the Internet and Introduction of the Integrated Service Digital Network are 70 being introduced in various places in the country.

(Jeanette & Salvador, 2004) Wireless substitution is producing significant traffic migration from wire line to wireless and helping to greater fierce price competition resulting in margin squeezes for both wire line voice tariffs in organization for Economic Co-operation and Development Countries have fallen by an average of 3% per year between the year of 1999 and 2003.

(Ramchandran, 2005) It analyzed the performance of Indian Telecom Industry which is based on volumes instead of margins. The Indian consumers are extremely price sensitive in nature. Various socio-demographic factors like high GDP growth, rising income levels, booming knowledge sector and growing urbanization have contributed effectively towards tremendous growth of this sector. The instrument that will make proper combination of these things together and deliver the mobile revolution to the masses will be the 3<sup>rd</sup> Generation (3G) services.

Mittal (2005) explains that the paradigm was shift in the way in which people communicate. There are more than 1.5 billion mobile phone users in the world today, by calculations it is three times greater than the number of PCOs. Today India has the sixth largest telecom network in the world from the position of 14<sup>th</sup> in 1995, and second largest among the emerging economies. It is also the world's 12th biggest market with a large pie of \$6.4 billion. Actually the revolution in the telecom sector is propelling the growth of India as an economic powerhouse and by that way bridging the gap between the developed and developing economies.

(Chaturvedi & Chaturvedi, 2005) It explains that, because of the hyper competition in telecom area intensified, service providers took new initiatives to their customers. Prominent among them were loyalty rewards, celebrity endorsements, talk time schemes, discount coupons and business solutions. The youth segment and business class segment is the most important consumer segments in the cellular market. In 2005, the youth segment at the inaugural session of cellular summit, the Union Minister for Communications and Information Technology, Dayanidhi Maran had proudly stated that the Indian telecom had reached the landmark of 100 million telecom subscribers in which 50% were mobile phone users.

Whereas in African countries like Togo and Cape Verde, having the mobile coverage of 90% while India manages a merely coverage of 20%.

(Souheil & Jean-Marie, 2005) It identified the reasons behind the unexpected boom in mobile networks. According to them, cell phones are the Global System for Mobile Communication (GSM) standard requires less investment as compared to fixed lines. Besides this, a wireless infrastructure has sharing of usage, rapid profitability, more mobility. The usage of prepaid cards is the extent of 90% simplifies the management of customer base. Moreover, it is very much suitable for the way of life of people in all such conditions like rural, urban, and sub-urban subscribers.

According to (Economic Times, 2005) mobile phone market of India is set to surge ahead since urban India has a tele-density of 30 and at the same time rural India has a tele-density of 1.74. It indicates that the market is on ascent, with more than 85,000 villages has not come under the tele-connectivity services.

(India A. c., 2005), it is stated that, by 2009, 30% of the new mobile subscribers added by operators around the world will come from India. And also, by 2011, 10% of the third generation (3G) subscribers will be from India. The handset segment of India could be between US \$ 13 billion and US \$ 15 billion by 2016. It should offer a great opportunity for the vendors of equipment to make India a “manufacturing hub”. By 2015, the infrastructure capital expenditure of India on cellular equipment will be between 10 and 20% of the investment that will be made by international operators. Also included other proposals like, setting up of hardware manufacturing cluster parks, conforming to global standards and telecom manufacturing’s fiscal incentives among others.

(Chhiber, 2008) The mobile telecommunication technology is rapidly evolving in the world as the increased demand of mobile services with longer bandwidth by the peoples and new, improved and innovative services like connectivity anywhere, anytime for feature like T.V, Multimedia, Interoperability and seamless connectivity with all types of protocols and standards, while the third generation (3G) services are not to fully come up. At that time itself, started serious discussions on fourth generation (4G) services. To offer an alternative form of mobile access, WLAN hot spot have made inroads along with 3G.

## Research Methodology

As a primary phase of the study, an exploratory design is conducted according to the research problem when there are few or no recent studies/reports available for references. The primary aim is on gaining familiarity with sample information for later investigation or undertaken when the problems are in a preliminary stage of research. In this, an exploratory study conducted among the students to find out their consumption pattern on telecom services.

After the exploratory study, the research design adopted is descriptive in nature. It gives detailed information about the study. Descriptive research is used to describe characteristics of a population or phenomenon being studied. It does not answer questions about how/when/why the characteristics occurred. It detailed about the various combinations of telecom services like Voice/Data/SMS formulated according to the responses from the customers. The Under graduate/Post graduate Students who are using telecom services currently were considered as the population of the study.

Sampling was done from students who are using telecom services from various service providers. Sampling was based on convenience. Convenience sampling means, a specific type of non-probability sampling method that depend on the data collection from the population who are conveniently available to be a part of the study according to the researcher.

Professional post graduate and under graduate students who are currently using telecom services were considered as the sample frame of the study. Questionnaire was prepared with the objective of collecting all relevant information required for achieving the research objectives. Opinion from experts and information from previous studies will be considered while preparing the questionnaire. A survey method was used for collecting the data. The analysis of best combination of telecom packages among students are selected for the study. Instrument development was conducted by analyzing the tariff plans of different service providers where used to develop the instrument. Attributes like data plan, call charges and SMS charges were selected for developing questionnaire.

Conjoint analysis is specialized and advanced technique in market research that gets under the phenomena of how the

peoples were making decisions and what are the factors that affecting those decisions. At the same time, which feature/ factor that is really giving values in products and services (it also known as Discrete Choice Estimation). Conjoint analysis technique will help the people to select their choices from options and then analyzing those choices. Then finding out what are the drivers or motives for those choices. In other words, finding what are the reasons for their selection of products or services.

### Data Analysis and Discussion

The study first focused to create an orthogonal design by taking responses from the students. In order to identify the pattern of Call/Data/SMS usage by professional students, an exploratory study was conducted and could conclude the pattern of usage as described in Table 1.

**Table 1: Pattern of Data, SMS and Voice Usage**

Price	Free Minutes	Data PACK	SMS (Nos.)
300	400	300 MB	250
450	700	750 MB	600
600	1000	1.5 GB	1000

Source: Survey data

With this available data, there can be a total of 81 Combinations which is not practically possible to probe from the respondents. Hence the researcher is applying an advanced tool to compute the utilities, namely orthogonal design. It involves selecting a certain number of profiles resulting from all possible combinations of the levels.

Orthogonal Design is recommended because it selects suitable portion of all possible combinations of the categories of different variables under study. Orthogonal design metrics was developed using IBM SPSS software and are listed in Table 2.

**Table 2: Combinations Generated from Orthogonal Design**

Price	Voice Call	Data Charges	SMS
Rs. 600	700 Mins	1.5 GB	250 Nos.
Rs. 600	1000 Mins	300 MB	600 Nos.
Rs. 450	400 Mins	1.5 GB	600 Nos.

Rs. 450	1000 Mins	750 MB	250 Nos.
Rs. 450	700 Mins	300 MB	1000 Nos.
Rs. 300	1000 Mins	1.5 GB	1000 Nos.
Rs. 300	400 Mins	300 MB	250 Nos.
Rs. 600	400 Mins	750 MB	1000 Nos.
Rs. 300	700 Mins	750 MB	600 Nos.

Source: Survey data

The data was further collected using these combinations by using a questionnaire. The respondents were instructed to consider the nine cards of combinations and rank those in order of their preference from 1 to 9 where 1 is most preferred band 9 is least preferred.

According to the responses from the respondents, found out the utilities for each one of the attributes. Utilities mean useful features, or something useful, from the above utilities table, the highest usefulness by the respondents can be found out by the highest value of utilities estimated. From the result we know that highest utilities for attributes are (Table 3).

- Price (Rs.) : 450
- Free Minutes : 400 Minutes
- Data Pack : 300 MB
- SMS : 600 Numbers

**Table 3: Derived Utilities - Conjoint Analysis**

Utilities		Utility Estimate
Price	Rs. 300	-.148
	Rs. 450	.152
	Rs. 600	-.003
Free Minutes	400 Mins	.310
	700 Mins	-.303
	1000 Mins	-.007
Data Pack	300 MB	.242
	750 MB	-.064
	1.5 GB	-.178
SMS	250 Nos.	-.020
	600 Nos.	.212
	1000 Nos.	-.192
Constant		5.000

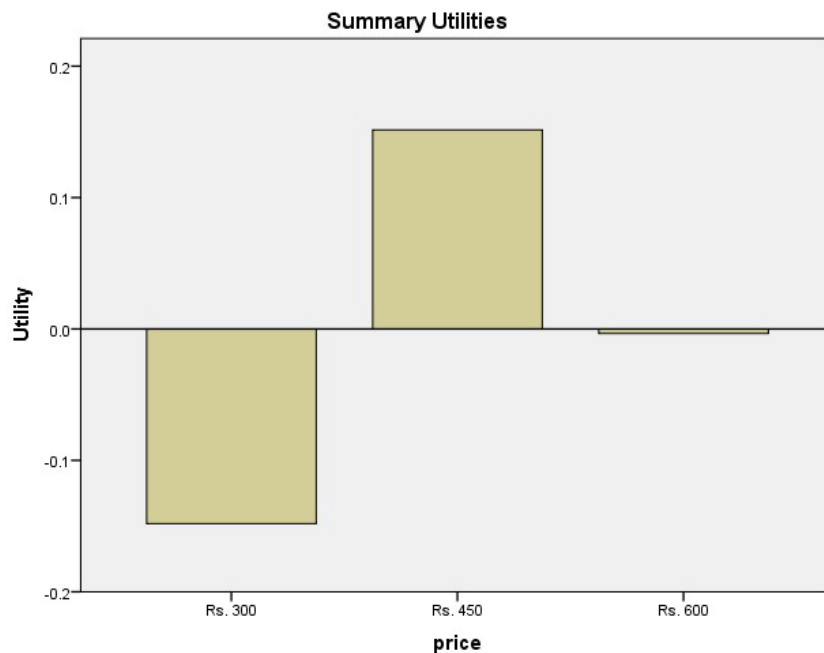
There are 3 levels of variables in each of the categories while each of them having different utilities (Table 4). Highest utility means that that factor has been rated by the respondents as most useful. With the highest utilities variables, we can formulate better combinations of factors. That is Rs. 450 is very useful for them. Along with 400 Free Minutes, 300 MB Data and 600 SMS.

**Table 4: Importance Values**

Price	17.248
Free Min	35.271
Data Pack	24.225
SMS	23.256

Among the four attributes each of them having different values and importance. Table 4 shows the importance of

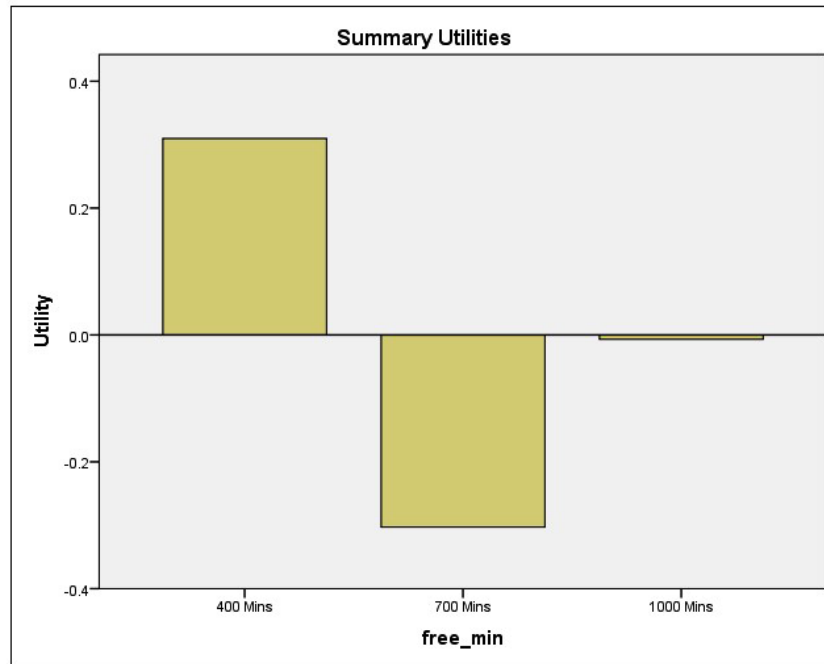
each factor. As per the responses from the respondents most important attribute is Free Minutes. Free minutes having a score of 35.271. The next important attribute is data pack (24.225) followed by SMS (23.256) and price (17.248). That is most of the students were conscious and focused on Call Tariff offers. Because they are using the calling offers more than data and SMS offers. The second important attribute is Data packs. As we all know that the data offers are very important in this generation. So that the students were preferring offers highlighting Call and Data offers. While they were giving minimal importance to SMS offers because by the over usage of Data offers, SMS offers are very less important in current scenario. At last the students are not bothered about the price factor of the offers. Whatever be the price of the offer, they need better offers for usage.



**Fig. 1: Summary of Utilities - Price**

Price attributes having (Fig. 1) three factors like Rs. 300, Rs. 450 and Rs. 600. Among these factors, maximum utility in the price attribute for Rs. 450. Which is the

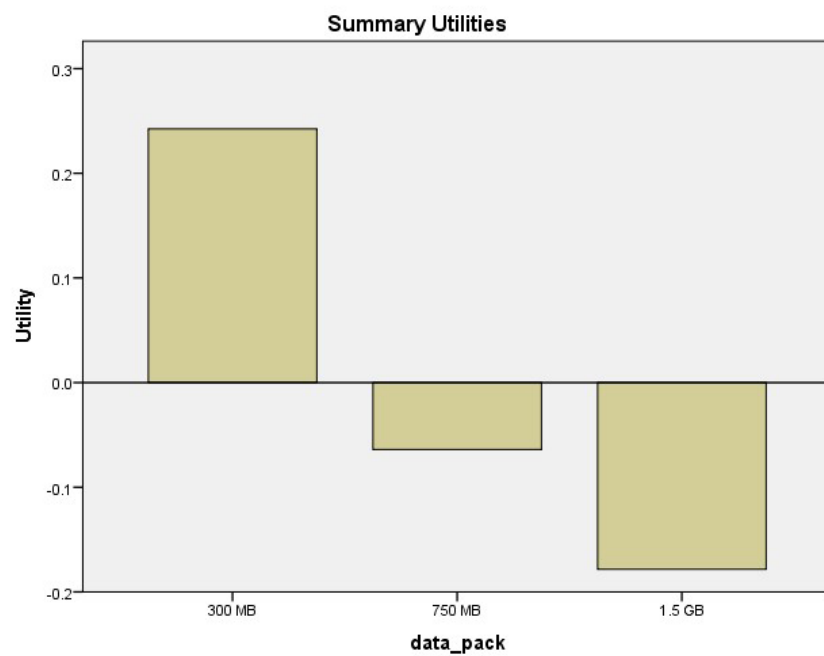
average amount of usage by majority of the students on a monthly basis. While Rs. 300 and Rs. 600 having negative utilities.



**Fig. 2: Summary of Utilities - Free Minute**

Free minutes attribute (Fig. 2) having three factors like 400 minutes, 700 minutes and 1,000 minutes. Among these factors, maximum utility in the free minutes attribute for

400 minutes. Which means it is the optimum quantity of talk time expected by the students per month. While 700 minutes and 1,000 minutes having negative utilities.



**Fig. 3: Summary of Utility - Data Pack**

Data pack attributes (Fig. 3) having three factors like 300 MB, 750 MB and 1.5 GB. Among the factors maximum utility in the data pack attribute for 300 MB. Which is the lowest quantity of the category. In fact the students

were more focused on call tariff offers, they do not prefer the data packs which having highest volume. While 750 MB and 1.5 GB having negative utilities. Which is least preferred by the students.

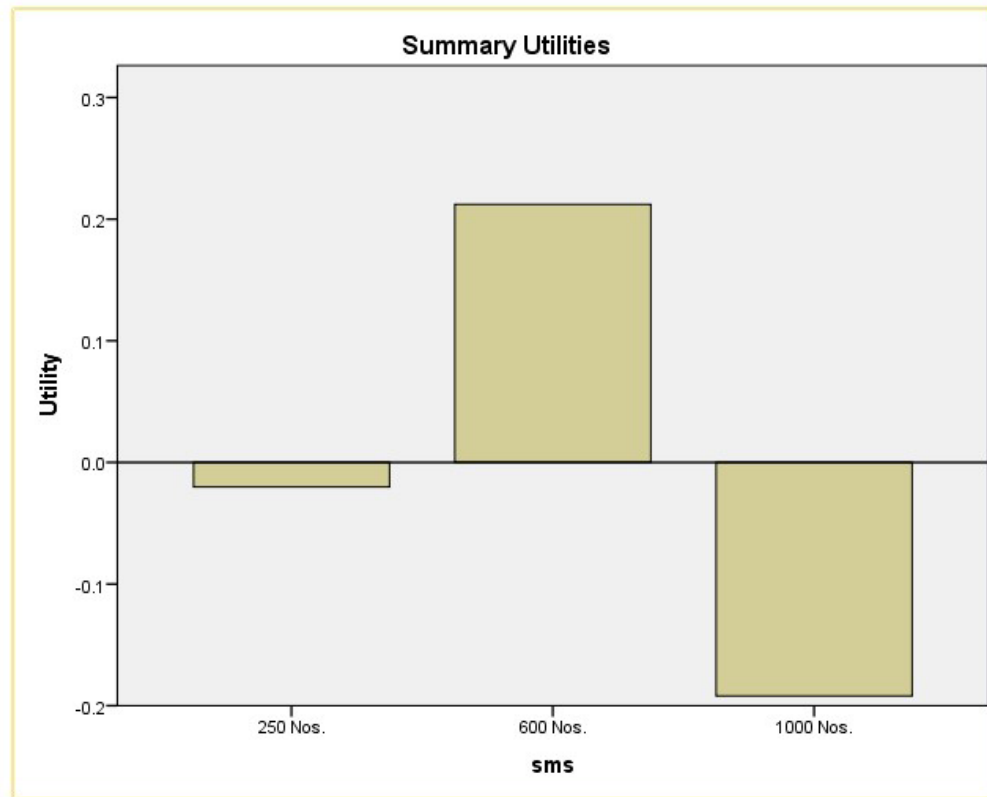


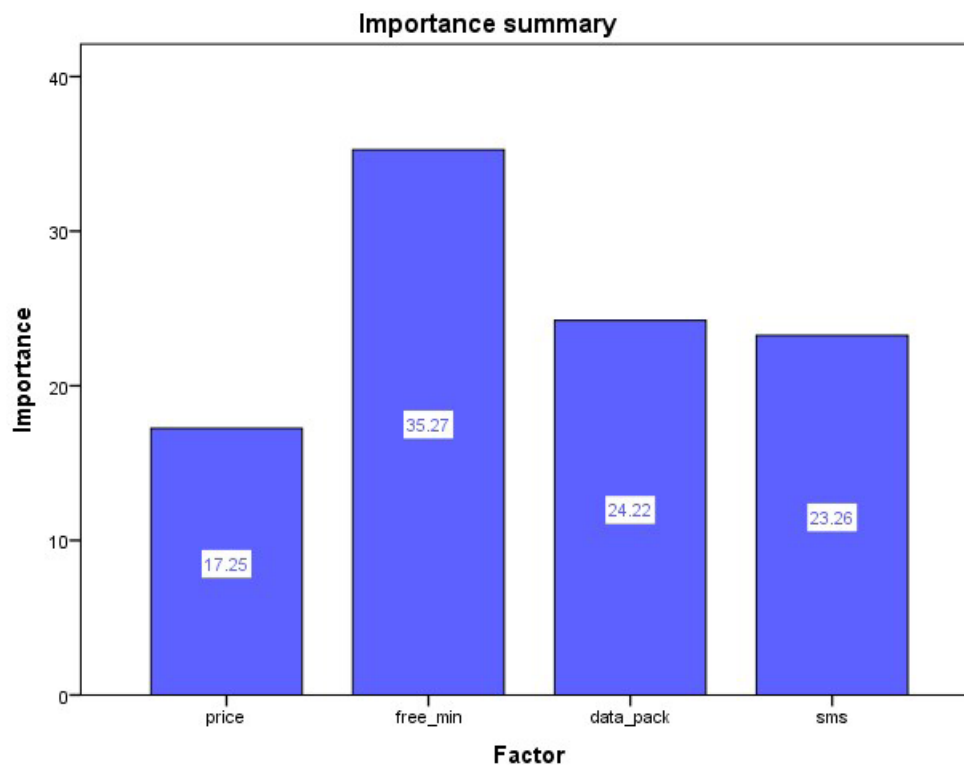
Fig. 4: Summary of Utility - SMS

SMS attributes having (Fig. 4) three factors like 250 SMS, 600 SMS and 1000 SMS. Among the factors maximum utility in the SMS attribute for 600 SMS. Respondents were maintained an optimum level of SMS in numbers. While 600 and 1000 having negative utilities

### Importance Summary

There are mainly four factors that considered while choosing a telecom combo plan. They are Price, Free Minutes, Data Packs and SMS. From the summary of attributes (Fig. 5) the highest importance for the factor of free minutes. That is 35.27 while majority of the

respondents were giving maximum importance to the free minutes category. It's may be because of the students were preferring calls factor in a combo offer. The data pack factor having second position in the minds of the respondents (24.22). After the free minutes factor, the students were concentrated and prefers Data packs. Factor of SMS having 23.26 and according to the respondents, price is the least important factor. Which has importance of only 17.25 because the respondents prefer combo offers with maximum benefit. They were willing to pay maximum amounts to get better combo offers.



**Fig. 5: Importance Summary**

## Findings

According to the utility, each attributes having a factor which having high utilities. From the results it is found that Rs. 450 in Price category, 400 Minutes in the free minutes, 300 MB in the data packs category and 600 SMS under the number of SMS category. The best combo offer/combination found from the study is 400 minutes free, 300 MB data and 600 SMS free for Rs 450. According to the value of importance, Free minutes factor having highest value in the minds of the respondents followed by Data packs and SMS. But Price factor is the least important factor according to the study.

## Conclusion

The study was undertaken to identify the best mobile combo plans for students. It was conducted among students of college level. It is found that, Better Network and Low Cost are the main reasons for their choice of Service Provider. Most of the respondents have preferred price of Rs. 450, Free minutes of 400, Data pack of 300 MB and Free SMS of 600. Most of the respondents

having highest importance to free minutes followed by data packs and SMS while they have least importance to price factor. The combo offer proposed from the study is for Rs. 450, 400 minutes free with 300 MB free data and 600 SMS.

In order to conclude that the students who are using telecom services are mainly focused on call tariff offers. They will not give much emphasis on price factor. Even if there are many of the service providers providing combo offers, but all of them are not feasible. According to the needs and wants of the respondents the best combo plan proposed is for Rs. 450; 400 Minutes free+ 300 MB+ 600 SMS.

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