

Psychographic Segmentation of Consumers of Packaged Liquid Milk in Bangladesh

Md. Atiqur Rahman, Ph.D¹

K. M. Sharf Uddin²

M. M. Nasimuzzaman²

Abstract

Global demand for dairy products is increasing dramatically. Different consumers like different types of liquid milk and their preference is largely dependent on their psychograph. Therefore, it is very important for the packaged liquid milk marketers to know the psychographic segmentation of their customers for better position their products. This study is an attempt to explore the psychographic profile of packaged liquid milk consumers and to suggest distinct segments. A multistage cluster sampling technique has been used to collect primary data from 400 respondents from four districts namely Dhaka, Manikganj, Pabna and Rajshahi where 100 people have been selected from each of these mentioned districts. Two market segments with distinct psychographic characteristics were found. One segment is termed as "Positive-Adopters" who prefer busy lifestyle and always like to explore new things and welcome changes while the other segment is termed as Health Conscious who thinks traditionally and have mistrust about technological developments and commercially marketed food products. Therefore, marketers should design separate product offerings and marketing communication for each of the segments.

Key Words: Liquid Milk, Psychographic Segmentation, Consumer Psychograph.

Introduction

Demand for dairy products is increasing dramatically as consumers in developing countries become more affluent (Ishida et al., 2003). Much of this demand growth is driven by growing evidence and awareness that dairy products can provide essential vitamins and nutrients as well as other health benefits (Heaney, 2000; McGill et al., 2008). The demand for milk in Bangladesh is already greater than the current production of 2.7 million tons per year. To meet growing customer demand, the industry would have to grow by more than 10% (Mark, 2011). The advent of Ultra High Temperature (UHT) processing of milk in Bangladesh added a new dimension to marketing of liquid milk that fueled the market growth. Other types available are pasteurized milk, skimmed milk, standardized milk, reconstituted milk and fortified milk. Worldwide, less and less liquid milk is consumed in its raw form (Food and Agriculture Organization of the United Nations, 2021). But how do consumers in Bangladesh perceive these types of liquid milk depends on different psychographic and market issues. Marketers need to know the psychographic profile of the customers and position their products based on the preferences of each of the segments. This research paper uncovers the psychographic variables of the liquid milk consumers in Bangladesh and suggests distinct segments.

¹ Associate Professor, Department of Management, Islamic University, Kushtia, Bangladesh and corresponding author (email: atiq_iuk@yahoo.com)

² Assistant Professor, Department of Management, Islamic University, Kushtia, Bangladesh

Literature Review

Market segmentation is dividing the market into smaller homogeneous groups based on geographic, demographic, psychographic or behavioral factors. Consumers with similar characteristics are divided into groups so that the product-mix suits the segment. Moreover, it is impossible for a company to target all consumers; therefore a company must make a strategic choice. Market segmentation is important in order for a company's marketing strategy to work properly. In this modern age, old traditional class patterns no longer exist and consumers have more income to spend. It is therefore important to divide consumers into segments that are more manageable and based on the needs of the segment (Kotler & Armstrong, 2001).

Market segmentation consists of viewing a heterogeneous market as a number of smaller homogeneous markets, with differing product preferences among important market segments for the purpose of developing better firm strategies. Consumer behavior and predictive preference models can be much more effective when the target audience is split into different customer segments and individually tailored predictive models are developed for each segment, with some of them based on psychographics (Yang et. al., 2016).

Wedel and Kamakura (2012) defined segmentation as "a set of variables or characteristics used to assign potential customers to homogeneous groups". Segmentation is critical because a company has limited resources and must focus on how to best identify and serve its customers. The market segmentation can be conducted on the base of psychographic to achieve better understanding customers and to distribute right products among right people. Psychographic segmentation can determine different classes of social and predict future needs and wants of people as a marketing strategy (Sarli et.al.,2011).

Psychographics is one of the main attributes on which consumers can be segmented along with demographics, geographic and behavioral attributes. Psychographics can provide researchers and managers with more descriptive insights into consumers and their lifestyles (Lesser and Hughes, 1986). Marketing managers informed of reliable psychographic characteristics can more likely predict how consumers will behave in the marketplace and thus be able to build targeted marketing campaigns (Christine, 2010). Mitchell (1994) proposed that lifestyle is a mixture of a personal life and perceived value, whereas value is a synthesis of individual attitudes, beliefs, hopes, prejudices, and demands. Activities, Interests, and Opinions (AIO) is one of the most widely used lifestyle measurement tools.

Psychographic is an approach used to define and measure the lifestyles of consumers. Psychographic segmentation can be based on social class, or personality variables (Kotler and Armstrong, 2007). Many approaches are available to the study of psychographic variables. One of the ways is to study the lifestyle variables by AIO (Activity, Interest and Opinion) inventory for use in segmenting, targeting and positioning. Another lifestyle approach is by using VALS typology introduced in 1978 by the California consulting firm of SRI International (Sathish and Rajamohan, 2012).

Table- 01: AIO Inventory

Activity	Interest	Opinion
Work	Family	Themselves
Hobbies	Home	Society
Social events	Job	Politics
Vacation	Community	Business
Entertainment	Recreation	Economics
Club member	Fashion	Education
Community	Food	Products
Shopping	Media	Future
Sports	Achievements	Culture

Source: Sathish and Rajamohan (2012)

Psychographic variables are used to segment the market because it provides a broad view of consumers. This segmentation can generate identifiable whole persons rather than isolated fragments. Psychographic segmentation begins with people instead of products and classifies them into different life style types, each characterized by a unique style of living based on a wide range of activities, interests, and opinions. (Joseph, 1974). The psychographic segmentation literature confirmed that each market has its own psychographic and demographic variables because of variation of ethnicity and cultures (Sarli and Tat, 2011).

Klaudia K. et. Al. (2015) conducted a study in Slovakia on factors influencing milk consumption and purchase behavior. They found that consumption and purchase of Liquid packaged milk is significantly influenced by some selected psychological and personal factors.

Objectives of the Study

The main objective of this study is to ascertain the psychographic variables of the packaged liquid milk consumers in Bangladesh and suggests distinct segments for better product positioning.

Methodology

The researcher used multistage cluster sampling technique to collect primary data from 400 respondents. Dhaka and Rajshahi divisions are selected randomly and then two districts are also selected randomly from each of the two divisions, which are Dhaka, Manikganj, Pabna and Rajshahi. Finally, 100 respondents are selected randomly from each of the four districts. These respondents are selected using *Mall Intercept Survey* technique, where respondents are selected randomly in grocery stores and super stores while buying packaged liquid milk. Data were collected by survey method using a structured questionnaire. The questionnaire for measuring psychographic profile of consumers was developed primarily based on AIO (Activity, Interest and Opinion) inventory and other psychographic variables discussed in the

literature review. Based on the response to the psychographic questionnaire, Factor Analysis was run by SPSS to do psychographic segmentation of the consumers.

Discussion and Analysis

The questionnaire designed to measure the consumer psychographic profile is intended to measure different aspects of consumer psychograph which were developed by the findings of focus group interview. These aspects are the related to consumers' orientation to technology, social norms, religion, preferred life style, product preferences, etc. A total of 17 statements related to those aspects were presented to the respondents and they were asked to rate all those statement as to what extent they agree or disagree with each of the statements on a five-point Likert Scale, 1=Strongly Disagree and 5=Strongly Agree. Please refer to Table 02 below for the psychographic statements and their coding.

Table 02: Psychographic Variables for Segmentation

Code	Psychographic Variables
A	Purchasing milk is an important decision and so I carefully decide which brand of milk to purchase.
B	I do not buy the same brand of packaged liquid milk all the time.
C	Though technological development is improving our standard of living.
D	I always like to explore new things, though some degree of risk is associated with new things.
E	This is very difficult to assess which of the milk brands available in the market are pure.
F	I prefer to follow traditions of our society, as traditions are built upon long experience.
G	Scientific development is a threat to our world in many ways.
H	Drinking impure milk might have serious health hazards
I	Advertisements give us correct information about the products.
J	I always pay attention to maintain good health.
K	Most of the packaged food products available in the market are not genuine.
L	I prefer to remain always busy with works, a busy life is active life.
M	Technological development is changing our way of living from natural to mechanical.
N	I always welcome changes, because change makes advancement possible.
O	Commercial packaged foods are of good quality as the quality is controlled with great care.
P	I believe religion should play an important role in all aspects of our life.
Q	Whatever the price maybe I would always prefer to buy the best quality milk.

Based on the response of the sample respondents, a psychographic segmentation is done using factor analysis.

Table 03: Descriptive Statistics

	Mean	Std. Deviation	Analysis N	Missing N
A	2.8050	1.45163	400	0
B	3.3100	1.19477	400	0
C	3.3975	1.51003	400	0
D	3.1525	1.48315	400	0
E	2.6600	1.25233	400	0
F	2.6500	1.21292	400	0
G	2.6700	1.20196	400	0
H	2.9575	1.43207	400	0
I	3.0575	1.39968	400	0
J	2.6850	1.29227	400	0
K	2.9300	1.39282	400	0
L	3.3275	1.43366	400	0
M	2.8800	1.26475	400	0
N	3.5150	1.52991	400	0
O	3.1350	1.41130	400	0
P	2.5875	1.22315	400	0
Q	3.4750	.99340	400	0

a. Determinant = 2.500E-009

In the upper half of the correlation matrix we see that the correlation coefficients are not too high ($R > 0.9$), i.e. there is no extreme multi-collinearity and the lower half of the matrix shows all the coefficients are significant. Therefore, the Factor Analysis is applied correctly.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.944
Bartlett's Test of Sphericity	Approx. Chi-Square	7774.198
	Df	136
	Sig.	.000

The KMO value is 0.94, it implies that factor analysis is appropriate for these data. Moreover, the Bartlett's test is highly significant (Sig. 0.00), and therefore factor analysis is appropriate.

Factor Extraction

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.524	67.791	67.791	11.524	67.791	67.791	7.904	46.496	46.496
2	1.002	5.895	73.686	1.002	5.895	73.686	4.622	27.191	73.686
3	.784	4.611	78.297						
4	.679	3.992	82.289						
5	.536	3.156	85.445						
6	.443	2.608	88.053						
7	.398	2.344	90.397						
8	.303	1.783	92.180						
9	.250	1.473	93.653						
10	.213	1.255	94.908						
11	.188	1.108	96.016						
12	.163	.959	96.976						
13	.147	.862	97.838						
14	.134	.787	98.625						
15	.097	.573	99.198						
16	.080	.469	99.667						
17	.057	.333	100.000						

Extraction Method: Principal Component Analysis.

The Total Variance Explained table lists the eigenvalues associated with each factor before extraction, after extraction and after rotation. Before extraction, SPSS has identified 17 factors within the data set. We know that there should be as many eigenvectors as there are variables and so there will be as many factors as variables. The eigenvalues associated with each factor represent the variance explained by that variable and SPSS also displays the eigenvalue in

terms of the percentage of variance explained. So, factor 1 explains 67.79% of total variance. It should be clear that the first few factors explain relatively large amounts of variance (especially factor 1) whereas subsequent factors explain only small amounts of variance. SPSS then extracts all factors with eigenvalues greater than 1, because we instructed SPSS to do so as it is prescribed by the Kaiser's criterion. This comes up with two factors only. However, it can be noted that this criterion is accurate if any one of the following conditions is satisfied:

- i) There are less than 30 variables and communalities after extraction are greater than 0.7
- ii) The sample size exceeds 250 and the average communality is greater than 0.6.

In our case the sample size is 400 and the average communality is 0.737 (Please refer to the Communalities Table below).

The average of the communalities can be found by adding them up and dividing by the number of communalities ($12.526/17 = 0.737$). So, it satisfies the second condition and we can follow the Kaiser's criterion.

We can also use the Scree Plot (Figure-1) in deciding the number of factors to extract. By using elbow criteria, we see that the first two factors can explain most of the variability in data. In other words, the curve begins to tail off after two factors, so we can safely extract two factors.

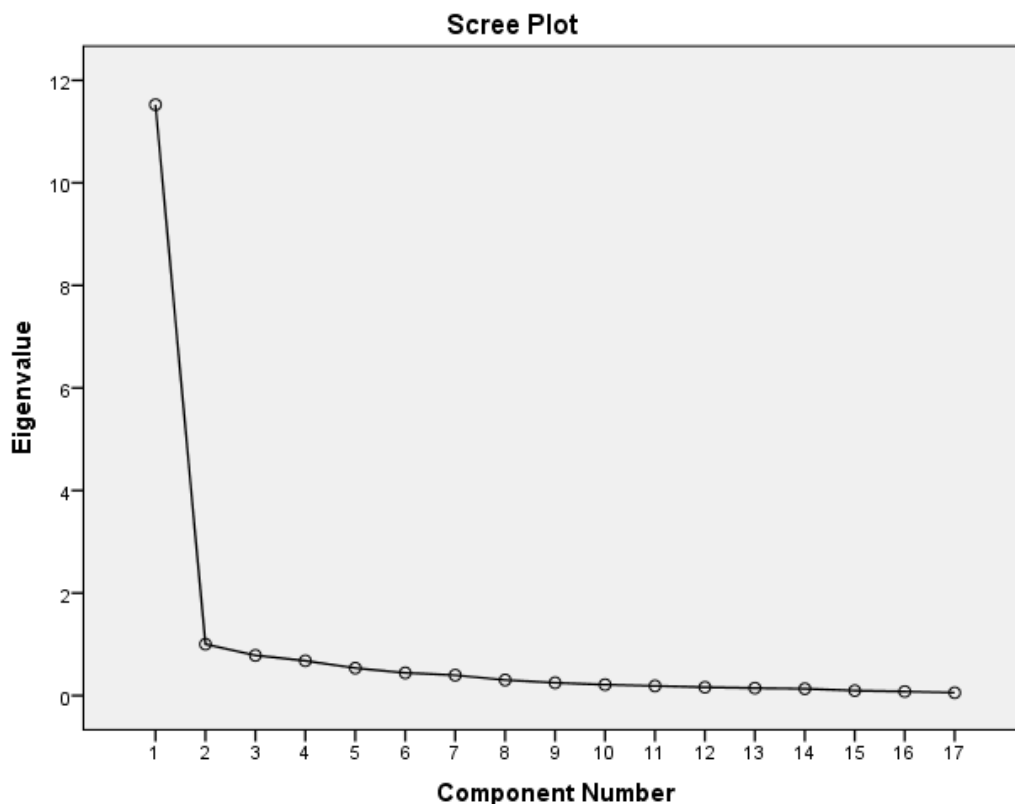


Figure1 Scree Plot of Factor Analysis

These two extracted factors are presented in the columns labeled Extraction Sums of Squared Loadings in the Total Variance Explained table. The eigenvalues associated with these two

factors are again displayed (and the percentage of variance explained) here. The values in this part of the table are the same as the values before extraction, except that the values for the discarded factors are ignored (hence, the table is blank after the fourth factor).

In the final part of the table labeled Rotation Sums of Squared Loadings, the eigenvalues of the factors after rotation are displayed. Rotation has the effect of optimizing the factor structure. For example, before rotation factor 1 accounted for considerably more variance than the factor 2 (67.79% compared to 5.89%). However, after extraction factor 1 accounted for only 46.49% as compared to 27.19% by the factor 2.

Communalities

	Initial	Extraction
A	1.000	.809
B	1.000	.814
C	1.000	.759
E	1.000	.590
F	1.000	.725
G	1.000	.639
H	1.000	.689
I	1.000	.796
J	1.000	.601
K	1.000	.794
L	1.000	.782
M	1.000	.740
P	1.000	.793
Q	1.000	.406
N	1.000	.812
D	1.000	.911
O	1.000	.866

Extraction Method: Principal Component Analysis.

The Communalities table shows communalities before and after extraction. Principal component analysis works on the initial assumption that all variance is common; therefore, before extraction the communalities are all 1. The communalities in the column labeled Extraction reflect the common variance in the data structure. So, for example, we can say that 0.689 % of the variance associated with question H is common or shared. Another way to look at these communalities is in terms of the proportion of variance explained by the underlying factors. After extraction some of the factors are discarded and so some information is lost. The amount of variance in each variable that can be explained by the retained factors is represented by the communalities after extraction.

Factor Rotation

The interpretability of factors can be improved through rotation. Rotation maximizes the loading of each variable on one of the extracted factors whilst minimizing the loading on all other factors. Rotation works through changing the absolute values of the variables whilst keeping their differential values constant. Varimax, Quartimax and Equamax are orthogonal rotations whereas Direct oblimin and Promax are oblique rotations (Field 2005). The exact choice of rotation depends largely on whether we think that the underlying factors should be related. If the factors are independent, then one of the orthogonal rotations should be chosen. On the other hand, if the factors might correlate then Direct Oblimin should be selected. Here, Varimax has been selected, which is an orthogonal rotation. The following Rotated Component Matrix is produced:

Component Matrix^a

	Component	
	1	2
D	-.941	
O	-.920	
N	-.900	
I	-.892	
K	.886	
A	.884	
B	-.871	
C	-.871	
M	.855	
L	-.825	
H	.813	
G	.798	
F	.755	
E	.733	
P	.724	.519
J	.677	
Q	.554	

Extraction Method: Principal Component Analysis.
 a. 2 components extracted.

Rotated Component Matrix^a

	Component	
	1	2
L	.855	
D	.855	-.424
B	.843	
O	.827	-.428
A	-.813	
K	-.775	.440
H	-.757	
N	.755	-.492
M	-.748	.426
C	.723	-.486
I	.708	-.543
G	-.671	.434
P		.845
F		.762
J		.703
E	-.458	.617
Q		.580

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 a. Rotation converged in 3 iterations.

If Rotated Component Matrix is compared with the Unrotated Component Matrix, it can be observed that before rotation most variables loaded highly onto the first factor and the remaining factors become negligible. However, the rotation of the factor structure has clarified things considerably.

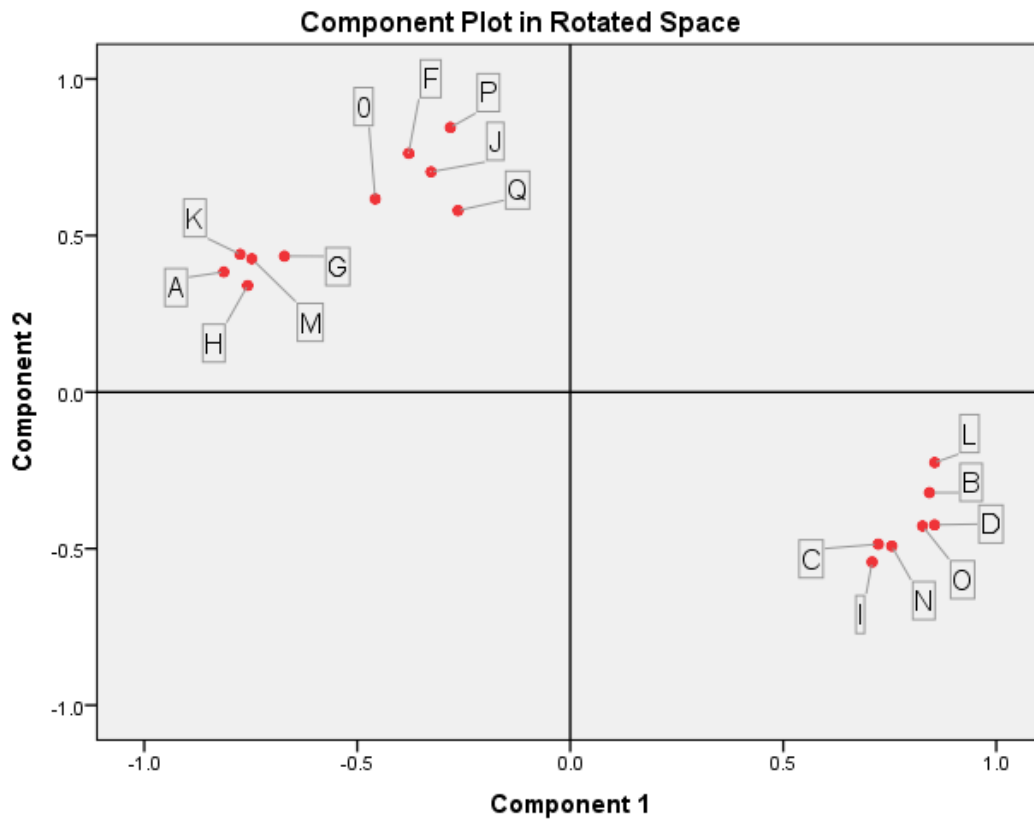


Figure 2 Component Plot of Factor Analysis

The Component Plot in Rotated Space (Figure-2) gives us a visual understanding of the distribution of the statements in the composition of the factors or components. If the content of statements that load onto the same factor is observed, common themes is found. If the mathematical factor produced by the analysis represents some real-world construct, then common themes among highly loading statements is helpful in identifying what the construct might be.

For factor 1, statements L, D, B, O, N, C and I have high positive loads and statements A, K, H, M, and G have high negative loads. Therefore, factor 1 measures the psychographic construct of a respondent who-

- i) prefer to remain always busy with works;
- ii) always like to explore new things and takes risk;
- iii) do not buy the same brand of packaged liquid milk all the time;
- iv) believes that commercially packaged foods are of good quality;
- v) always welcome changes;
- vi) believes that technological development is improving our standard of living;
- vii) trust the advertisers;

- viii) think purchasing milk is NOT an important decision and are less careful in brand choice;
and
- ix) think that most of the packaged food products are genuine.

On the other hand, for factor 2, statements P, F, J, and Q high positive loads and statements I, N, C have high negative loads. Therefore, factor 2 measures the psychographic construct of a respondent who-

- i) believes that religion should play an important role in all aspects of our life;
- ii) prefer to follow traditions of the society;
- iii) is health conscious;
- iv) is willing to pay higher price for the best quality milk;
- v) believes that advertisements do not give us correct information about the products;
- vi) is suspicious about the purity of the milk brands available in the market;
- vii) believes that technological development is changing our way of living from natural to mechanical.

Findings of the Study

The result of factor analysis came up with two market segments with distinct psychographic characteristics. One segment is termed as "Positive-Adopters" who prefer busy lifestyle and always like to explore new things and welcome changes. They have positive attitude towards technological developments as well as packaged foods. The other segment is termed as Health Conscious –Traditional, who thinks traditionally and have mistrust about technological developments and commercially marketed food products. They are very concerned about maintaining good health and are willing to pay higher price for better milk.

Conclusion and Recommendations

This study examines the psychographic profile of liquid milk consumers in Bangladesh. This has been found that there are at least two different psychographic profiles of the consumers. Consumers in one segment are different from the other in their psychological characteristics, whereas consumers in the same segment share the same set of characteristics. Therefore, the marketers should design separate product offerings for each of the segments to increase market acceptance. Also, targeted advertisements may be carried out to persuade the segments. However, further research should be carried out to examine the segment's unique preferences.

References

1. Sarli, A., et.al. (2011). The role of psychographic for distinguishing main categories of consumers based on lifestyle, personality and value variables. *International Journal of Economics and Research*. Vol. 2(4), p 29-34. Retrieved online on February 19, 2021 at <http://www.ijeronline.com/>
2. Christine, P. (2010). *New Approaches to Psychographic Consumer Segmentation: Exploring Fine Art Collectors Using Artificial Intelligence, Automated Text Analysis and*

Correspondence Analysis. Retrived online on February 19, 2021 at <https://www.diva-portal.org/smash/get/diva2:1399516/FULLTEXT01.pdf>

3. Food and Agriculture Organization of the United Nations. (2021). Gateway to Dairy Production and Product. Retrieved on February 18, 2021 from <http://www.fao.org/dairy-production-products/products/types-and-characteristics/en/#:~:text=Liquid%20milk%20includes%20products%20such,to%20make%20other%20milk%20products.>
4. Heaney, R. P. (2000). Calcium, dairy products and osteoporosis. *Journal of the American College of Nutrition*, 19(2), 83-99.
5. Ishida, A., Law, S. H., & Aita, Y. (2003). Changes in food consumption expenditure in Malaysia. *Agribusiness*. 19(1), 61-76.
6. Joseph T. P. (1974). The concept and application of life style segmentation, *Journal of Marketing*, 3, 33-37.
7. Klaudia K. et.al. (2015). Factors Influencing Milk Consumption and Purchase Behavior- Evidence from Slovakia. *Science Direct*. Retrieved on February 19, 2021 at www.sciencedirect.com
8. Kotler, P. & Armstrong, G. (2007). *Principles of Marketing* (11th edi.). Prentice Hall International, Englewood Cliffs, NJ
9. Lesser, J.A. and Hughes, M.A., (1986), "The generalizability of psychographic market segments across geographic locations", *Journal of Marketing*, Vol. 50 No. 1, pp.18-27.
10. Mark, C. (2011). Milking the Poor: How EU Subsidies Hurt Dairy Producers in Bangladesh. Retrieved February 11, 2014 from <http://www.actionaid.org/eu/publications/milking-the-poor.>
11. McGill, C. R., Fulgoni, V. L., Dirienzo, D., Huth, P. J., Kurilich, A. C., & Miller, G. D. (2008). Contribution of dairy products to dietary potassium intake in the United States population. *Journal of the American College of Nutrition*, 27(1), 44-50.
12. Mitchell, V.W. (1994). How to identify psychographic segments: Part 1. *Marketing Intell. Plann.*, 12, 4–10
13. Sarli, A. & Tat, H. H. (2011). Attracting consumers by finding out their psychographic traits. *International Journal of Fundamental Psychology and Social Sciences*, 1 (1), 6-10.
14. Sathish, S. and Rajamohan A. (2012). Consumer behavior and lifestyle marketing, *International Journal of Marketing, Financial Services & Management Research*, 1(10), 241-253.
15. Wedel, M.; Kamakura, W.A. (2012). *Market Segmentation: Conceptual and Methodological Foundation*; Springer Science & Business Media: Berlin, Germany.
16. Yang, J. et. al. (2016). Buyer targeting optimization: A unified customer segmentation perspective, *Big Data*. In *Proceedings of the 2016 IEEE International Conference on IEEE*, Washington, DC, USA, 5–8 December 2016; pp. 1262–1271.

