



ISSN 2278 – 0211 (Online)

## Sales Analysis of Prepaid Mobile Recharges

**Shivangnee Sharma**

Student, Center of Information Technology, University of Petroleum &amp; Energy Studies, Dehradun, India

**Karanpal Singh**

Student, Center of Information Technology, University of Petroleum &amp; Energy Studies, Dehradun, India

**Abstract:**

Over a period of time, the power of analytics is helping in decision making for industries. Business potential of an industry can be accessed by the means of the data generated by the industry itself. Sales analysis reports are essential aspect for illustrating this power of analytics. The reports generated are of paramount importance to the industry for sustaining in the market. This research paper is a discussion about an analysis done on a small Retailer, linked with multiple network providers, nested in the university. Hence, the aim for this analysis is to identify which network provider is popular in the university, which recharge packs are liked by the students, on which day of a week there is a hike in the sales and why. Initially, a Bivariate Analysis was performed followed by segmenting the similar students based on their behavior towards a recharge pack of a particular network provider. Later, these results are interpreted based on interaction with students and some TRAI reports.

**Keywords:** Sales analysis, Network Providers, Segmentation.

### 1. Introduction

The journey from Motorola's 1.1kg weighted first ever handheld mobile phone in 1973 to today's 64bit architecture iPhone has been amazing. With the evolution of mobile phones, there has been an astonishing upgradation in the field of network communications. Network Providers had enhanced their services and connectivity to a higher extent. There are more than 13 network providers in India including Idea Cellular, Bharti Airtel, Vodafone, BSNL etc. [1]. Network providers, enable the customers to connect either on a postpaid or prepaid connection through a Subscriber Identification Module (SIM).

#### 1.1. Postpaid Connections Vs Prepaid Connections

The word 'post' means after and 'paid' means payment, i.e. paying after using the network services whereas, the word 'pre' means before i.e. paying before using the network services. Postpaid connections are generally recommended for people with a secured income, as from a student's perspective it is not feasible to pay the bill monthly as it cannot be predicted that how much amount is going to be generated along with the fixed rental charges. There is no limit to use the mobile network services, if the customer exceeds the plan limit, then amount on a monthly basis is generated accordingly, on the other hand, in a prepaid connection as the service is availed in advance by the user for a limited period of time. If the time limit exceeds or the credit expires then the access to requested service is denied by the mobile network providers. Customer has the choice to top up their credit according to their usage to continue the services accessed.

#### 1.2. Network Provider & Prepaid Connection

According to a survey conducted by The Nielsen Company in 2010, 97% of Indian Youth were using prepaid mobile connections, in spite of investing a lot in buying expensive tablets and smartphones, the users still prefer using prepaid services rather than postpaid connections because of its flexible and inexpensive range of tariff plans [2].

Network providing companies sell more than 50% prepaid connections and hence generate revenue from it. Selling of such connections has a direct impact on the sales of the company that's why company's demand for analyzing their sales, is rising for making better business decisions. Thus, data illustrating their daily sales will be at a primary concern for all these companies and the key source of such data are the distributors and therefore, the Retailers.

### 2. Literature Review

The Nielsen Company conducted a survey at a global level to track mobile usage in North America, Africa, Asia, Europe, Latin America and the Middle East [2]. Answer to the following questions were their outcomes:

- What kind of phones do young people use?
- How did they choose their device?
- How do they pay for their phones?
- How do they use their phones?

They discovered that usage pattern varies greatly throughout the world.

Also, a research has been conducted in Medical Collage of Chennai, focusing on the following[8]:

- Amount spent for recharging per month
- Frequency of outgoing calls
- Time of recharge
- Average minimum balance
- Opinions of the respondents about their outgoing purpose

200 questionnaires having various demographic variables were distributed among students of M.B.B.S., M.S., M.D, B.Pharm, M.Sc., B.D.S and

M.D.S. But, only 181 questionnaires were received.

Statistical techniques like analysis of variance test (Chi-Square) and t-test were performed based on these 181 questionnaires response to know the usage pattern on pre-paid mobile recharge cards.

### 3. Objective of the Study

The objectives of this study are:

- To find out the most preferred network provider among the university students.
- To find out popular recharge packs in preferred network provider.
- To identify the peak sale days for the Retailer based on monthly income.

### 4. Data Collection

For conducting this study, data for August 2014 was collected from a Retailer of the university which resides approximately 17km away from the main city Dehradun. On interacting with the Retailer we came to know that almost all the data was in unstructured form i.e. either in written form or saved as SMS which posed problem for successful analysis of data.

To solve this issue, it was decided to develop a portal which could accept data provide by the Retailer and can help to covert this data into a structured form. This portal was built using ASP .Net technology with C# programming language on Microsoft Visual Studio 2010 IDE which was linked with Microsoft SQL Server 2014 to keep track of every recharge done by the students from the recharge shop.

Out of 31 days, 10 days were off including a national holiday. So, there were 20 working days plus one working Saturday and makes total of 21 working days which was a constraint for data collection but we successfully managed to capture 6651 data entries. It took approximately 5 weeks to structure this data. Each entry had four attributes as follows:

- Mobile Number
- Amount
- Network Provider
- Date of Recharge (here, interpreted as corresponding days)

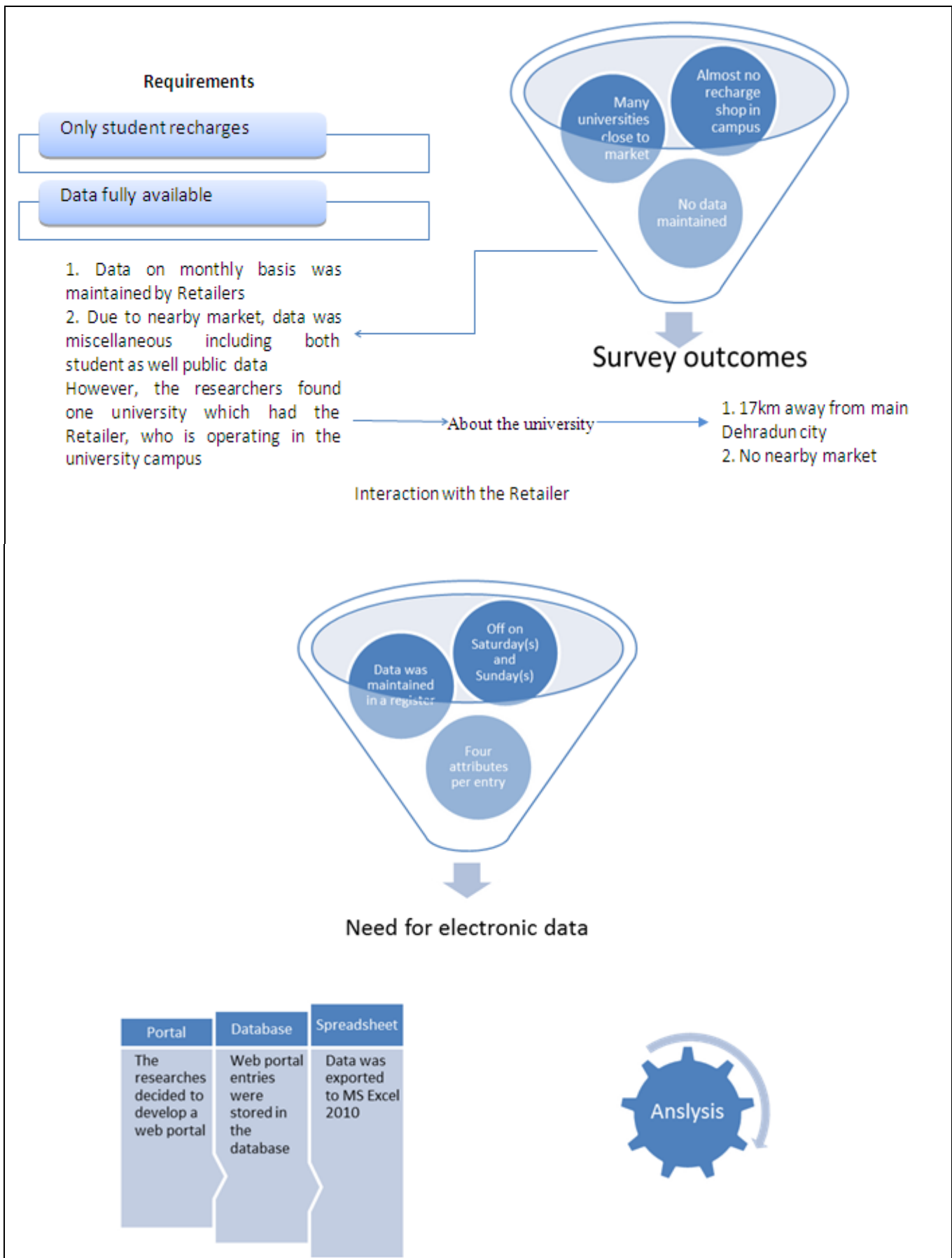


Figure 1: Review for research in Dehradun

5. Analysis

5.1. Most Preferred Network Provider

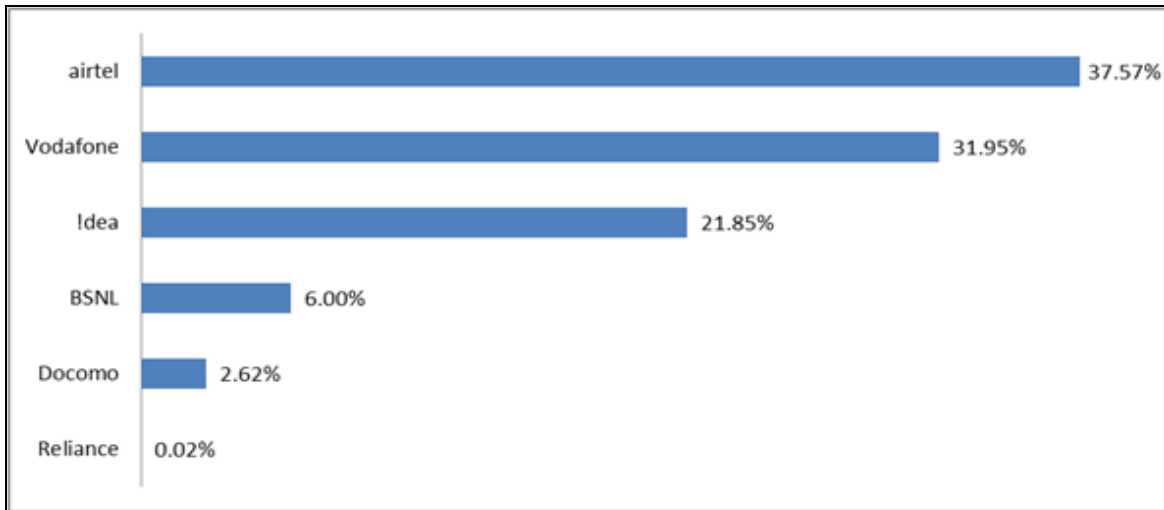


Figure 2: Most Preferred Network Provider

Figure 2 represents that 37.57% of the students prefer an Airtel prepaid connection followed by Vodafone with 31.95%, Idea with 21.85% and showing a drastic decline with only 6.00% of the student preferring BSNL. Docomo takes up only 2.62% of the student preference and Reliance with just 0.02% preference.

Thus, it can be deduced that Airtel is the most preferred network provider in the university and this can be seen from Figure 3.

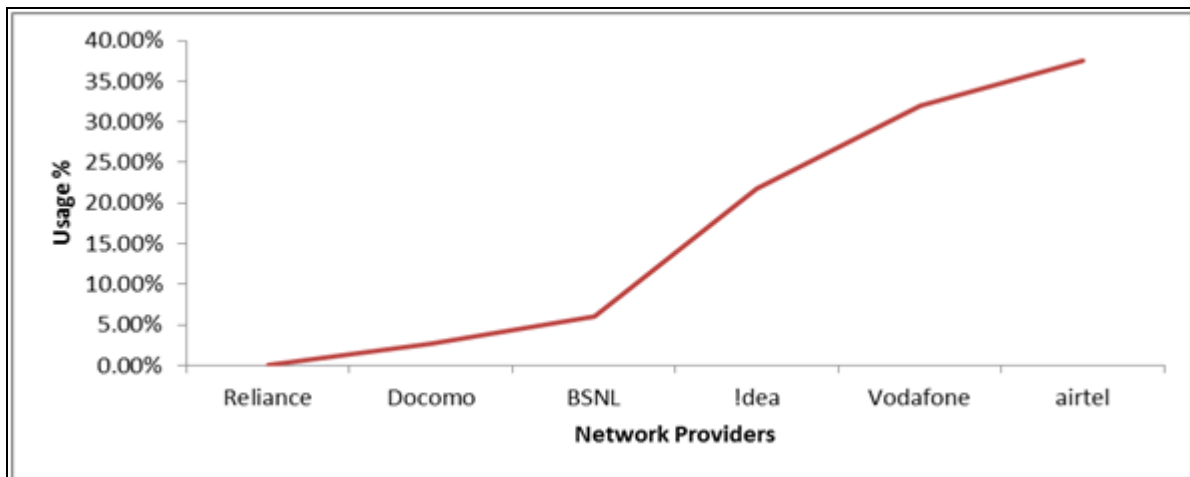


Figure 3: Most preferred network provider

5.2. Popular Packs in Preferred Network Provider

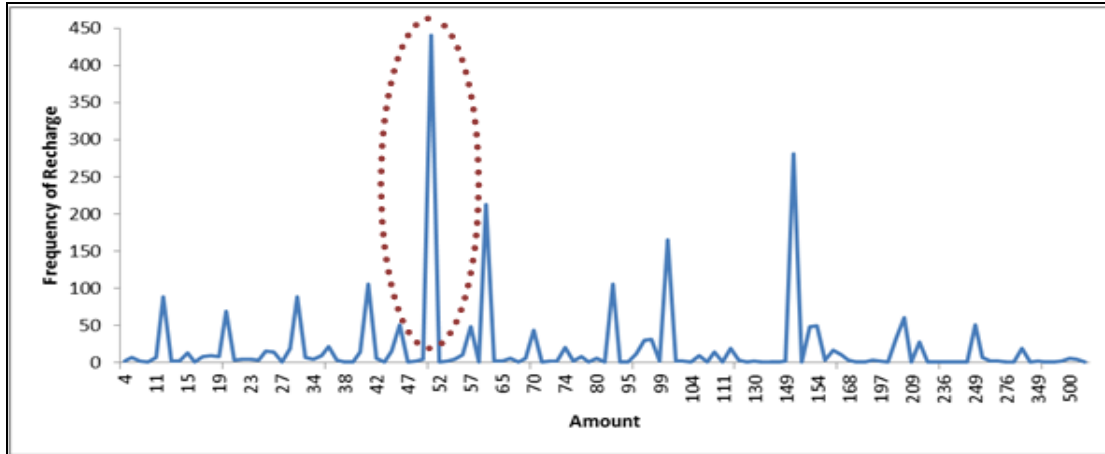


Figure 4: Popular packs in preferred network provider

In Figure 4, the highlighted region represents the highest student recharge frequency. This frequency ranges from a recharge amount of ₹ 47 to ₹ 57. Thus, a segment ranging from 40-60 was discovered which covered almost all the students in that range. For this segment, Figure 5 represents that recharge pack of ₹ 50 was the most popular recharge pack among the students, having a frequency of 440.

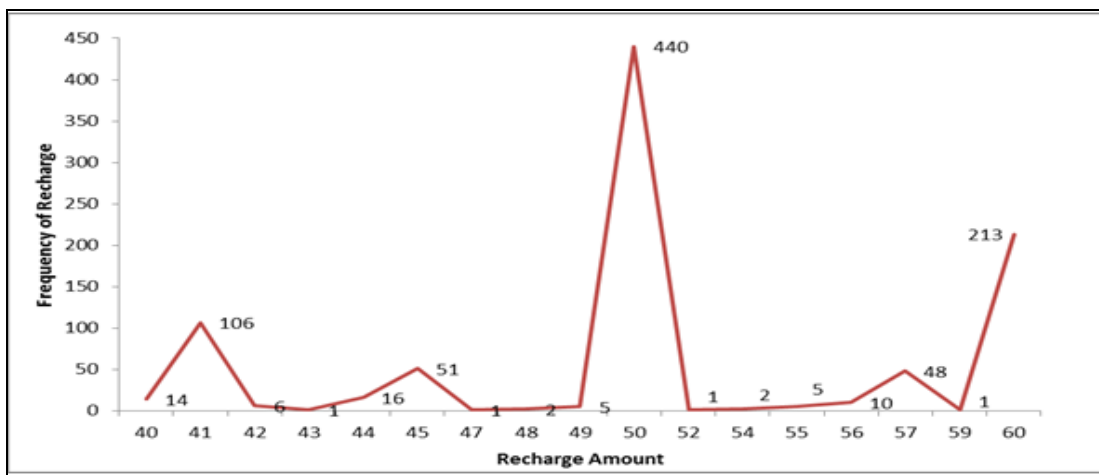


Figure 5: Popular recharge in 40-60 segment

5.3. Peak day(s) in terms of sales

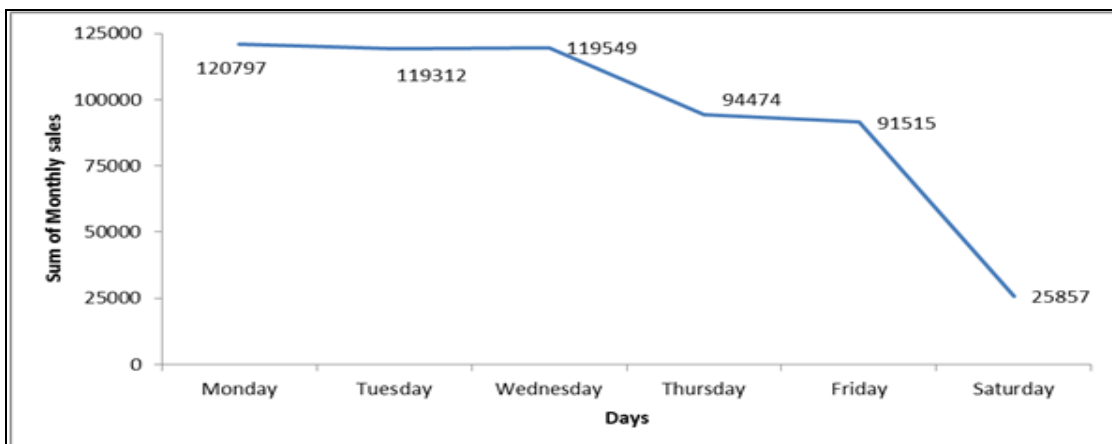


Figure 6: Peak day(s) in terms of sales

Days	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Sales (in ₹)	120797	119321	119549	94474	91515	25857

Table 1: Sum of monthly sales with corresponding days

Figure 6 shows that the sales are maximum on first three consecutive days of the week i.e. Monday(s), Tuesday(s) and Wednesday(s) as compared to the rest of the days. The sales that are analyzed are on monthly basis as represented in Table 1. Also, on Monday(s) the sale is maximum as it is a starting day of a week.

## 6. Outcomes and Conclusion

- 37.57% students preferred Airtel as a network provider which means approximately 2500 students rely on this network provider. On interacting, majority of the students were from Uttar Pradesh, Delhi-NCR, Punjab and Madhya Pradesh regions. Plus on investigating further, these students preferred to commute to their homes via trains. Also, according to TRAI's Quality of Service (QoS) report released in second quarter of 2012, Airtel offers coverage on approximately 95% of rail-routes[3].
- Within Airtel, recharge pack of ₹ 50 is mostly done. Considering the tariff plan chart for prepaid connections available on official website of Airtel, the top-up provided by this recharge is ₹ 41.50 and provides full talk time if recharge is done with Airtel Money[4]. This facility is unique among all top-up recharge pack which also fits the student budget.
- Monday, Tuesday and Wednesday are the peak days on a monthly basis. The average sale on Monday(s) is ₹ 90.35 followed by ₹ 86.15 and ₹ 88.62 on Tuesday(s) and Wednesday(s) respectively. The reason being that these days are the starting days of week.

## 7. Acknowledgment

We are indeed grateful to many groups of people who have helped us with various aspects of this study. We want to thank Dr. Inder Singh, Assistant Professor, Senior Scale, Center of Information Technology, Collage of Engineering Studies, University of Petroleum & Energy Studies, Dehradun for guiding us. His knowledge and experience about various statistical techniques and ongoing trends influenced us in overcoming many hurdles.

## 8. References

1. Telecom Regulatory Authority of India, "Cellular Mobile Service Licencees," Telecom Regulatory Authority of India, New Delhi, 2014.
2. The Nielsen Company, "Mobile Youth Around the World," The Nielsen Company, New York, 2010.
3. Telecom Regulatory Authority of India, "Quality of Service Report," Telecom Regulatory Authority of India, New Delhi, 2012.
4. Bharti Airtel, "Recharge Online," Airtel, 7 July 1995. [Online]. Available: <http://www.airtel.in>. [Accessed 1 August 2014].
5. NextBigWhat, "[Report]Mobile Recharge Transactions - Number of Transactions Dip As Weekend Approaches," 22 June 2011. [Online]. Available: <http://www.nextbigwhat.com/mobile-recharge-transaction-report-for-india-297/>.
6. Telecom Regulatory Authority of India, "Highlights on Telecom Subscription Data as on 31st March, 2014," Telecom Regulatory Authority of India, New Delhi, 2014.
7. Telecom Regulatory Authority of India, "Annual Report 2012-13," Telecom Regulatory Authority of India, New Delhi, 2013.
8. B. Karthikeyan, T. Thiruvankadam and D. N. Panchanatham, "Usage Pattern on Pre-paid Mobile Recharge Cards with Reference to Medical College Students, Chennai," Journal of Contemporary Research in Management, vol. I, no. 1, 2, pp. 167-171, 2007.