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S. L. Gupta

Hitesh Gupta

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EFFECT OF WEB MINING ON B2B MARKETING

S. L. Gupta¹ and Hitesh Gupta²

Department of Management, Birla Institute of Technology,
Deemed University, Noida Campus, India

¹bitresearch@gmail.com; ²hitesh_hit2@rediffmail.com

Abstract

The Indian B2B marketplace in IT sector is going through a transformation. Both existing and new players are experimenting with new Buying solutions through internet as they lack a seamless flow of information among customers, suppliers and their employees. This research paper attempts to analyse the effect of web mining on B2B marketing on the basis of certain parameters of Web Positioning, Product Availability, Layout of a web site and Ease in Accessibility. Further, analysis regarding the relationship between age, qualification, profession and income group has been done. Thus, the main purpose of the research work is to discuss the relation of various variables related to web mining, and the extent of their influence on the success of B2B marketing of a product.

Keywords : Web Mining, B2B, B2B Marketing, Internet, Internet Influence, B2B Procurement, e-Procurement, IT sector

Introduction

India is one of the major booming economies of the world and will continue so till centuries. This is of great interest to the Fortune 1000 companies as western economies are tapering off in growth rates due to competitive forces in place.

With the explosive growth of information sources available on the World Wide Web, it has become increasingly necessary for users to utilize automated tools in order to find the desired information resources, and to track as well as analyze their usage patterns. These factors give rise to the necessity of creating server side and client side intelligent systems that can effectively mine for knowledge. Web mining, the discovery and analysis of useful information from the World Wide Web, describes the automatic search of information resources available on-line, i.e. Web content mining, and the discovery of user access patterns from Web servers, i.e., Web usage mining.

Further, a person might see consumer market much bigger than business-to-business market place. In fact, B2B is much bigger than B2C markets. Whether we talk about commercial markets, trade industries, government organizations or institutions, all are involved in B2B transactions, either directly or indirectly. Some firms focus entirely on business

markets, while some sell both to consumer and business markets. Satyam, TATA, IBM, Wipro, Logitech, Epson, HP, Canon, LG, for example. The Business-to-Business markets deal with organizational purchases of good & services to support or facilitate production of other goods & services, either to facilitate daily company operations or for resale.

Web Usage Mining :

Web servers record and accumulate data about user interactions whenever requests for resources are received. Analyzing the web access logs of different web sites can help understand the user behavior and the web structure, thereby improving the design of this colossal collection of resources. There are two main tendencies in Web Usage Mining driven by the applications of the discoveries: General Access Pattern Tracking and Customized Usage Tracking.

The general access pattern tracking analyzes the web logs to understand access patterns and trends. These analyses can shed light on better structure and grouping of resource providers. Applying data mining techniques on access logs unveils interesting access patterns that can be used to restructure sites in a more efficient grouping, pinpoint effective advertising locations, and target specific users for specific selling ads.

While, customized usage tracking analyzes individual trends. Its purpose is to customize web sites to users. The information displayed, the depth of the site structure and the format of the resources can all be dynamically customized for each user over time based on their access patterns.

While it is encouraging and exciting to see the various potential applications of web log file analysis, it is important to know that the success of such applications depends on what and how much valid and reliable knowledge one can discover from the large raw log data. Some scripts custom-tailored for some sites may store additional information. However, for an effective web usage mining, an important cleaning and data transformation step before analysis may be needed.

Web Mining:

- **Traditional methods:** Do the work for the customer.

- **Internet delivered:** Gives tools to the customer to do the work for him/herself (log: tracking, troubleshooting, FAQ) with
 - Improved communication, Automated process and Speedier resolution of problems
- **Customer-focused:**
 - Make it easy for customers to do business online ; Business processes redesigned from customer's point of view ; Design a comprehensive, evolving EC architecture ; Foster customer loyalty by Personalized service, Streamline business processes and Own customer's total experience

Web Mining Functions:

- Provide search and comparison capabilities, free products and services as well as specialized information and services
- Allow customers to order customized products and services
- Enable customers to track accounts or order status
- Justifying customer service and CRM program's 2 problems
 - Most of the benefits are intangible;
 - Substantial benefits reaped only from loyal customers, after several years
- Metrics - standards to determine appropriate level of customer support
 - Response and download times; Up-to-date site and availability of relevant content; Security and privacy; On-time order fulfilment

Research Methodology :

The research methodology is descriptive in nature, since the research done here describes the influence of various variables effecting web mining & marketing.

The primary data, in a descriptive type of research is taken by conducting sample survey. These are obtained by directly communicating with the respondents in the form of questionnaires. The secondary data has been obtained by doing extensive study of internet, newspaper and magazines.

Data Collection Techniques :

The collection of data was done by distributing the questionnaire among respondents , from different fields to have a complete idea about the perception of customers about various factors related to web mining for example web layout, accessibility , easy methods to pay , clustering of product on same site ,presence of many sites for same product. A Questionnaire was developed in which the different scaling techniques like dichotomous scaling and Likert-type Scales were used. In Likert-type Scale a number statements which express either favourable or unfavourable attitude

towards the give variable to which the respondents are asked to react. The respondents indicate their agreement or disagreement with each statement.

A total of 525 questionnaires were filled, where 75 were rejected and 450 questionnaires were analysed, so constitutes the sample size (450) of research. The sample was drawn from India. Through responses from respondents involved in B2B markets on various parameters, we have arrived at the findings and conclusion of the research.

Objective of the Study :

Main Objectives : To study the effect of web mining on B2B marketing on the basis of following parameters:

- a). Web Positioning;
- b). Availability of Product.;
- c). Lay out of a web site.;
- d). Ease in Accessibility.

Sub objective: To study the significant difference due to age and qualification over the preference of e-based business transactions.

Further, to study the significant difference due profession and income group over the preference of e-based business transactions.

Thus the main purpose of the research work is to find the relation of various variable related to web mining, and the extent of their influence on the success of B2B marketing of a product.

Limitations of Web Mining :

- Too much data is available so it is very difficult for customers and firms to extract the required data.; Not suitable for every customer or product ,there are variety products that customers prefer to buy through traditional methods.; Who are the actual sellers of these product is not apparent for customers. ; Skewed toward highly educated males with high disposable income; Sometimes there is mistrust that the data may be unreliable, biased.; More knowledge is needed.

Data Interpretation and Analysis :

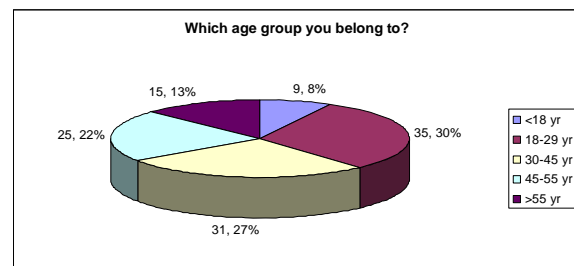


Figure1.

The Figure 1, concludes that around 30% respondents belong to age group 18-29 year, 27% of respondents belong to 30-45 years of age, 22% of respondents

belong to 45-55 years of age, 13% respondents are above 55 years of age and only 8% respondents are under 18 years of age.

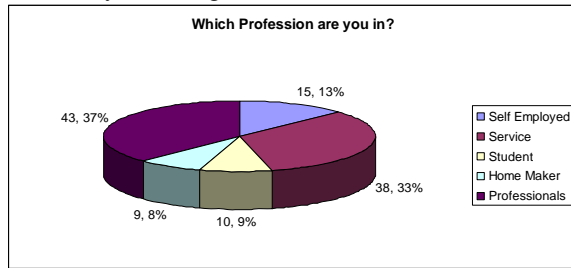


Figure2.

The figure2, shows that most of the respondents are either self employed(13%), in service(33%) or professionals(37%), while only 17% respondents are either home maker(8%) or student(9%).

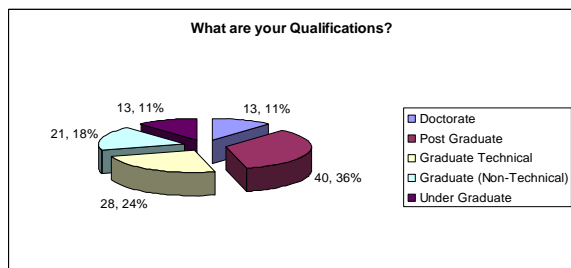


Figure3.

The Figure3, concludes that most of the respondents are well educated. Respondents include 11% doctorates, 36% Post Graduates, 24% Technical Graduates, 18% Non-Technical Graduates and only 11% Under Graduates.

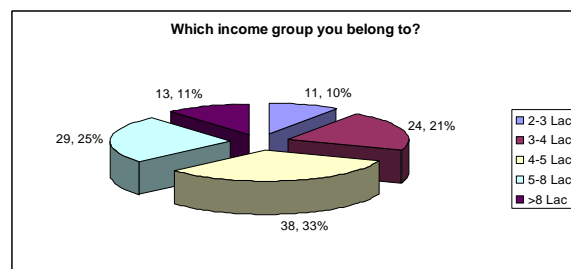


Figure4.

The figure4, shows that many of the respondents have good income class. Around 10% constitutes 2-3 Lac annual income, 21% earn 3-4 Lac, 33% have 4-5 Lac annual income, 25% earn 5-8 Lac annual income and 11% have more than 8 lac income annually.

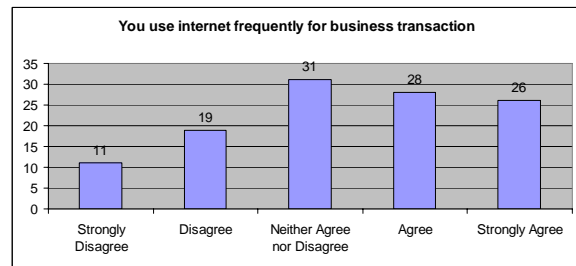


Figure5.

The figure5, shows the use of internet for Business Transactions, wherein 54% respondents agree to use internet frequently, while 31% neither agree nor disagree and around 30% shows negative behaviour for the same.

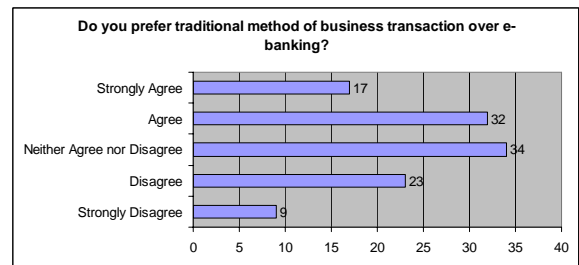


Figure6.

The Figure 6, concludes that around 32% respondents want to do e-banking transactions, while around 48% respondents prefer traditional methods for business transactions and 34% are neutral in case of business transactions.

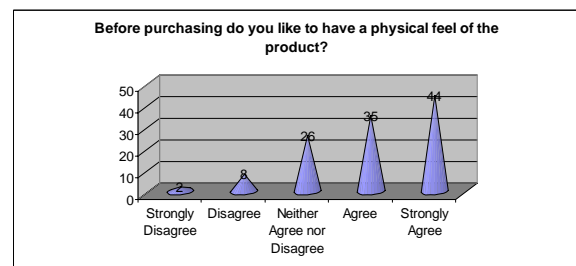


Figure7.

The figure7, shows that before purchasing most of the people(79%) like to have physical feel of the product, while only a few people disagree to the statement.

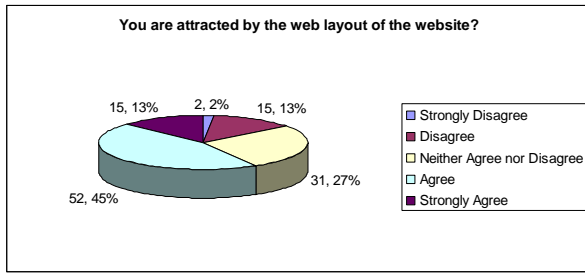


Figure8.

The Figure 8, concludes that most of the people (58%) are attracted towards the web layout of websites, while only a few(15%) disagree for the same.

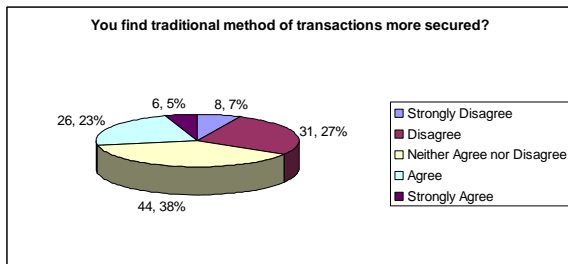


Figure9.

The figure9, shows that in today’s digital age many people (38%)are confused regarding the security of Business transactions over the internet. While only a few accept (34%) e-transactions more secure and 28% respondents find traditional transactions more secure.

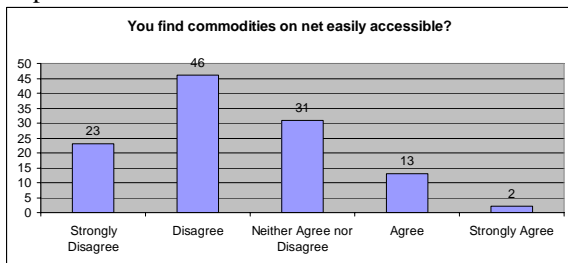


Figure10.

The Figure 10, concludes that around 69% respondents do not find commodities on net easy accessible, while only 15% respondents find the commodities easily accessible.

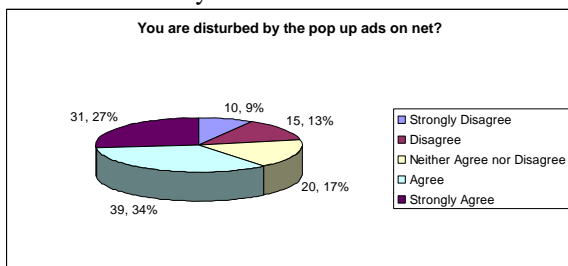


Figure11.

The figure11, shows that most of the people (61%) are disturbed by pop up ads on net, while only 17% behave neutral to the statement and only 22% people

are not disturbed due to their knowledge of blocking the pop up ads.

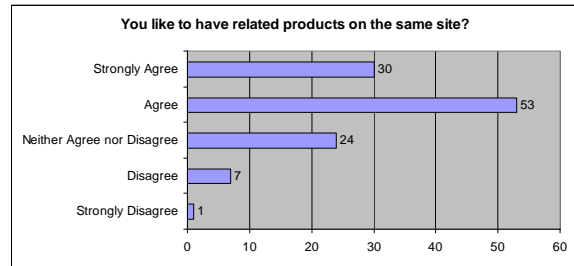


Figure12.

The Figure 12, concludes that around 83% respondents want to have related products on the same site for easy comparison and getting the best available deal, while only a few (8%) don’t want to go with the statement.

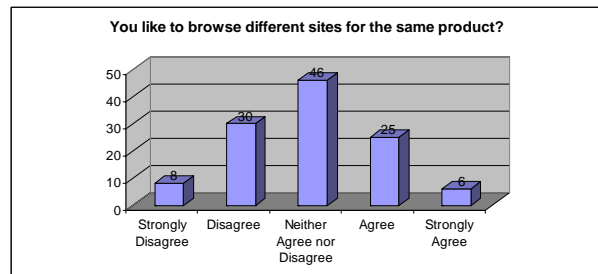


Figure13.

The figure13, shows that 38% people would like to browse different sites for the same product, while 31% people do not want to browse different sites and 46% are neutral for the statement.

Conclusion :

In recent years, the growth of IT Industry in B2B markets is all set to give a breakthrough in Indian economy. With relatively competitive budgets and high profit margins, the situation calls for smart and strategic internet optimization, which can help a business to create and enhance the organizational buying.

According to the research, majority (54%, Figure5.) of the respondents use internet frequently for business transactions and around (32%, Figure6.) respondents prefer e-banking over traditional banking transactions, while around 34% are neutral in case of business transactions.

Further, most of the people (79%, Figure7.) like to have physical feel of the product. While, many of the people (58%) are attracted towards the web layout of websites and only a few(15%) disagree for the same.

The Figure9, shows that in today’s digital age many people (38%)are confused regarding the security of Business transactions over the internet. While only a few accept (34%) e-transactions more secure.

Further, the Figure10, concludes that around 69% respondents do not find commodities on net easy accessible, while only 15% respondents find the commodities easily accessible, which shows that many people are not aware of the web usage to a greater extent.

The figure11, shows that most of the people (61%) are disturbed by pop up ads on net, so pop ups should be avoided by the website developers, if possible. Moreover, only 22% people are not disturbed due to their knowledge of blocking the pop up ads.

Further, figure 12, concludes that around 83% respondents want to have related products on the same site for easy comparison and getting the best available deal, while only a few (8%) don't want to go with the statement.

The Figure13, shows that 38% people would like to browse different sites for the same product, while 31% people do not want to browse different sites. So, website developers should try to concentrate the related product information for easy search by the related target markets.

References

- [1] ActivMedia Research (2000). Business-to-business online 2000. report, <http://www.bitpipe.com>.
- [2] A. Barua, P. Konana, A. B. Whinston and F.Yin (2001). Driving e-Business Excellence. *Sloan Management Review*, Issue: Fall, pp.36-44.
- [3] A. C. Samli, J. R. Jr. Willis and P. Herbig (1997). The Information Superhighway Goes International: Implications for Industrial Sales Transactions. *Industrial Marketing Management*.
- [4] Benjamin P. C. Yen, O. S. Ng Elsie (2003). The Impact of Electronic Commerce on Procurement. *Journal of Organizational Computing and Electronic Commerce*, pp.167-189.
- [5] B. Zupancic and M. Sedej (2000). Electronic commerce in the supply chain. *Journal of Management, Informatics and Human Resources*, Vol. 33, No. 3, pp.194-199.
- [6] C. C. Poirier and M. J. Bauer (2000). E-Supply Chain — Using the Internet to Revolutionize Your Business. Berrett-Koehler Publishers, San Francisco, CA.
- [7] Dave Chaffey (2004). *e-Business and e-Commerce Management*. 2nd ed., Practice Hall.
- [8] D. L. Hoffman and T.P. Novak (1996). Marketing in hypermedia computer-mediated environments: Conceptual foundations. *Journal of Marketing*.
- [9] D. Robert (1999). E-commerce made easy, Barclays Bank PLC. *Corporate Banking Communications*.
- [10] George J. Avlonitis and A. Karayanni Despina (2000). The Impact of Internet Use on Business-to-Business Marketing. *Industrial Marketing management*, 29, pp.441-459.
- [11] Hitesh Gupta (2008). Business To Business - A Focused Approach Towards Win Strategy. *EzineArticles* 24 February 2008. 02 April 2008 <http://ezinearticles.com/?id=910542>
- [12] Hitesh Gupta (2008). Indian B2B Clients - An Insight on Procurement Behavior. *EzineArticles* 27 March 2008. 02 April 2008 <<http://ezinearticles.com/?id=1064295>>
- [13] H. L. Lee and S. Whang (2001). E-business and supply chain integration. Stanford Global Supply Chain Management Forum. SGSCMF-W2-2001, November.
- [14] James C. Anderson and James A. Narus (2007). *Business Market Management – Understanding, Creating and Delivering Value*. 2nd ed. Pearson Education.
- [15] J. A. Quelch and L. R. Klein (1996). The Internet and International Marketing. Sloan Management Review.
- [16] J. Versenadaal, M. Beukers and R. Batenburg (2005). Business Alignment in the Procurement Domain. Institute of information and computing sciences, Utrecht University.
- [17] K. Eyholzer and D. Hunziker (2000). The Use of the Internet in Procurement: An Empirical Analysis. Konferenzbeitrag, Hansen,H-R. 9ed., Proceedings of the 8th European Conference of Information Systems, 3rd-5th July 2000, Vienna, pp.335.
- [18] Kotler Keller. *Marketing Managemet*. 12th ed. Prentice Hall India.
- [19] Louis E. Boone and David L. Kurtz (2002). *Contemporary Marketing*. Harcourt College Publishers.
- [20] L. R. Smeltzer (2001). How to build an e-Procurement strategy. *Supply Chain Management Review*, Vol. 5 No. 3, pp.76-83.
- [21] M. A. Lindemann and B. F. Schmid (1998-99). Framework for specifying, building, and operating electronic markets. *International Journal of Electronic Commerce*, Vol. 3, No. 2, pp. 7-21, winter.
- [22] M. Brannback, (1997). Is the Internet changing the dominant logic of marketing?. *European Management Journal*.
- [23] M. Eric Johnson and Whang Seungjin (2002). E-Business And Supply Chain Management: An Overview And Framework. Production And Operations Management, Vol. 11, No.4, Winter 2002.
- [24] M. L. Sheng (2002). The Impact of Internet-based Technologies on the Procurement Strategy. Proceedings of the 2nd International Conference on Electronic Commerce, Taipei, December.

- [25] M. Muffatto and M. Payaro (2004). Implementation of e-procurement and e-fulfillment processes: A comparison of cases in the motorcycle industry. *Int. J. Production Economics*, pp.339-351.
- [26] M. Podlogar, U. Hribar, and J. Gricar (2001). IT use for e-commerce: chief information officers statements. *Journal of Management, Informatics and Human Resources*, Vol. 34, No. 3, pp.173-180.
- [27] M. Podlogar (2006). Simplifying Procurement Process by Using E-Commerce. *International Journal of Internet and Enterprise Management (IJIEM)*, Vol. 4 No.2.
- [28] P. Berthon, N. Lane, L. Pitt, and R. T. Watson (1998). The World Wide Web as an Industrial Marketing Communication Tool: Models for the Identification and Assessment of Opportunities.
- [29] P. Kotler and G. Armstrong. *Principles of Marketing*. Prentice Hall India.
- [30] Q. Dai and R. J. Kauffman (2001). Business models for Internet-based e-Procurement systems and B2B markets: An exploratory assessment.
- [31] R. Amit. and C. Zott (2001). Value Creation in e-Business. *Strategic Management Journal*. Vol. 22 No. 6/7.
- [32] R. Kalakota and M. Robinson (2001). E-Business 2.0. Roadmap for Success. Addison-Wesley Management, Vol.8, Issue: 2, pp.111-122.
- [33] R. Kalakota and A. B. Whinston (1997). Readings in Electronic Commerce. Addison-Wesley, Reading, MA.
- [34] R. R. Reeder, E. G. Brierty and B. H. Reeder (1991). *Industrial Marketing-Analysis, Planning and Control*. 2nd ed. Englewood Cliffs, N.J.: Prentice Hall.
- [35] R. W. Haas (1995). *Business Marketing- A Managerial Approach*. 6th ed. Ohio: South Western College Publisher.
- [36] S. Arunachalam (1999). Information and Knowledge in the Age of Electronic Communication: A developing country perspective. *Journal of Information Science* 25(6), pp.465-576.
- [37] S. Poon and C. Jevons (1997). Internet enabled International Marketing: A Small Business Network Perspective. *Journal of Marketing Management*.
- [38] Stewart McKie (2001). e-Business Best Practices: Leveraging Technology for Business Advantage. Wiley, New York.
- [39] Thomas Puschnann and Alt Rainer (2005). Successful use of e-Procurement in Supply Chains. *Supply Chain Management- An International Journal*, 10/2, pp.122-133.
- [40] Vaupot, (2001). E-marketplaces. *Journal of Management, Informatics and Human Resources*, Vol. 34, No. 3, pp.165-168.
- [41] W. H. Dutton (1999). The web of technology and people: challenges for economic and social research. *Prometheus* 17(10), pp.5-20.

ANNEXURE: 1

QUESTIONNAIRE

Q1 Do You Browse internet Regularly? a) YES b) NO

You use internet for

Q2 a) Entertainment b) Knowledge Purpose c) Business d) Official use e) Others

The following questions are on lickert scale. Questions Having ranking between 1 to 5

1 2 3 4 5

Strongly Disagree Disagree Neither agree nor Disagree Agree Strongly Agree

Please Tick the option you think is most suitable to you.

Q3 You use internet frequently for business transaction?
1 2 3 4 5

Q4 Do you prefer traditional method of business transaction over e-banking?
1 2 3 4 5

Q5 Before purchasing do you like to have a physical feel of the product ?
1 2 3 4 5

Q6 You are attracted by the web layout of the website?
1 2 3 4 5

Q7 You find traditional method of transactions more secured?
1 2 3 4 5

- Q8 You find commodities on net easily accessible?
1 2 3 4 5
- Q9 You are disturbed by the pop up adds on net ?
1 2 3 4 5
- Q10 You like to have related products on the same site?
1 2 3 4 5
- Q11 You like to browse different sites for the same product?
1 2 3 4 5
- Q12 Which age group you belong to ?
1 2 3 4 5
Under 18 18yr - 29yr 30yr - 45 yr 45yr & 55 55 or Above
- Q13 What are your Qualifications?
1 2 3 4 5
Under Graduate Graduate (Technical) Graduate(Non-Technical) Post Graduate
Doctorate
- Q14 Which Profession are you in ?
1 2 3 4 5
Self Employed Service Student Home Maker Professionals
- Q15 Which income group you belong to?
1 2 3 4 5
Below 18yr 18 – 29 yr 30 – 45 yr 45 – 55 yr Above 55yr

Thank you for your response.