

CHANGING CONSUMER VALUES AND SHOPPING BEHAVIOUR IN INDIA

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ABSTRACT

Purpose: The purpose of this paper is to provide information about all the needs of shoppers, categorized by age group, such that, any unsatisfied need of any age group can be met. This paper focuses on the consuming aspects of population ageing. We understand that there could be some factors which provide conflicting recommendations for different age groups, and hence, we aim to provide recommendations that would satisfy the requirements of most of the customers at most times of the day.

Methods: The data was collected using structured questionnaire. 200 responses were received out of which 180 were found correct and used for final analysis. An exploratory factor analysis was applied for initial grouping of the factors followed by cluster analysis.

Results: After analysis the exploratory factor analysis four factors were identified – perception, comfort, price and quality and customer service. The authors reached to the conclusion by discussing the results and suggest recommendations/ limitations and further research orientations.

Originality/value: The findings of this research study would help the retail marketers in deciding on the offering as per different age groups and with their relative importance for different factors.

Keywords: Population Ageing, Senior Citizens, Shopping Behaviour, Aged Consumers, Organised Retail, Cluster Analysis.

INTRODUCTION

The organized retail sector is booming in India, and has been termed as one of the sunrise industries of the country. Since organized retail is a fast growing industry, many companies are trying to jump onto the retail bandwagon and take advantage of the opportunity (Joseph, 2019; Mittal & Jhamb, 2016; Jhamb & Kiran, 2012). For doing so, they are trying to be everything to everybody. This policy may provide satisfactory results in the present scenario, however, in the very near future, with the industry maturing; the companies would be forced to provide differentiation. Already, the companies differentiate on the basis of income, with some catering to the masses and some to only the classes. Another important factor on which differentiated service needs to be provided is age. Age is the driving factor for not only different products but also for different services (Shore et al., 2018; Meiners, 2016; Meiners, 2014). That is, the entire shopping experience is different for a young person as opposed to that for a senior citizen (Abdel-Ghany & Sharpe, 1997). And if the malls do not provide appropriate services to these age groups; they are bound to lose out on one or the other target group. A mall provides a shopping experience, as opposed to a product or service that satisfies a need. Hence, while a product needs

to be focused on its target segment and positioning, the same mall can provide different shopping experiences to different age groups. This could be done either by designing different sections of the mall differently, or by designing different experiences at different times of day (Mittal & Jhamb, 2018; Reinecke, 1975). Against this background, the present paper makes the important contribution of discussing ways to combine the two objectives of improving the quality of life of older people and of opening up new market potentials. It provides a particular source of information for a range of people interested in the consequences of demographic development and in the living conditions of the elderly. This paper aims to analyse the overall economic conditions of an ageing society primarily from the perspective of consumption, as there seems to be a dearth of answers to questions on this important economic field. The focus of this investigation of the economics of ageing is on the “*demography-related*” consequences related to the shopping behaviour of older consumers, where the elderly are potential buyers. This paper, above all, deals with the “*silver economy*” in relation to the research area covering various sectors within the economics of ageing. This is still an emerging discipline within the fields of economics and social sciences and also in everyday applications.

LITERATURE REVIEW AND DEVELOPMENT OF HYPOTHESIS

The ascendancy of the shopping mall as a significant shopping, social interaction and/or entertainment destination has had a major impact on retail strategies and the retail landscape in numerous countries, especially the USA (Mittal & Jhamb, 2018). Malls play a major role in consumers' lifestyle (Ahmed et al., 2006; Holbrook & Hirschman, 1982). Stores, food courts, restaurants, cinemas, children's play areas, interactive entertainment, social use areas, relaxation spaces and promotional areas are now major components of any mall (Patel & Sharma, 2009, Terblanche, 1999). They have become not only a centre for shopping but also a community centre for social and recreational activities (Ng, 2003). Since the store mix and product offerings of many regional shopping malls are very similar, often the primary discriminator between many of these centres' is merely location (Burns & Warren, 1995). Making the choice to shop at a regional shopping mall other than the one nearest to one's place of residence, therefore, does not appear to be a logical choice in many instances. Such behaviour, however, appears to be relatively common. Hence, it is necessary to identify the factors apart from location, which draw in customers or drive them out. Consumers' decisions regarding where to shop are based on their attitude toward a store's merchandise mix as well as on the shoppers' own internal orientations, such as motives, needs or values (Meiners & Seeberger, 2012; Meiners et al., 2012; Meiners et al., 2011; Finn & Louviere, 1996; Gentry & Burns, 1978). It is suggested that store image could be defined in the consumers' mind as a combination of the store's functional qualities and an impression of the store's psychological attributes (Martineau, 1958). Considerable research efforts have been directed to identifying important store attributes that constitute store image which affect consumers' store choice and patronage. The store attributes were synthesized into nine dimensions (Dickson & Albaum, 1977; Hansen & Deutscher, 1977-1978; Lindqvist, 1974-1975): merchandising, service, clientele, physical facilities, convenience, promotion, store atmosphere, institutional factors and past transactions.

According to another research, the mall attractiveness variables can be grouped into six factors (Mohammed Ismail El-Adly, 2007). A pleasant shopping atmosphere positively affects the shopping time and the money that customers spend in a store, as well as the emotion of shopping (Michon et al., 2005; Ingene, 1984). A study on the effect of mall music on shopping behavior provides an insight into the effect of such background forces on the consumer. In this

study, it is shown that music; air-conditioning, lighting etc. may act as stressors in the consumer decision making process (Yalch & Spangenberg, 1990). An empirical study suggested that shoppers consider all aspects of shopping efficiency including shopping costs (money, time, and energy) and functional utility (e.g. convenience, low price, a variety of merchandise) and experiential aspects of shopping (e.g. pleasure, prestige) in a specific outlet (Kim & Kang, 1995).

Lack of Research on Senior Citizens

While a lot of research exists regarding consumer behavior and shopping experience, not much of it dwells upon the needs of the elderly. People aged 60 or above have different needs and behaviors than young individuals. (...) Those aged 80 or over also have different needs. (Bloom et al., 2011) one important question is what age to use to categorize senior citizens. Many studies have identified the lower cut-off age as 65, although, in the Indian context, with the retirement age being 60, this would be a more appropriate measure. Also, an individual would normally start planning for his retirement in his 50s.

Need of Research on Senior Citizens in Indian Context

Research on senior citizens in the Indian context is even more restricted (Antony et al., 2010). This is because, till date, the senior citizens have been traditional shoppers, buying necessary items from the nearby stores instead of in malls (Patel & Sharma, 2009). Also, many of them live in joint families with their children, and do not have decision making authority or financial independence. Also, India has one of the fastest growing young populations, and as such, marketers tend to concentrate on this age group (Mittal & Jhamb, 2016; Jhamb & Kiran, 2012). However, the scenario is bound to change, and soon enough. The world's population is changing from a relatively young population in the previous decade to an older one in the twenty first century. Although this demographic shift was witnessed in the western countries a few years back, this phenomenon is currently becoming more evident in Asian countries like China and India (Meiners & Seeberger, 2010).

Rising life expectancy has led to an increase in the overall spending power of the elderly. With the growth of nuclear families, people are saving up for their old age, unlike in the past, when they used to depend on their children for sustenance during old age. Indians are becoming more and more individualistic and consumerism driven (Mittal & Jhamb, 2016; Jhamb & Kiran, 2012). Such people would not go back to being supported by their children, once they grow old in a few years' time. It is already established that senior citizens prefer to spend from their own economic ability rather than that of their children or government support (Benet & Newman, 1989). Hence, in some years, we are going to have a large chunk of population in the middle age and senior citizens category, which would have high spending power and shopping needs different from those of the youngsters. The silver hair generation will be the most important target and consumer group of the coming decades because it is independent financially and in terms of time (Meiners, 2016).

Demographics of India

According to the latest report of United Nations Population Fund released in 2019, the number of senior citizens has been growing at a faster pace and this trend is likely to continue further. The share of population more than 60 years age is forecasted to grow from 8 percent to

approx. 20 percent in 2050. India continues to be in the middle of its demographic transition. It would constitute 9% of the total population by 2016. Scientific and medical breakthroughs could dramatically increase life expectancy, and increase this percentage even further (Goeldner & Munn, 1964). The spending of consumers over the age of 60 is expected to rise faster than in any other age group, fuelled by a more educated and affluent generation turning older (Euro monitor, 2004). Marketers need to anticipate these trends and prepare for the consequences (Jhamb & Kiran, 2012; Leventhal, 1997). Products and services need to be geared to the needs and wants of older consumers. If the needs of the older market are not being fully served currently, and if the segment is substantial and profitable, the marketer may choose to offer new products targeted at older consumers, a niche strategy. Offerings could be for instance, refurbished bathrooms with handrails for the elderly, special tour packages for the retired, cosmetics, healthcare, retirement homes, and pension funds (Schmidt-Ruhland & Knigge, 2011).

Research Comparing Shopping Needs across Age Groups

Research articles that compare shopping behavior and experience of different age groups are very limited. Much of the research has been uni-dimensional; it deals with the shopping preferences of the senior citizens in isolation. A comparative study with the younger population is required to identify the special needs if any and generalizability of the marketing approach. We need to study whether the preferences actually differ from those of the younger population or not (Abdel-Ghany & Sharpe, 1997). In the purchase process, retail marketing strategies must consider the in store buying behavior and the influence of non-product benefits that are important to the elderly, such as physical comforts and protection from victimization (Mittal & Jhamb, 2016). There could be variation amongst the old and the young consumers across shopping pattern, price consciousness, type of stores preferred, buying behavior of certain types of foods, transportation and procedural aspects (Patel & Sharma, 2009). According to some research, old consumers enjoy shopping and are more likely to be personalizing shoppers, they shop more often in departmental and local kirana stores where they are known and search and shop less frequently and use fewer stores than younger shoppers, hence it would be more difficult to attract than younger shoppers but once attracted, they would be loyal customers. Some authors reported that older consumers formally complain about unsatisfactory consumer practices while some other found that they were less likely to complain than the overall population because their past experiences led them to believe that little action would be taken. Hence research needs to be conducted to find out the evidence in the Indian scenario (Tongren, 1988).

Hypotheses

On the basis of literature review and the purpose of the study, hypotheses were formed, which the research will try to prove or disprove.

H1: The in-store behaviour of the old differs from that of the young for some store attractiveness factors.

H2: The in-store behaviour of the old is similar to that of the young for some other store attractiveness factors.

H3: There are some factors on which consumers of all age groups are dissatisfied.

Methods

Based on a literature review of existing literature on the senior citizen market, we identified a set of hundred factors which even remotely affect the buying behavior of the shoppers in a mall. Out of these hundred factors, there had to be defined set of say 20 odd factors which would be of relevance to our study. The idea was to explain maximum variation in the purchase behavior with the help of independent variables X_i 's. So a preliminary study consisting of the exhaustive questionnaire was conducted.

Based on the results of this study the core set of twenty factors were identified which were proven to be relevant. These factors were broad influencers in the shopping behaviour of the mall shoppers. This set of factors was explaining more than eighty percentage of the variation in the shopping behaviour. The core set was as follows:

1. Lighting
2. Air-conditioning
3. Fragrance
4. Background music
5. Rates of parking and other such services (high prices mean poor rating)
6. Adequacy and usefulness of directional signs
7. Proper drinking water and toilet facilities
8. Space to walk and move the trolley
9. Sufficient seating arrangement
10. Items I want to buy are easily within my reach, without having to bend or stretch much
11. Reputation of mall
12. Respect shown by mall staff
13. Salesmen accompany for picking up things and putting in basket
14. Salesmen actively mention special discounts
15. Adequate attention to customer complaints
16. Waiting time at billing counters (Long time means poor rating)
17. Ease of returning sold items at malls
18. Frequency of discounts
19. Special discount schemes for senior citizens
20. Easy visibility of price tags

In the final questionnaire there were ten main variables which were further broken down. Question 1 pertained to importance ratings for the 10 main variables. Question 2 contained variables related to the items of the previous question. There were 200 respondents participating in the study. They belonged to SECs A and B. After data cleaning, there were 30 respondents per grouping of 10 years, that is, 15-25 years, 26-35 years, and and so on. Thus, 180 (90%) responses were used in the final analysis. The survey was conducted in the city of Hyderabad which is a Tier I city of India, and one of the foremost destinations of the organized retail sector. It figures amongst the 6 metro cities of India, viz, Mumbai, New Delhi, Kolkata, Chennai, Bangalore and Hyderabad. Care was taken to ensure that all respondents had prior mall experience and that they were physically able to visit a mall. Also, all the questionnaires were filled in the presence of the research associates so that any doubts or queries regarding the questions could be addressed then and there, rather than letting responses to be based on guess work. This also ensured that the responses could be filled not by proxies, but by the valid candidate.

In most cases, not more than one questionnaire was given per household. This ensured that the response of one member in the household does not affect the response of another

member of the household. Then analysis was conducted using SPSS and Microsoft Excel. Also, many qualitative inputs from respondents during the filling of the questionnaire were taken into account for the final recommendations.

Cluster Analysis

After factor analysis was conducted and variables were categorized according to factors, cluster analysis was done on the cases with the variables of each factor being the independent variables. K-means algorithm was used for clustering. The appropriate number of clusters was chosen based on the filter parameter that each cluster should contain at least 10% of cases of the entire sample. Thus, cluster analysis was conducted 4 times, once for each of the factors. A table was made with number of cases belonging to each cluster categorized to age group. Thus it could be seen whether clusters were being formed according to age or whether the cases of a cluster were spread throughout all age groups. The former would give an indication that this particular factor had variable requirement from different age groups.

DATA ANALYSIS AND INTERPRETATION

Factor Analysis

First, factor analysis was conducted on the twenty attributes of Question 2. The data was submitted to a principal components factor analysis with a varimax rotation. Using an eigen value greater than 1, four uncorrelated factors emerged, that explained approximately 62% of the variance. The factors are as shown:

Factor	Variable
Factor 1 Perception	Lighting
	AC
Factor 2 Comfort	Fragrance
	Background Music
	Adequacy and usefulness of directional signs
	Space to walk and move trolley
	Sufficient seating arrangement
	Waiting time at billing counters
Factor 3 Price and Quality	Items are easily within reach
	Reputation of Mall
	Rates of parking and other such services
	Special discount schemes for senior citizens
	Easy visibility of price tags
Factor 4 Customer Service	Respect shown by Mall staff
	Salesmen accompany for picking up things and putting in basket
	Salesmen actively mention special discounts
	Adequate attention to customer complaints
	Ease of returning sold items at malls
	Frequency of discounts

The first factor can be termed as Perception. This is because it consists of lighting and AC. We believe that these are variables which have more of a psychological impact on the respondent. The questionnaire was filled by the respondent at home, and as such, the scores were given based on his/her prior perceptions. Hence, there is some scope for doubt. At the same time, it should be noted that since these variables affect the perception of customers, even slight discomfort caused could have a lasting impact on the respondent (Mittal & Jhamb, 2016; Holbrook & Hirschman, 1982). For example, if a regular visitor to a mall experiences discomfort due to harsh lighting or an over efficient AC, that is the perception that he would carry with him regarding that particular mall. Hence, it is imperative that these comfort factors should be at the optimum at all points of time in Appendix (Table A, Table B, Table C, Table D and Table E).

The second factor can be termed as Comfort. Fragrance, background music, directional signs, space to walk and move the trolley, sufficient seating arrangement and waiting time at billing counters contribute to the level of comfort of the shopper while shopping. If there is harsh music playing, a shopper may get distracted and may even forget the items that he wanted to buy (Mittal & Jhamb, 2016; Holbrook & Hirschman, 1982). Insufficient space for walking, insufficient seating, large waiting time at billing counters, all give the perception of a large crowd. Many people are uncomfortable in large crowds, particularly when they have a mission to complete, like stocking up on their groceries, etc. If they have to walk about too much without getting a chance to relax, they would definitely feel physical discomfort. Large waiting time at billing counters does not only discomfit people physically but also mentally, since they start getting more and more irritated. And one irritated customer can make everybody else around him irritated as well, leading to multiplying effect. Fragrance should be good, particularly in a country like India where people have the tendency to sweat. In an enclosed space like a mall, if the fragrance is not good enough, smells of sweat, urine near the toilets etc. could have a highly negative impact on the shoppers and discomfit them a lot. Directional signs should also be proper, because many people dislike asking for help and would find it awkward and discomfiting to keep asking the salespersons where particular items were kept (Michon et al., 2005). Thus, we can see that this factor is highly important in retaining customers. The variables are such that they cannot be bragged about in advertisements. However, once customers are inside the mall, and find these comfort factors to their level of expectation, they would want to come back again and again to that mall. Also, promotion of the mall would be through word of mouth advertising.

The third factor is Price and Quality. It consists of the variables Reputation of the mall, rates of parking and other services, special discount schemes for senior citizens and easy visibility of price tags. The reputation of the mall is a direct reflection of its overall quality perception. The reputation is unrelated to the prices of its products, discounts etc. Rather, it would be dependent on several factors like respect shown by the staff, entertainment value to the customers, number of stores in the mall, cleanliness of the facilities, comfort level of shoppers, such as feeling of security amongst the female shoppers, etc. (Michon et al., 2005). Many shoppers go to new malls based on suggestions of friends and relatives (Meiners et al., 2010). As such, the reputation of the mall plays a big role in such suggestions (Mittal & Jhamb, 2016; Holbrook & Hirschman, 1982). Shoppers are influenced by peers, who are in turn, influenced by reputation and their own experiences (Meiners et al., 2010). Hence, the mall should promote itself as a shopper friendly and customer friendly place where families can come and have a good time. Items related to price like parking rates, discount schemes for senior citizens also affect the number of shoppers that enter a mall. Though these prices have to be according to the

competition and nothing much can be done by the mall management, yet, the perception related to pricing can be changed. Schemes should be developed such that the customers do not feel cheated. If a person is parking his vehicle for 1 hour, he should not be charged for 3 hours just because that is the smallest block of time for which a parking ticket is to be charged. Discount items in a store could be spread out throughout, giving the perception of many items being sold on discount. Senior citizens can be offered special loyalty cards with better schemes than those on the regular loyalty cards (Michon et al., 2005). Apart from these changes to perception, effort should be made to lower the rates as much as possible via better operations, long term relationships with suppliers etc. Because, in the long run, price is a major factor on the basis of which all malls would be competing. Easy visibility of price tags also comes under this factor because people are sensitive about price and would not like to ask the price of an expensive looking item to a salesperson. Rather, when in doubt, they might just leave the item and move ahead, carrying with them the perception that that item was expensive.

The fourth and last factor is Customer Service Table 1. This factor consists of respect shown by the mall staff, accompanying salespersons for help in shopping, salesmen actively mentioning special discounts, adequate attention to customer complaints, ease of returning sold items at malls and the frequency of discounts. Frequency of discounts is an ambiguous variable in this category. It is here because the frequency of discounts gives a user friendly tag to a mall or store. If a mall has a reputation for quality and yet, gives frequent discounts, this could suggest that the mall cares for its customers and wishes to share its profits with them (Mittal & Jhamb, 2016; Holbrook & Hirschman, 1982). Apart from this, all the other variables directly point to the importance of well-trained and well-behaved salespersons and other employees. Many people believe that the mall or store staffs do not actively mention the discounts and the customers themselves have to look out for the discounts or else be cheated into paying the full price. Also, many malls do not have a highly visible and active area for customer complaints. Many do not even have an active policy on return of sold goods. This perception needs to be changed. Many times, simply listening to the customer's complaint can win him over. And it is well known that a customer whose complaint is actually resolved becomes the most loyal brand ambassador of that brand. Hence, reception of complaints and visibility of the locations for doing so should be increased (Michon et al., 2005).

Next, using each of these factors, cluster analysis was done. For each cluster analysis, all variables belonging to a factor were used. The aim was to identify those factors where variation existed according to age. We look at each factor in detail and try to identify those where special attention needs to be given. We also look at variables where a particular age group may be dissatisfied and try to come up with solutions to the same.

Factor 1 - Perception

Factor 1 consists of lighting and AC. As mentioned above, these variables have a long term psychological impact on the customer (Mittal & Jhamb, 2016). For example, if the person has experienced dull lighting in the mall once or twice, whenever the name of that particular mall crops up in front of him, he would be reminded of a dull atmosphere and hence, he would be reluctant to go there a second time. Even if the lighting is increased later, the perception may linger. Hence, it is imperative to get the variables of this factor correct the first time itself, and to be consistent about them.

From the graph, we can see that AC gets a score between 3.5 and 4.5 across all age groups. Even during qualitative discussions, many respondents said that they mostly found the

AC working at an optimum temperature. However, during peak hours, with too many people milling around, the AC should be turned up a notch. We also see that there are no changes in perception across age groups.

With lighting on the other hand in Figure 1 the lower age groups of 15-25 and 25-35 seem to be less satisfied than the older age groups. There are two reasons for this. The older people may be having lower expectations, as is suggested in literature. Or, the younger people, who like loud music, fast foods, etc. may require more lights to brighten up the place. For them, malls are a place of entertainment as well, and hence, they would like to see the place more bright. As such, the lighting should be made slightly better, more so, in many nooks and corners of a mall, which are no store’s responsibility and hence tend to be neglected by the staff.

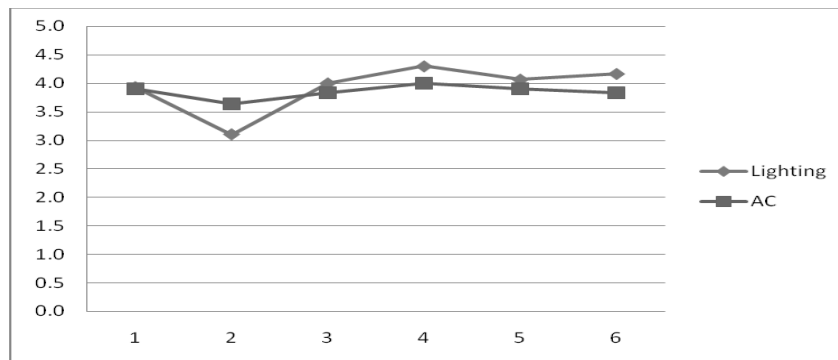


FIGURE 1
VARIATION ACROSS AGE GROUPS FOR VARIABLES IN FACTOR 1

Using each variable of this factor, cluster analysis was done. As we can see, each cluster has a separate age group. However, in all, these cover only 53% of the cases in Figure 2. Hence, we can say that the clusters are not very well defined. This implies that for this factor, satisfaction and dissatisfaction are similar across all age groups. This reinforces what was discussed above.

	Cluster 1	Cluster 2	Cluster 3
1		18%	
2			14%
3			
4	21%		
5			
6			

FIGURE 2
CLUSTER ANALYSIS OF AGE GROUPS USING VARIABLES INCLUDED IN FACTOR 1

Factor 2 – Comfort

As mentioned above, this factor relates to the comfort of the customer inside the mall (Mittal & Jhamb, 2016; Jhamb & Kiran, 2012). As seen from the graph Figure 3, space to walk and move the trolley and sufficient seating arrangement score low amongst the respondents. The senior age groups give a relatively higher score for seating arrangement. This is because in India, respect is shown to the elderly and usually, youngsters get up and offer their seats to them if they find older people standing nearby. Both these variables should be looked into, and sufficient space should be provided for seating and moving about. Items meant for elderly people could be kept in separate sections, and more space should be provided in these sections.

Fragrance and background music varies across all age groups. This is because everybody has a different liking in these variables, and everybody's need cannot be satisfied at the same time. However, it is observed that the youngsters and the elderly have different times of visiting malls. Usually people visit malls in the morning for shopping for necessary items like grocery, etc. and in the evening for entertainment and luxury items. Usually the working class does the grocery shopping while both youngsters and senior citizens have more relaxation time. Hence, according to who visits malls at what time of day, the fragrance and music could be varied.

The waiting time at billing counters has a very low score. This score is uniform across all age groups. It has been observed that many times, people leave a fully loaded cart and get out of the store after getting frustrated at waiting at the counter. To solve this, variable number of counters should be maintained, with more counters working during peak hours. Also, the most irritating thing while waiting is people who try to slyly enter at the midpoint of a queue. This angers everybody standing behind that point and gives rise to much heated arguments. Hence, the queuing area should be well designed to avoid such instances. TV screens, advertisements etc. should be put up near the counters to keep the customers occupied.

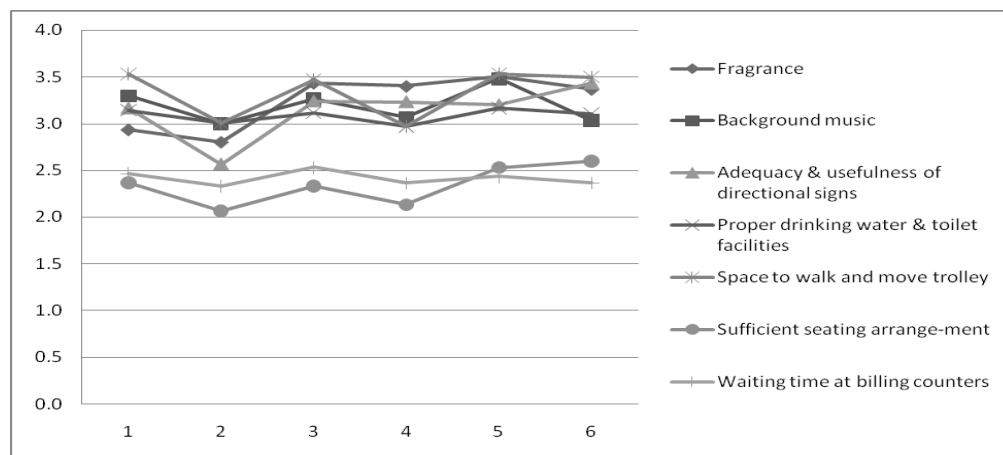


FIGURE 3
VARIATION ACROSS AGE GROUPS FOR VARIABLES IN FACTOR 2

The adequacy and usefulness of directional signs varies between 2.5 and 3.5 and has a lower score for the younger age groups. This is because younger people are more hesitant in asking for directions as they feel that they have an image to maintain. The elderly may not have as much compunction and hence find the available signs slightly more sufficient. However, there is scope for much improvement in this variable. The signs should be prominent and to the point.

They should be located in highly visible places, and should not be moved about from time to time. Signs explaining the layout of the entire mall and the stores within should also be displayed to keep people from feeling lost and confused.

Drinking water and toilet facilities also score low. Even if drinking water is provided, its purity may be in doubt. Hence popular water purifiers should be used and should be well-displayed to gain the trust of the people. Many times, even though a water cooler is available, glasses may not be kept. Such overlooking of minute details brings down the reputation of the entire mall. The toilets should also be cleaned properly and regularly.

Cluster analysis was conducted using all variables of this factor, but no visible clusters were found according to age. This is because all the variables score low amongst all the age groups, and any mall trying to retain its customers should give special emphasis on improving all of them.

Factor 3 – Price and Quality

Reputation of the mall scores high because people usually visit the malls that have a good reputation (Mittal & Jhamb, 2016). The middle age groups give a slightly lower score to the reputation of the malls that they visit. This is because, they belong to the working class and visit malls for buying necessities. Hence, they select malls that provide better or cheaper items rather than those that have a good reputation. Hence, malls that want to attract more customers should build and maintain their reputation. But at the same time, they need to focus on other variables of price and quality as well.

Again, the middle age groups give a much lower score to items being within their reach. This is because they buy many more items for the entire family, whereas youngsters and senior citizens mostly buy products for themselves. Another related variable came out from qualitative discussions, where many people complained that in large grocery store formats, the items were moved about frequently. For example, soaps could be in one place one day and in some other place another day. This gives unnecessary hassle to the shoppers and the perception of the quality of the store goes down. Hence, items should be kept in neatly categorized and well publicized locations and should not be moved about frequently. Also, further research could be conducted on what all items different age groups of people buy, and all such items could be stocked together, to prevent the hassle of moving about too much. For the elderly people, products should be kept within arm's reach so that they do not have to bend down or stretch too much to pick up something. Parking rates and rates of other related services are found to be higher by the youngsters and by the elderly. This is because both these age groups have relatively lesser income than that of the middle age groups. Hence, special rates could be imposed for such age categories. For example, rates could be lowered on the production of a student id or a senior citizen's card.

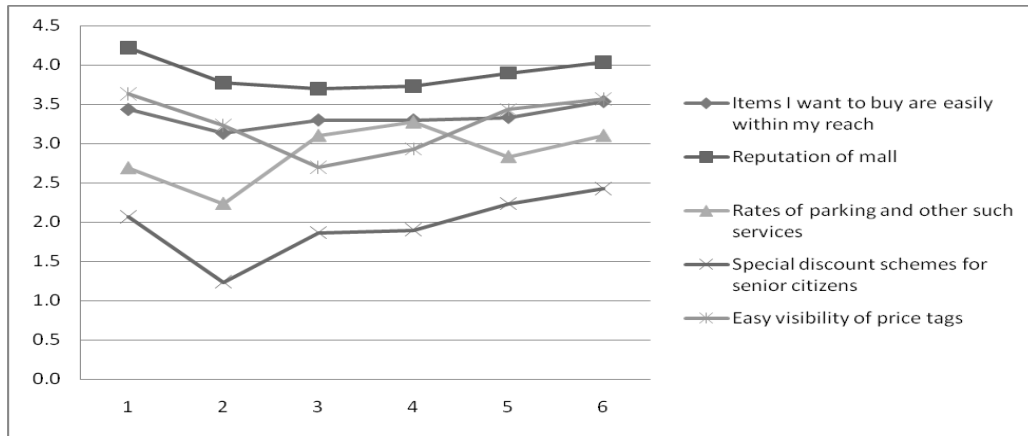


FIGURE 4
VARIATION ACROSS AGE GROUPS FOR VARIABLES IN FACTOR 3

Very surprisingly, discount schemes for senior citizens gets a lower score amongst the lower age groups in Figure 4. This may be because of the perception that a mall does not treat its elderly customers with the respect that is due to them. This is very harmful for the reputation of the mall. Hence, not only should senior citizen discounts be given, these should be promoted as well. Assuredly, nobody would complain about such discounts, and they would even look forward to visiting the mall when they themselves grow old. The visibility of price tags is also low and should be improved.

1			20%
2			
3	8%		
4			
5		12%	
6			

FIGURE 5
CLUSTER ANALYSIS OF AGE GROUPS USING VARIABLES INCLUDED IN FACTOR 3

From cluster analysis, it can be seen that three distinct clusters based on age are being formed. These can be classified into youngsters, middle aged and elderly in Figure 5. As seen from the discussion above, these three age groups have distinct perceptions vis-à-vis the variables pertaining to this factor. Although, together they constitute only 48% of the sample set, the remaining data points are spread evenly across clusters, and some do not fall in any of them. Also, since these clusters are reinforcing the findings from other analysis, they are being given the benefit of doubt.

Factor 4 – Customer Service

As expected in India, the variable “*Respect shown by mall staff*” increases with age. This is because Indians inherently respect their elders (Mittal & Jhamb, 2016). However, in a business environment, it is not wise to antagonize the youngsters and show them less respect (Abdel-Ghany & Sharpe, 1997). Even if they do not have as much earning power as the working class, they have future customer value. Hence, respect should be shown to them as well. Salespersons do not accompany the customers for help in shopping, as shown by the scores. Again, the youngsters are the ones who suffer the most. It is true that the customers should be left alone to make their choices at a leisurely pace. However, salespersons should be nearby to help them in case of need. The salespersons should also be well-trained to gauge when a customer is in need of help and yet hesitant to ask for it. They should be proactive in offering their help, yet, they should have the sense to stay away when customers want to browse around without help.

The middle age groups give a low score to the salesmen actively mentioning discounts. This is because, as mentioned above, they are the working class, and shop for the entire family. As such, they would like to make savings whenever possible, and feel irritated and cheated when the salesmen fail to mention any discounts to them. The age group of 25-35 years does not have this problem because they would have recently started earning and would not mind paying a little more. Overall, the discounts should be announced to the customers either via the salespersons or via a public address system. The customers should never get the feeling that they have been cheated by the store or mall.

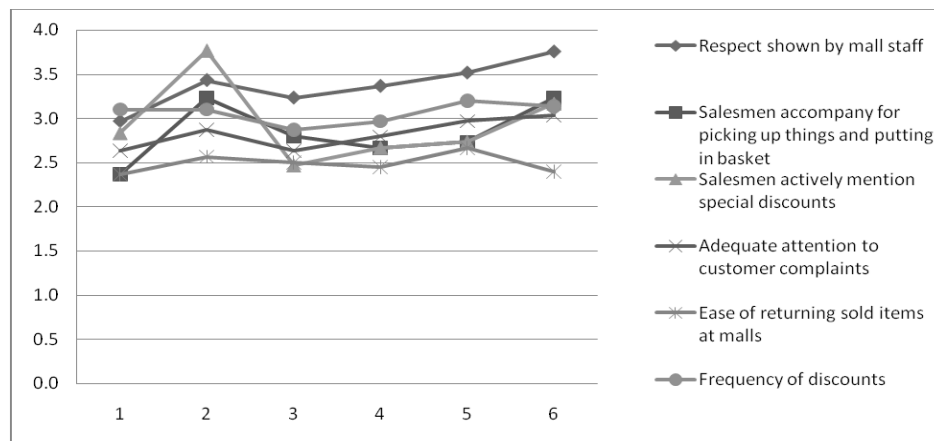


FIGURE 6
VARIATION ACROSS AGE GROUPS FOR VARIABLES IN FACTOR 4

Adequate attention to customer complaints gets a low score amongst all age groups in Figure 6. In most malls, the customer desk is either non-existent or discourteous and unhelpful. This situation should be changed. Just by listening to the complaints patiently, the customer can be calmed down. And if possible, his complaint should be resolved as soon as possible. A pacified customer would become very loyal to that mall, and would even promote the mall by word of mouth advertising.

The ease of returning sold items also scores quite low. This is because many malls do not have an active policy on returning sold goods, and if they do, they do not publicize it well. If such a policy exists, it should be made aware to the customer. And the staff handling the return

or exchange of goods should remain courteous so that the customer is not hesitant in making use of the policy. It has been found that even when such a policy exists, very few people actually make use of it. But the policy goes a long way in establishing trust and goodwill amongst the shoppers.

The frequency of discounts scores average points across all age groups. Discounts have to be handled cautiously, as too many discounts may give the perception of low quality. If discounts are offered, the quality of the products should also be emphasized upon. Special discounts based on age or gender etc. could be offered, which would not affect the quality perception negatively. Cluster analysis did not provide any clear clusters based on age. Because apart from a few variables, the other variables have similar scores across all age groups. Thus, the recommendations given should be implemented for increased benefits to all customers.

Importance Ratings

Ranking in order of importance were given by respondents to 10 important variables that determine the choice of shopping mall that customers visit. Taking average rankings for each age group, the following table was constructed in Table 2, with items in order of decreasing importance for each age group. Based on the target group, malls could decide what to focus on, in order to draw in more customers.

As we can see, type of products is one of the most important variables for any age group. However, while the reputation of the mall is more important for the higher age groups, the youngsters rank it lower, perhaps because they are more open to experimentation and would like to see the mall for themselves rather than go by reputation. The third important variable across all age groups seems to be customer service. No one likes a discourteous staff at the mall. Unfortunately, customers come across badly behaved staff in many places. Hence, this could be a clincher for any mall that trains its staff to behave properly and courteously and to be helpful to the shoppers. For group 3, which is the 35-45 age groups, customer services take lower priority than store environmental factors and discounts and promotions. As mentioned earlier, this is middle aged group, where shoppers buy items for the entire family. Hence, they would prefer discount items, as well as good shopping environment, where they are not put to any unnecessary stress. For them, the shopping experience is of least priority. Hence, for them, shopping should be made more convenient. Conveniences like drinking water, toilets etc. rank higher for the older age groups as well as for the very young. The elderly people would obviously prefer places that provide conveniences, as they would be much less tolerant of the absence of such facilities. The youngsters would also prefer conveniences for they might spend a lot of time in the mall, just doing window shopping and roaming around with their friends.

1	2	3	4	5	6
Type of products	Customer services	Type of products	Type of products	Type of products	Type of products
Customer services	Type of products	Reputation of mall	Reputation of mall	Customer services	Reputation of mall
Conveniences	Recommendation of friends	Store environmental factors	Customer services	Reputation of mall	Customer services
Discounts and other product promotions	Related items	Discounts and other product promotions	Conveniences	Discounts and other product promotions	Conveniences

Reputation of mall	Eagerness and ability to resolve complaints	Customer services	Discounts and other product promotions	Conveniences	Store environmental factors
Recommendation of friends	Reputation of mall	Recommendation of friends	Store environmental factors	Eagerness and ability to resolve complaints	Discounts and other product promotions
Shopping Experience	Store environmental factors	Eagerness and ability to resolve complaints	Related items	Store environmental factors	Shopping Experience
Store environmental factors	Shopping Experience	Conveniences	Eagerness and ability to resolve complaints	Shopping Experience	Recommendation of friends
Eagerness and ability to resolve complaints	Conveniences	Related items	Shopping Experience	Related items	Related items
Related items	Discounts and other product promotions	Shopping Experience	Recommendation of friends	Recommendation of friends	Eagerness and ability to resolve complaints

Discounts and promotions rank high for all age groups, except for that of 25-35 years, as these are the people who have recently started earning and hence, do not mind spending slightly more, if they can get other benefits. For this age group, friends' opinion also matters, as they might be constantly comparing themselves to their peers. For other age groups, recommendation of friends takes a lower rank. This age group would also prefer somebody to listen to and take action on their complaints. The elderly people do not put much importance to this, probably because they have become wiser and feel that the staff people are not going to listen to them in any case. The youngest group also ranks this lower, perhaps because they do not have too many complaints in the first place.

Shopping experience ranks low for all age groups, and lowest for the 35-45 brackets. This implies that even if shopping experience were important to people, they would not go to a place that scores lower on other items like products, service, conveniences, discounts, etc. however, if a place already scores high on the other variables, it could draw in more customers by focusing on providing a better shopping experience.

Related items like parking rates, etc. actually have a low rank. Hence, if the malls are able to provide other desired things mentioned above, they could charge more for these related items and make money out of it. The customers would still come. Modern-Retail Model for Segmenting, Targeting and Positioning in Figure 7.

Cognitive age has been known to influence the shopping behaviour of an individual by influencing the self-perception and the attitude; while actual age influences the motivation behind shopping. Together these influence the shopping preferences and provide vital clue to retailers while developing their Segmentation, Targeting and Positioning strategies.

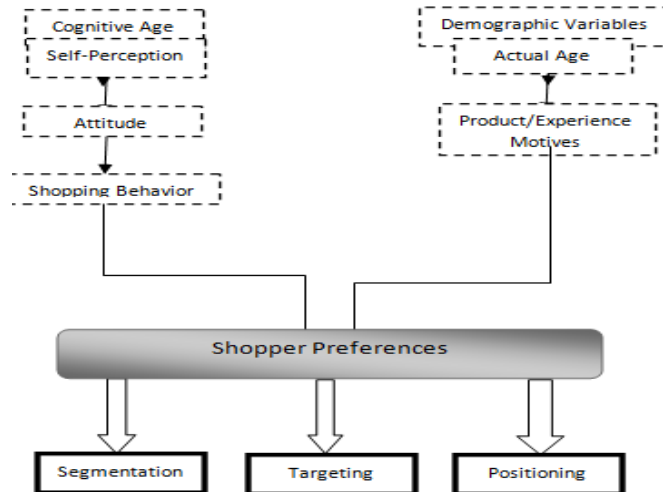


FIGURE 7
MODEL FOR STP BASED ON VARIABLES THAT AFFECT SHOPPING
PREFERENCES OF CUSTOMERS

RESULTS AND DISCUSSION

We have looked at importance ratings and ratings of shopping preference variables. Variables were identified where the preferences change according to age and where they do not. We also saw that some variables score high across all age groups. These are the points of parity that any mall hoping to draw in customers should have. Then there are unsatisfied needs like proper seating arrangement, etc. that, if provided, will provide the malls with points of difference, to draw in customers from their competitors. If a mall is focused on any particular age group, they should provide all facilities that this age group needs. On the other hand, if the mall wishes to be the shopping destination for all age groups, they should follow most of the recommendations provided. The recommendations provided are not contradictory in nature, and all of them could be followed at the same time, for maximum benefits. However, in order to decide priorities, importance ratings are provided, and the recommendations pertaining to the most important variable should be followed first, and so on.

CONCLUSION

Limitations and Future Research Orientations

The above research brings out the current perception of malls which people have and also gives an insight into their preferences. We have seen how the above factors change with respect to age. Given that India is such a big and varied country, the results could vary slightly in terms of location, culture, etc. (Mittal & Jhamb, 2016; Jhamb & Kiran, 2012). Since the survey was conducted in one place, the results could be biased to that particular area. Hence, the study should be expanded to other areas as well, to get a more comprehensive picture and to note down the differences, if any, that may arise.

Future research can go deeper into each and every variable or factor, and try to identify how these are affected by various factors in an individual's life. Stress can be laid on keeping all factors except one like age, constant and then trying to identify how these vary across age

(Reisenwitz & Iyer, 2007). Effects can be measured by varying other probable factors like: Household income, Family structure (nuclear or joint), Sex (male/female), Psychographic variables, Type of store and Cultural variables, etc.

Though the research measures a specific aspect of consumer behaviour in the malls, it can be narrowed down to go deeper into each of these specific categories to get confirmatory results. The direction provided by the results can be useful in getting a deeper understanding of shopper preferences in a mall scenario, so as to make future research more and more effective, especially since a large amount of transactions is going to take place in malls in the near future, not only by the younger population of India, but also by the elderly who have a huge buying potential, as much research in India and abroad has shown.

In order to allow demographic change to provide benefits for all generations, senior marketing must in the future intensively deal with the following research questions:

1. What are the future customers segments?
2. Where could changes take place in the consumer behavior of older buyers?
3. What distribution channels are appropriate for older people?
4. What should the range of products and services be like in future?
5. What are the value-creating and business models of the future?

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APPENDIX

	Component			
	1	2	3	4
VAR00006	0.791	-2.788E-03	0.255	8.124E-02
VAR00007	0.726	0.352	0.302	7.881E-02
VAR00008	0.709	0.252	0.112	0.241
VAR00004	0.695	6.676E-02	-4.712E-02	0.306
VAR00003	0.691	-5.658E-02	0.113	0.473
VAR00009	0.633	0.444	0.172	0.185
VAR00016	0.507	0.368	0.257	1.499E-02
VAR00014	1.785E-02	0.864	5.532E-02	-4.804E-02
VAR00015	0.109	0.818	9.769E-02	0.254
VAR00013	0.228	0.789	0.151	-5.040E-02
VAR00012	0.365	0.734	0.106	-7.758E-02
VAR00018	4.014E-03	0.584	0.278	0.332
VAR00017	-0.187	0.415	0.376	0.389
VAR00020	5.387E-02	0.342	0.720	1.734E-02
VAR00010	0.300	0.342	0.614	-6.104E-02
VAR00011	0.503	-0.124	0.591	-5.737E-02
VAR00005	0.308	-2.891E-02	0.522	0.288
VAR00019	0.134	0.342	0.460	0.383
VAR00002	0.280	6.544E-02	-5.704E-02	0.787
VAR00001	0.341	1.353E-02	0.135	0.752

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 9 iterations.

Case Number	VAR00003	Cluster	Distance	Case Number	VAR00003	Cluster	Distance
1	1.00	1	0.444	91	3.00	3	0.275
2	1.00	2	0.400	92	3.00	3	0.736
3	1.00	2	0.400	93	0.00	0	0.000
4	1.00	3	0.736	94	4.00	2	0.400
5	1.00	1	0.444	95	4.00	2	0.400
6	1.00	2	0.875	96	4.00	3	0.275
7	1.00	2	0.875	97	4.00	2	0.400
8	1.00	2	0.400	98	4.00	2	0.400
9	1.00	2	0.400	99	4.00	1	1.444
10	1.00	3	0.736	100	4.00	1	0.556
11	1.00	3	1.187	101	4.00	2	0.400
12	1.00	1	0.444	102	4.00	1	0.444

13	1.00	2	0.400	103	4.00	1	0.556
14	1.00	3	0.736	104	4.00	3	0.275
15	1.00	1	0.444	105	4.00	2	0.400
16	1.00	2	0.875	106	4.00	2	0.400
17	1.00	2	0.875	107	4.00	3	0.275
18	1.00	2	0.400	108	4.00	1	0.556
19	1.00	3	0.736	109	4.00	1	0.556
20	1.00	3	1.187	110	4.00	1	0.444
21	1.00	2	0.875	111	4.00	1	0.556
22	1.00	3	0.275	112	4.00	3	0.275
23	1.00	2	0.681	113	4.00	1	0.444
24	1.00	2	0.875	114	4.00	1	0.556
25	1.00	3	0.275	115	4.00	3	0.275
26	1.00	2	0.681	116	4.00	3	0.736
27	1.00	2	0.875	117	4.00	2	0.400
28	1.00	3	0.275	118	4.00	1	0.556
29	1.00	2	0.681	119	4.00	2	0.400
30	1.00	2	0.875	120	4.00	1	0.556
31	0.00	0	0.00	121	4.00	3	0.736
32	2.00	3	0.275	122	4.00	1	0.444
33	2.00	2	0.681	123	4.00	1	0.444
34	2.00	2	0.875	124	0.00	.	0.000
35	2.00	3	0.275	125	5.00	1	0.556
36	2.00	2	0.681	126	5.00	1	0.444
37	2.00	2	0.875	127	5.00	2	0.400
38	2.00	3	0.275	128	5.00	3	0.736
39	2.00	2	0.681	129	5.00	2	0.681
40	2.00	2	0.875	130	5.00	3	0.275
41	2.00	3	0.275	131	5.00	3	0.275
42	2.00	2	0.681	132	5.00	1	0.556
43	2.00	3	0.275	133	5.00	2	0.400
44	2.00	2	0.681	134	5.00	3	0.275
45	2.00	3	0.275	135	5.00	1	0.556
46	2.00	2	0.681	136	5.00	2	0.875
47	2.00	3	0.275	137	5.00	1	1.444
48	2.00	2	0.681	138	5.00	1	0.444
49	2.00	3	0.275	139	5.00	1	0.444
50	2.00	2	0.681	140	5.00	1	0.556
51	2.00	3	0.275	141	5.00	2	0.400
52	2.00	2	0.681	142	5.00	3	0.971
53	2.00	3	0.275	143	5.00	1	0.556
54	2.00	2	0.681	144	5.00	3	0.275
55	2.00	3	0.275	145	5.00	2	0.681
56	2.00	2	0.681	146	5.00	1	0.444
57	2.00	3	0.275	147	5.00	2	0.681
58	2.00	2	0.681	148	5.00	1	0.556
59	2.00	3	0.275	149	5.00	3	0.736
60	2.00	2	0.681	150	5.00	1	0.444
61	2.00	3	0.275	151	5.00	3	0.275
62	0.00	0	0.00	152	5.00	2	0.681
63	3.00	3	0.275	153	5.00	1	0.444
64	3.00	1	0.556	154	5.00	2	0.681
65	3.00	3	0.275	155	0.00	0	0.000

66	3.00	2	0.400	156	6.00	1	0.556
67	3.00	1	0.444	157	6.00	3	0.736
68	3.00	3	0.275	158	6.00	1	0.444
69	3.00	1	0.556	159	6.00	3	0.275
70	3.00	3	0.275	160	6.00	2	0.681
71	3.00	2	0.400	161	6.00	1	0.444
72	3.00	1	0.444	162	6.00	2	0.681
73	3.00	3	0.275	163	6.00	1	0.556
74	3.00	1	0.556	164	6.00	3	0.736
75	3.00	3	0.275	165	6.00	1	0.444
76	3.00	2	0.400	166	6.00	3	0.971
77	3.00	1	0.444	167	6.00	1	0.444
78	3.00	3	0.275	168	6.00	1	0.444
79	3.00	1	0.556	169	6.00	1	0.556
80	3.00	3	0.275	170	6.00	2	0.400
81	3.00	2	0.400	171	6.00	2	0.400
82	3.00	1	0.444	172	6.00	1	1.444
83	3.00	1	0.556	173	6.00	2	0.875
84	3.00	2	0.400	174	6.00	3	0.275
85	3.00	1	0.556	175	6.00	3	0.275
86	3.00	2	0.400	176	6.00	2	0.400
87	3.00	2	0.400	177	6.00	3	0.736
88	3.00	3	0.275	178	6.00	3	0.275
89	3.00	1	0.556	179	6.00	1	0.556
90	3.00	3	0.275	180	6.00	2	0.400

Case Number	VAR00001	Cluster	Distance	Case Number	VAR00001	Cluster	Distance
1	1.00	1	0.354	91	4.00	3	0.169
2	1.00	1	0.254	92	4.00	1	0.346
3	1.00	1	5.444E-02	93	4.00	1	0.154
4	1.00	1	0.146	94	4.00	1	0.246
5	1.00	4	0.124	95	4.00	1	5.444E-02
6	1.00	1	0.354	96	4.00	1	0.154
7	1.00	1	0.246	97	4.00	2	0.226
8	1.00	1	0.354	98	4.00	1	0.354
9	1.00	1	0.154	99	4.00	1	0.246
10	1.00	1	0.146	100	4.00	4	0.224
11	1.00	3	0.131	101	4.00	3	0.269
12	1.00	1	0.354	102	4.00	1	0.454
13	1.00	1	0.254	103	4.00	1	0.354
14	1.00	1	0.146	104	4.00	3	0.269
15	1.00	4	0.124	105	4.00	4	0.124
16	1.00	1	0.354	106	4.00	4	0.176
17	1.00	1	0.246	107	4.00	1	0.346
18	1.00	1	0.354	108	4.00	4	0.124
19	1.00	1	0.146	109	4.00	3	0.169
20	1.00	3	0.131	110	4.00	1	0.146
21	1.00	2	0.174	111	4.00	1	0.346
22	1.00	4	0.124	112	4.00	3	0.169

23	1.00	4	0.176	113	4.00	1	0.354
24	1.00	2	0.174	114	4.00	1	0.246
25	1.00	4	0.124	115	4.00	2	0.726
26	1.00	4	0.176	116	4.00	1	0.154
27	1.00	2	0.174	117	4.00	4	0.124
28	1.00	4	0.124	118	4.00	1	0.454
29	1.00	4	0.176	119	4.00	1	5.444E-02
30	1.00	2	0.174	120	4.00	1	5.444E-02
31	2.00	4	0.124	121	5.00	1	0.346
32	2.00	4	0.176	122	5.00	4	0.124
33	2.00	2	0.174	123	5.00	1	0.154
34	2.00	4	0.124	124	5.00	2	7.391E-02
35	2.00	4	0.176	125	5.00	4	0.176
36	2.00	2	0.174	126	5.00	1	0.246
37	2.00	4	0.124	127	5.00	4	0.124
38	2.00	4	0.176	128	5.00	2	0.126
39	2.00	2	0.174	129	5.00	4	0.176
40	2.00	4	0.124	130	5.00	1	0.154
41	2.00	3	0.231	131	5.00	4	7.561E-02
42	2.00	1	0.146	132	5.00	3	0.269
43	2.00	3	0.231	133	5.00	3	0.269
44	2.00	1	0.146	134	5.00	1	0.346
45	2.00	3	0.231	135	5.00	4	0.124
46	2.00	1	0.146	136	5.00	2	7.391E-02
47	2.00	3	0.231	137	5.00	1	0.146
48	2.00	1	0.146	138	5.00	3	0.269
49	2.00	3	0.231	139	5.00	4	7.561E-02
50	2.00	1	0.146	140	5.00	1	0.146
51	2.00	3	0.231	141	5.00	1	0.146
52	2.00	1	0.146	142	5.00	4	7.561E-02
53	2.00	3	0.231	143	5.00	1	0.454
54	2.00	1	0.146	144	5.00	2	0.126
55	2.00	3	0.231	145	5.00	4	0.176
56	2.00	1	0.146	146	5.00	4	0.224
57	2.00	3	0.231	147	5.00	3	0.169
58	2.00	1	0.146	148	5.00	1	0.146
59	2.00	3	0.231	149	5.00	4	7.561E-02
60	2.00	1	0.146	150	5.00	1	0.454
61	3.00	3	0.369	151	6.00	2	.126
62	3.00	1	0.246	152	6.00	4	.176
63	3.00	1	0.154	153	6.00	4	.224
64	3.00	1	0.346	154	6.00	3	.169
65	3.00	2	0.126	155	6.00	1	.146
66	3.00	3	0.369	156	6.00	4	7.561E-02
67	3.00	1	0.246	157	6.00	1	0.454
68	3.00	1	0.154	158	6.00	2	0.126
69	3.00	1	0.346	159	6.00	4	0.176
70	3.00	2	0.126	160	6.00	4	0.224
71	3.00	3	0.369	161	6.00	3	6.923E-02
72	3.00	1	0.246	162	6.00	1	0.246
73	3.00	1	0.154	163	6.00	4	0.224
74	3.00	1	0.346	164	6.00	2	7.391E-02
75	3.00	2	0.126	165	6.00	1	0.354

76	3.00	3	0.369	166	6.00	1	5.444E-02
77	3.00	1	0.246	167	6.00	2	7.391E-02
78	3.00	1	0.154	168	6.00	1	0.346
79	3.00	1	0.346	169	6.00	1	0.346
80	3.00	2	0.126	170	6.00	3	0.169
81	3.00	4	0.176	171	6.00	1	0.154
82	3.00	1	0.146	172	6.00	1	0.154
83	3.00	4	0.176	173	6.00	2	0.274
84	3.00	1	0.246	174	6.00	1	0.246
85	3.00	2	0.174	175	6.00	1	0.246
86	3.00	1	0.346	176	6.00	3	6.923E-02
87	3.00	1	0.346	177	6.00	4	7.561E-02
88	3.00	1	0.146	178	6.00	1	0.246
89	3.00	1	0.454	179	6.00	3	6.923E-02
90	3.00	1	0.254	180	6.00	4	7.561E-02

Table D
RESULTS OF CLUSTERING BY K-MEANS ALGORITHM OF AGE GROUPS,
USING VARIABLES BELONGING TO FACTOR 3

Case Number	VAR00001	Cluster	Distance	Case Number	VAR00001	Cluster	Distance
1	1.00	3	7.029E-02	91	4.00	2	0.208
2	1.00	2	7.955E-03	92	4.00	3	0.270
3	1.00	3	7.029E-02	93	4.00	2	0.208
4	1.00	3	0.270	94	4.00	3	0.270
5	1.00	1	0.261	95	4.00	2	0.192
6	1.00	3	0.130	96	4.00	2	0.608
7	1.00	1	6.087E-02	97	4.00	1	0.139
8	1.00	2	0.192	98	4.00	3	7.029E-02
9	1.00	3	2.029E-02	99	4.00	3	7.029E-02
10	1.00	3	0.130	100	4.00	3	0.130
11	1.00	2	0.208	101	4.00	3	7.029E-02
12	1.00	3	7.029E-02	102	4.00	2	0.192
13	1.00	2	7.955E-03	103	4.00	2	0.608
14	1.00	3	0.270	104	4.00	2	0.192
15	1.00	1	0.261	105	4.00	3	0.130
16	1.00	3	0.130	106	4.00	3	7.029E-02
17	1.00	1	6.087E-02	107	4.00	2	0.208
18	1.00	2	0.192	108	4.00	3	7.029E-02
19	1.00	3	0.130	109	4.00	2	0.192
20	1.00	2	0.208	110	4.00	2	0.408
21	1.00	2	0.192	111	4.00	1	0.339
22	1.00	3	0.330	112	4.00	2	0.192
23	1.00	2	0.142	113	4.00	2	0.192
24	1.00	2	0.192	114	4.00	3	0.130
25	1.00	3	0.330	115	4.00	3	0.330
26	1.00	2	0.142	116	4.00	3	0.130
27	1.00	2	0.192	117	4.00	1	0.661
28	1.00	3	0.330	118	4.00	2	7.955E-03
29	1.00	2	0.142	119	4.00	3	0.270
30	1.00	2	0.192	120	4.00	3	0.270
31	2.00	3	0.330	121	5.00	3	0.130
32	2.00	2	0.142	122	5.00	1	0.339

33	2.00	2	0.192	123	5.00	2	0.408
34	2.00	3	0.330	124	5.00	1	6.087E-02
35	2.00	2	0.142	125	5.00	2	0.192
36	2.00	2	0.192	126	5.00	2	7.955E-03
37	2.00	3	0.330	127	5.00	3	0.330
38	2.00	2	0.142	128	5.00	1	0.461
39	2.00	2	0.192	129	5.00	2	0.192
40	2.00	3	0.330	130	5.00	3	7.029E-02
41	2.00	2	0.208	131	5.00	2	7.955E-03
42	2.00	2	7.955E-03	132	5.00	3	0.270
43	2.00	2	0.208	133	5.00	2	0.208
44	2.00	2	7.955E-03	134	5.00	3	0.130
45	2.00	2	0.208	135	5.00	1	0.339
46	2.00	2	7.955E-03	136	5.00	1	0.339
47	2.00	2	0.208	137	5.00	2	0.192
48	2.00	2	7.955E-03	138	5.00	3	0.270
49	2.00	2	0.208	139	5.00	3	7.029E-02
50	2.00	2	7.955E-03	140	5.00	2	0.192
51	2.00	2	0.208	141	5.00	2	0.192
52	2.00	2	7.955E-03	142	5.00	3	0.270
53	2.00	2	0.208	143	5.00	2	0.408
54	2.00	2	7.955E-03	144	5.00	1	0.261
55	2.00	2	0.208	145	5.00	3	0.130
56	2.00	2	7.955E-03	146	5.00	3	0.330
57	2.00	2	0.208	147	5.00	3	0.270
58	2.00	2	7.955E-03	148	5.00	2	0.192
59	2.00	2	0.208	149	5.00	3	0.270
60	2.00	2	7.955E-03	150	5.00	2	0.408
61	3.00	2	0.192	151	6.00	1	0.261
62	3.00	2	7.955E-03	152	6.00	3	0.130
63	3.00	2	0.208	153	6.00	3	0.330
64	3.00	2	0.192	154	6.00	3	0.270
65	3.00	3	7.029E-02	155	6.00	2	0.192
66	3.00	2	0.192	156	6.00	3	0.270
67	3.00	2	7.955E-03	157	6.00	2	0.408
68	3.00	2	0.208	158	6.00	1	0.261
69	3.00	2	0.192	159	6.00	3	0.130
70	3.00	3	7.029E-02	160	6.00	3	0.330
71	3.00	2	0.192	161	6.00	2	0.192
72	3.00	2	7.955E-03	162	6.00	3	0.270
73	3.00	2	0.208	163	6.00	1	0.139
74	3.00	2	0.192	164	6.00	1	0.139
75	3.00	3	7.029E-02	165	6.00	3	0.270
76	3.00	2	0.192	166	6.00	3	7.029E-02
77	3.00	2	7.955E-03	167	6.00	1	0.339
78	3.00	2	0.208	168	6.00	1	0.139
79	3.00	2	0.192	169	6.00	3	0.130
80	3.00	3	7.029E-02	170	6.00	3	0.270
81	3.00	3	0.130	171	6.00	3	0.130
82	3.00	1	0.139	172	6.00	3	0.130
83	3.00	3	0.270	173	6.00	1	0.261
84	3.00	3	0.130	174	6.00	3	7.029E-02
85	3.00	1	0.139	175	6.00	2	0.192

86	3.00	1	0.339	176	6.00	2	0.192
87	3.00	3	7.029E-02	177	6.00	3	7.029E-02
88	3.00	2	7.955E-03	178	6.00	3	7.029E-02
89	3.00	2	0.192	179	6.00	2	0.192
90	3.00	3	0.270	180	6.00	3	7.029E-02

Table E
RESULTS OF CLUSTERING BY K-MEANS ALGORITHM OF AGE GROUPS,
USING VARIABLES BELONGING TO FACTOR 4

Case Number	VAR00001	Cluster	Distance	Case Number	VAR00001	Cluster	Distance
1	1.00	3	9.775E-02	91	4.00	3	0.102
2	1.00	2	0.187	92	4.00	3	0.102
3	1.00	3	0.102	93	4.00	3	0.402
4	1.00	3	0.202	94	4.00	3	0.302
5	1.00	1	0.552	95	4.00	3	0.202
6	1.00	2	0.287	96	4.00	3	0.102
7	1.00	1	0.352	97	4.00	1	1.052
8	1.00	2	0.313	98	4.00	3	9.775E-02
9	1.00	3	0.102	99	4.00	3	0.298
10	1.00	2	0.213	100	4.00	3	0.298
11	1.00	2	0.787	101	4.00	2	0.213
12	1.00	3	9.775E-02	102	4.00	3	0.202
13	1.00	2	0.187	103	4.00	2	0.313
14	1.00	3	0.202	104	4.00	3	0.202
15	1.00	1	0.552	105	4.00	3	9.775E-02
16	1.00	2	0.287	106	4.00	2	0.313
17	1.00	1	0.352	107	4.00	3	0.402
18	1.00	2	0.313	108	4.00	1	0.348
19	1.00	2	0.213	109	4.00	2	0.487
20	1.00	2	0.787	110	4.00	3	0.102
21	1.00	3	0.202	111	4.00	1	0.148
22	1.00	3	0.102	112	4.00	3	0.402
23	1.00	1	0.148	113	4.00	3	0.202
24	1.00	3	0.202	114	4.00	3	9.775E-02
25	1.00	3	0.102	115	4.00	1	0.552
26	1.00	1	0.148	116	4.00	1	0.348
27	1.00	3	0.202	117	4.00	1	5.192E-02
28	1.00	3	0.102	118	4.00	2	0.187
29	1.00	1	0.148	119	4.00	2	0.213
30	1.00	3	0.202	120	4.00	2	0.213
31	2.00	3	0.102	121	5.00	2	0.213
32	2.00	1	0.148	122	5.00	1	0.352
33	2.00	3	0.202	123	5.00	3	0.102
34	2.00	3	0.102	124	5.00	1	0.552
35	2.00	1	0.148	125	5.00	1	0.348
36	2.00	3	0.202	126	5.00	3	0.202
37	2.00	3	0.102	127	5.00	3	0.102
38	2.00	1	0.148	128	5.00	1	0.552
39	2.00	3	0.202	129	5.00	3	0.202
40	2.00	3	0.102	130	5.00	2	0.687
41	2.00	1	0.348	131	5.00	3	9.775E-02
42	2.00	3	0.298	132	5.00	2	0.213
43	2.00	1	0.348	133	5.00	3	0.402

44	2.00	3	0.298	134	5.00	3	0.298
45	2.00	1	0.348	135	5.00	1	0.552
46	2.00	3	0.298	136	5.00	1	0.552
47	2.00	1	0.348	137	5.00	2	0.313
48	2.00	3	0.298	138	5.00	3	0.202
49	2.00	1	0.348	139	5.00	2	0.313
50	2.00	3	0.298	140	5.00	2	0.213
51	2.00	1	0.348	141	5.00	3	0.298
52	2.00	3	0.298	142	5.00	3	0.298
53	2.00	1	0.348	143	5.00	2	0.413
54	2.00	3	0.298	144	5.00	1	0.152
55	2.00	1	0.348	145	5.00	1	0.348
56	2.00	3	0.298	146	5.00	1	0.348
57	2.00	1	0.348	147	5.00	2	0.287
58	2.00	3	0.298	148	5.00	3	0.298
59	2.00	1	0.348	149	5.00	3	0.298
60	2.00	3	0.298	150	5.00	2	0.413
61	3.00	3	0.402	151	6.00	1	0.152
62	3.00	2	0.187	152	6.00	1	0.348
63	3.00	2	1.282E-02	153	6.00	1	0.348
64	3.00	3	0.298	154	6.00	2	0.287
65	3.00	3	0.298	155	6.00	3	0.298
66	3.00	3	0.402	156	6.00	3	0.298
67	3.00	2	0.187	157	6.00	2	0.413
68	3.00	2	1.282E-02	158	6.00	1	0.152
69	3.00	3	0.298	159	6.00	1	0.348
70	3.00	3	0.298	160	6.00	1	0.348
71	3.00	3	0.402	161	6.00	3	9.775E-02
72	3.00	2	0.187	162	6.00	3	0.102
73	3.00	2	1.282E-02	163	6.00	1	0.148
74	3.00	3	0.298	164	6.00	3	9.775E-02
75	3.00	3	0.298	165	6.00	1	0.148
76	3.00	3	0.402	166	6.00	3	0.202
77	3.00	2	0.187	167	6.00	1	1.152
78	3.00	2	1.282E-02	168	6.00	3	9.775E-02
79	3.00	3	0.298	169	6.00	1	0.148
80	3.00	3	0.298	170	6.00	2	1.282E-02
81	3.00	3	0.298	171	6.00	3	9.775E-02
82	3.00	1	0.152	172	6.00	3	0.102
83	3.00	1	0.152	173	6.00	1	0.652
84	3.00	1	0.148	174	6.00	3	0.102
85	3.00	1	0.352	175	6.00	2	0.313
86	3.00	3	0.202	176	6.00	3	0.402
87	3.00	3	0.202	177	6.00	1	0.348
88	3.00	3	0.298	178	6.00	3	0.298
89	3.00	2	1.282E-02	179	6.00	3	0.402
90	3.00	3	9.775E-02	180	6.00	1	0.348