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**A Study of Cultural Influences on Consumer Behaviour in a Small  
Island Economy: *Religious Influences on Purchasing Behaviour in  
Mauritius***

By  
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A Thesis  
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Warwick Business School, University of Warwick, UK

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## **Declaration**

This is to declare that:

- I am responsible for the work submitted in this thesis.
- This work has been written by me.
- All verbatim extracts have been distinguished and the sources specifically acknowledged.
- This work has not previously been submitted within a degree programme at this or any other institution.

Signature: .....

Date: .....

## ABSTRACT

A Study of Cultural Influences on Consumer Behaviour in a Small Island Economy:  
*Religious Influences on Purchasing Behaviour in Mauritius*

By Nittin Essoo, University of Warwick, UK, May 2001

Although researchers have long recognised the significance of religious value systems in sociology and in psychology, the role of religion in consumer research has not yet been completely acknowledged. In the consumer behaviour literature, religion has been studied from two main perspectives namely, religious affiliation and religious commitment. Religious affiliation is the adherence of individuals to a particular religious group while religiosity is the degree to which beliefs in specific religious values and ideals are held and practised by an individual. This research investigated the influence of religious affiliation and religiosity on selected aspects of consumer behaviour: shopping behaviour, retail store preference and external information search among three religious groups, Hindus, Muslims and Catholics.

A mail survey was conducted among a sample of heads of households in Mauritius and six hundred usable questionnaires were obtained. Univariate, bivariate and multivariate statistical techniques were employed to analyse the data.

Significant differences were found in the purchasing behaviour of Hindus, Muslims and Catholics. Devout consumers, those for whom religion is a central focus in life, also differed significantly in their purchasing behaviour from casually religious consumers, those for whom religion is expedient across all three religious groups. Religiosity and religious affiliation were found to be predictors of consumer behaviour in the presence of demographic and lifestyle variables, implying that the influence of religion on the value systems of the society and the effect of these value systems on consumer behaviour cannot be underestimated.

The managerial implications of the research findings were discussed and suggestions for further research were proposed.

---

Key words: consumer behaviour, religion, religiosity, religious affiliation, shopping behaviour, retail store preference, external information search.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Overview

Research into consumer motivation and behaviour has assumed significance in contemporary societies worldwide as this large and growing multidisciplinary field of study has emerged during the last forty years (Engel *et al*, 1993). As a result, consumer research has achieved prime importance in the modern world. The field of consumer behaviour can be studied from a number of perspectives although the ultimate aim is to understand what people buy, how they buy, where they buy and what influences their purchasing decisions. Many models have been developed to try and explain the purchasing behaviour of consumers. Consumer behaviour models are used to describe, in simplified form, the market parameters or characteristics affecting purchase of certain types of goods and services (Chisnall, 1996). Two main types of models have been developed: monadic and multi-variable (Sheth, 1974). The former derives its theories from microeconomics and provides an explanation of the economic man trying to maximise utility. Monadic models have failed to explain buyer behaviour as they overlook the constraints of time, effort and imperfect knowledge together with the search for emotional and social satisfactions. On the other hand, multi-variable models are eclectic, drawing from across the behavioural sciences. Consumer behaviour is explained as information acquisition and processing moderated by psychological processes, individual differences, social and cultural

influences (Nicosia, 1966; Howard-Sheth, 1969; Chisnall, 1975; Engel-Blackwell-Miniard, 1990).

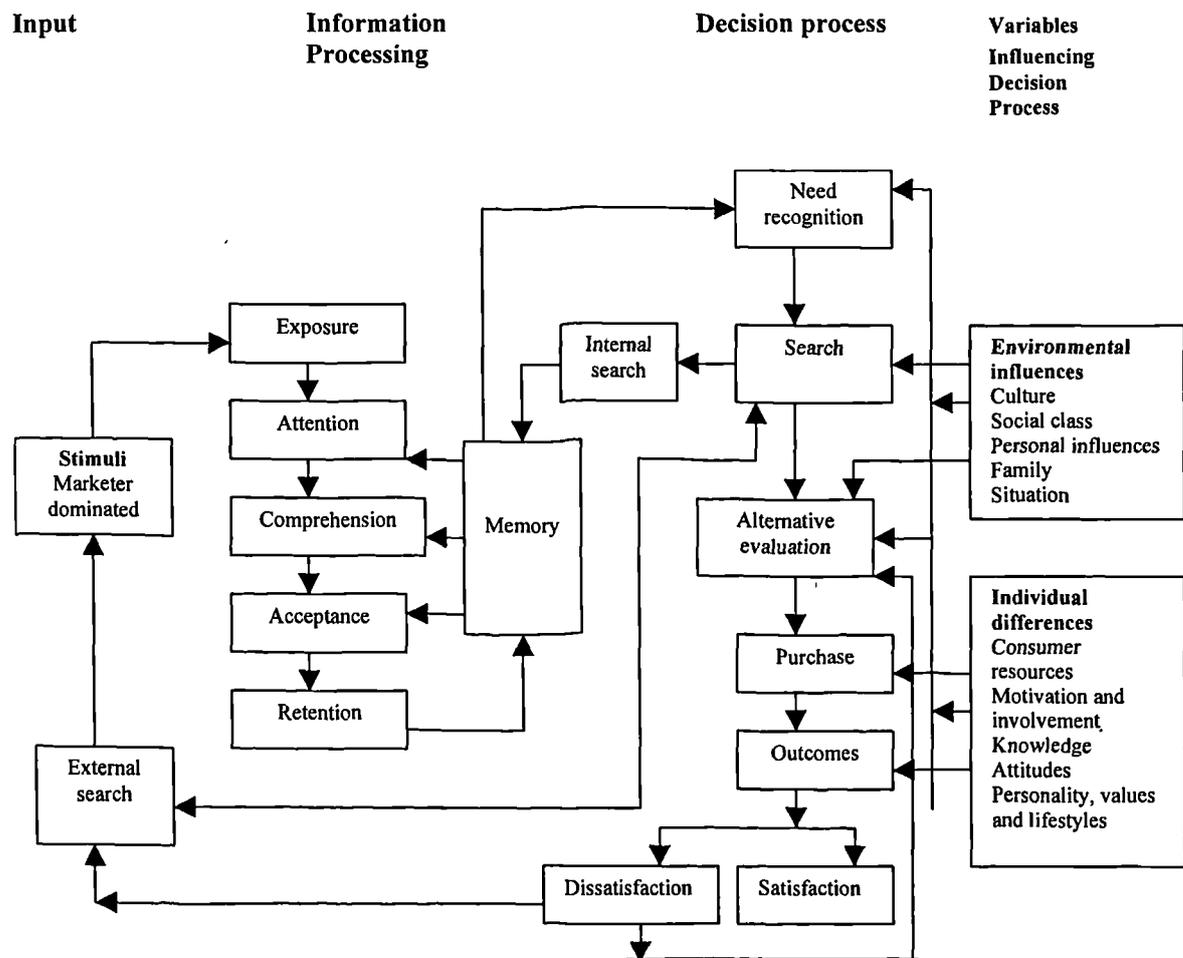
Multi-variable models contain two distinct series of components. One series of components addresses the internal influences on consumer purchasing decisions; this comprises the individual differences and psychological factors that influence the decision to purchase, for example, cognitions, motives, learning processes, attitudes, and personality. The second series of components or variables represents the external or environmental influences that make the consumer purchase a particular product. These external influences are economic, social, cultural and demographic factors.

Researchers in consumer behaviour have frequently tried to isolate each component of the model in order to establish the strength and significance of each of the variables. A typical multi-variable model of consumer behaviour as suggested by Engel, Blackwell and Miniard (1993) is shown in Figure 1.1.

Research in the field has concentrated on all aspects of the model but an emerging area in the study of consumer behaviour is to examine the complex relationships between external influences and their impact on cognitive processes. According to Foxall *et al* (1998), consumer researchers have traditionally neglected the influence of environmental factors on purchase preferring to concentrate on measuring cognitive states and processes - attitudes and traits - to account for consumer choice. These authors suggest that both attitude and personality variables, when taken alone, are relatively poor predictors of consumer behaviour while other – frequently

overlooked - influences on consumer behaviour arise from the external environment. One of the external influences on consumer behaviour that has received considerable attention in the literature is the cultural influence (Carman, 1978; Kluchohn, 1969; McCracken 1986; Yau, 1988). Value and attitude structures, which characterize an individual's background culture, may help to understand behaviour. Religion is one critical subsystem of this background culture which may provide a particularly fruitful focus in the search for the connective essential elements of the value and attitude structure of a people (Delener, 1989).

**Figure 1.1 Model of consumer behaviour**



Source: Engel, J.F., Blackwell, R.D. and Miniard, P.W. (1993), *Consumer Behaviour*, Dryden Press.

Although researchers have long recognized the significance of religious value systems in sociology (e.g., Anderson 1970; Greeley 1977; Lenski 1961) and in psychology (e.g., Allport 1950; Pargament *et al*, 1986; Patai 1977), they have not yet fully acknowledged its role in consumer research. While core values providing social identity may well be secular in some societies, religion has frequently provided the value system around which groups, in general, and nations, in particular, have come together, and by which their members have identified themselves. This function of religion, both historical and contemporary, is well known and needs no further elaboration. The influence of religion on the value systems of the society and the effect of these value systems on consumer behaviour cannot be underestimated (Delener 1989). In general, the religions practiced in a society influence the emphasis placed on material life and the attitudes toward owning and using goods and services. Religious traditions may sometimes prohibit the use of certain goods and services altogether (e.g. Islam forbids the eating of pork). Among the few studies in the consumer behaviour literature, religion has been studied from two main perspectives namely, religious affiliation and religious commitment. Religious affiliation is the adherence of individuals to a particular religious group while religious commitment, often termed religiosity, is the degree to which beliefs in specific religious values and ideals are held and practised by an individual.

Studies in the marketing literature argue that religion constitutes an important element of society in most cultures, greatly influencing behaviour, which in turn affects purchasing decisions (Hirschman, 1981; Delener, 1990). Following this logic, religion could turn out to be a viable criterion for grouping markets. Formal study of

religious beliefs and values should therefore improve understanding of the normative dimensions of consumption behaviour.

## **1.2 Purpose of this study**

Consumers in various markets or segments are subjected to a number of external influences, may utilize different attributes to characterize a product, or may aggregate products into different categorical frameworks. In order to understand consumer behaviour, external influences need to be isolated and consumers have to be studied in a number of hypothetical buying situations and across a number of product purchases. This study focuses on the cultural influence, more specifically on religion as a component of culture and its influence on buying behaviour of a number of products. The main purpose of this study is to examine whether Hinduism, Islam and Roman Catholicism, three of the world's largest religions, influence their members' purchasing behaviour across a range of products. The objective of the study is specifically to determine whether religious affiliation and religiosity have an influence on consumer behaviour. The consumption areas in this study have been selected because they are central to several important consumption processes: shopping behaviour, retail store preference and external information search. All of these variables have been extensively reviewed in the literature: Information search and retail store preferences constitute major components of the basic model of consumer behaviour (Figure 1.1). Shopping behaviour comprises the complex relationships among psychological variables as they relate to buyer behaviour. Hence, if religious denominational differences are found in purchasing behaviour, religious affiliation and religiosity as relevant influences on consumer behaviour will

receive major support. Marketers could then use their knowledge of religious factors in developing appropriate marketing strategies targeted at specific religious groups or in markets comprised of a number of religions.

### **1.3 Research hypotheses**

Research hypotheses to be tested in the study relate to the influence of religiosity and religious affiliation on aspects of consumer behaviour (see Section 2.14). The three aspects of consumer behaviour are shopping behaviour, retail store preference and external information search. The relationship between (1) religious affiliation and (2) religiosity and shopping behaviour is hypothesised first (see Section 2.14.1). The second set of hypotheses tests the relationship between (1) religious affiliation and (2) religiosity and preferences for retail store attributes (see Section 2.14.2). The third relationship hypothesised is between (1) religious affiliation and (2) religiosity and external information search (see Section 2.14.3). Since all of the hypotheses are stated clearly in Section 2.14, only the first null hypotheses for each aspect of consumer behaviour are presented below.

- *Shopping behaviour and religious affiliation*

**H1<sub>o</sub>: Shopping behaviour does not differ significantly among Hindus, Muslims and Catholics.**

- *Shopping behaviour and religiosity*

**H2<sub>o</sub>: There is no significant difference between the shopping behaviour of highly religious consumers and that of non-religious consumers.**

- *Retail store preferences and religious affiliation*

**H3:** There is no significant difference in preferences for retail store attributes among Hindus, Muslims and Catholics.

- *Retail store preferences and religiosity*

**H4:** There is no significant difference in preferences for retail store attributes between highly religious consumers and non-religious consumers.

- *External information search and religious affiliation*

**H5:** External information search does not differ significantly among Hindus, Muslims and Catholics.

- *External information search and religiosity*

**H6:** There is no significant difference in external information search between highly religious and non-religious consumers

#### **1.4 Methodology**

The methodology employed in this study consisted of several stages. After a review of the literature on religion and aspects of consumer behaviour, hypotheses were specified. Studies reviewed from the literature served as the foundation for the development of the questionnaire, which was later used as the measuring instrument of the research. The questionnaire design is discussed in more detail in Chapter Four. A pilot survey was carried out in order to test the questionnaire. The final questionnaire was mailed to 1,000 heads of households in Mauritius through a mail survey. Six hundred usable questionnaires were obtained. The data was analysed using the SPSS package. Univariate, bivariate and multivariate analyses were conducted to test the hypotheses. The analytical techniques used in this study are discussed in Chapter Five.

### **1.5 Significance of the research**

Research on the influence of religion on consumer behaviour has received limited attention in the marketing literature. There are a number of reasons for investigating whether religion has an influence on aspects of consumer behaviour. First, religion as a component of culture tends to be more stable over time as compared to most demographic characteristics of individuals (Delener, 1990). If religion was found to be a strong predictor of consumer behaviour, the religious construct may provide a good basis for segmentation of markets. This is because marketers are yet to find segmentation variables that remain more or less stable over long periods of time. While demographic characteristics such as age, income and marital status tend to change over time as does lifestyle of consumers, religious beliefs and adherence to a particular religion tend to be more enduring. Secondly, religious groups differ in their beliefs and practices of their religion. These beliefs and practices may lead to different types of purchasing behaviour of members of each religious group. If it is possible to identify the beliefs and practices of each religion which affect purchasing behaviour, this may contribute substantially to the understanding of the relationship between religion and consumer behaviour. Thirdly, a number of markets are made up of different religious groups. Knowledge of the purchasing behaviour of these religious groups will provide information to marketers willing to develop marketing strategies targeted at a specific religious group. The marketing mix elements might have to be reviewed in the light of possible religious influences. Branding, pricing, promotion and distribution strategies might have to take into consideration the influence of beliefs and practices of certain religions as compared to others. Fourthly, the measurement and testing of the religiosity construct employed in this study could

be used as a foundation to construct a more accurate measure. If religiosity could be accurately measured, this could then help marketers to differentiate between highly religious and non-religious consumers and be in a better position to satisfy the needs of each category. Finally, findings from this research will not only broaden the understanding of religious influences on consumer behaviour but also help to bridge the gap between the literature on religion and the marketing literature. The literature on religion contains a substantial number of concepts and theories which can be applied to marketing in order to better understand the behaviour of individuals as they go about their daily lives and purchase of goods and services. Bridging the gap in the literature between religion and marketing would enrich both fields and help researchers in their quest to better understand human behaviour in specific contexts.

## **1.6 Organization of the Dissertation**

Chapter Two presents an intensive review of the literature germane to religious affiliation and religiosity. This chapter also includes a review of the literature on selected aspects of consumer behaviour and concludes with the development of hypotheses to be tested in this study. Firstly, religion as a component of culture is reviewed in order to identify cultural studies which have included religion as a construct. Secondly, a review of the literature on religious affiliation is carried out followed by a review of religiosity. Fourthly, an analysis of the measurement of religiosity in the literature is conducted. The next stage in the literature review is a discussion of the basic beliefs and practices of each religious group in order to understand the differences in religious beliefs and to hypothesise how these beliefs can influence purchasing behaviour. This is followed by a discussion on the aspects

of consumer behaviour: shopping behaviour, retail store preference and external information search, selected for this study. Finally, in this chapter, the hypotheses to be tested are developed.

Chapter Three provides an overview as well as a discussion on the choice of the research setting, Mauritius, with reference to its socio-economic and cultural background. Attention is given to the role of religion in different aspects of Mauritian life and Mauritius is depicted as a model of emerging small island economies.

Chapter Four presents a detailed, step-by-step procedural examination of the methodology employed in this research. First, a summary of the research design is presented. This is followed by a discussion of the data collection method. The design of the research instrument, reliability and validity issues, sample selection and biases are also discussed in this chapter.

Statistical techniques used to analyse the questionnaire data are discussed in Chapter Five. The first part of the chapter looks at the factors influencing the choice of statistical techniques with a view to determining the appropriate techniques for this study. In the second part of the chapter, procedures and assumptions pertaining to univariate (*chi-square* and descriptive statistics) and bivariate (cross-tabulation and ANOVA) techniques used in this study are discussed. In the final part of the chapter, multivariate techniques (factor analysis, MANOVA and multiple regression analysis) are discussed. The procedures and assumptions of each technique followed in this study are highlighted.

Chapters Six and Seven present the data analysis and research findings. Chapter Six presents the findings of the influence of religiosity and religious affiliation on shopping behaviour while Chapter Seven presents the findings of the influence of these two religious variables on retail store preference and external information search.

Chapter Eight summarizes the dimensions and conclusions of the empirical aspects of the dissertation research and also suggests implications for marketers and recommendations for future research.

Finally, the correspondence letter to respondents, the questionnaire used in the research, descriptive statistics and diagnostic tests are presented in the Appendices.

## **CHAPTER TWO**

### **REVIEW OF THE LITERATURE**

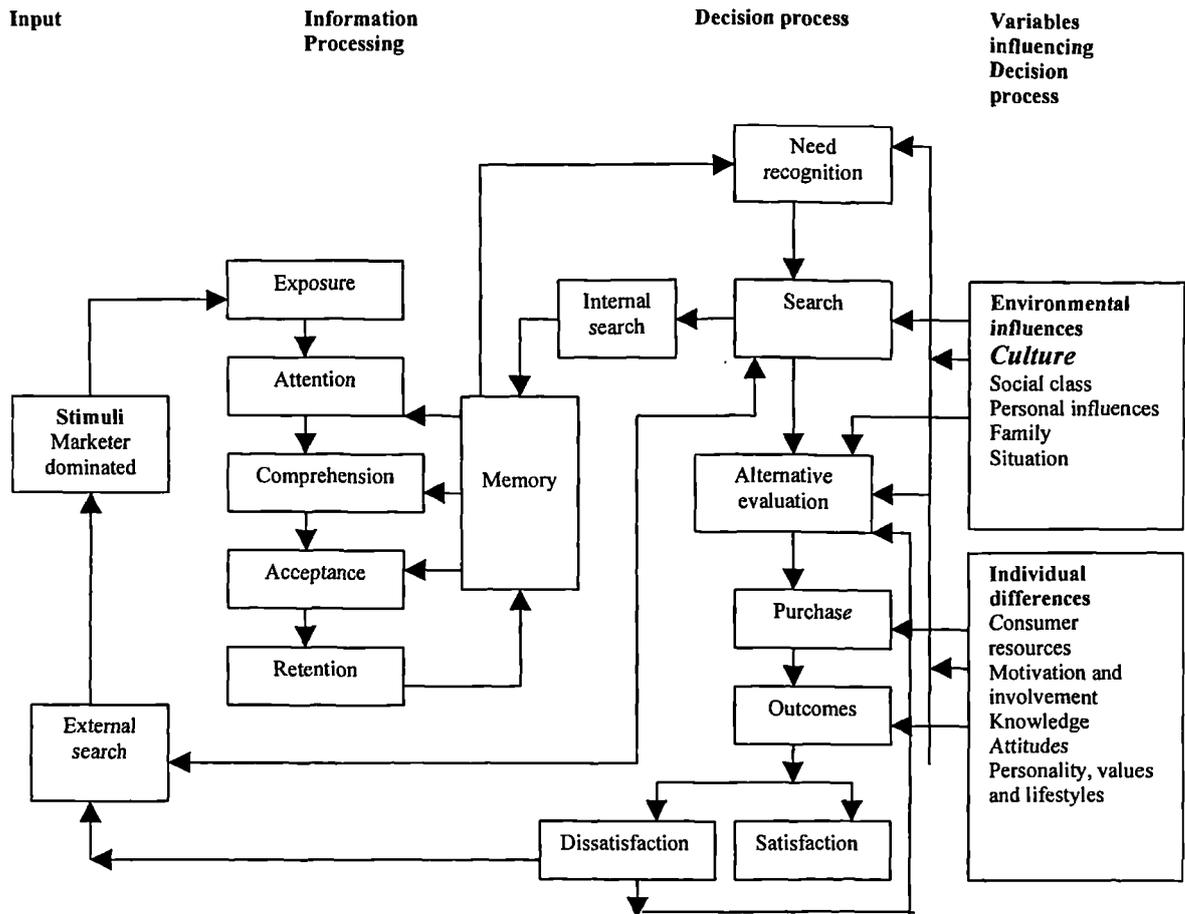
#### **2.1 Introduction**

This chapter starts with a discussion of the influence of culture on consumer behaviour and explains the role of religion as an important component of culture. Then follows a review of the literature on the relationship between religion and human behaviour. This is followed by an analysis of two major components of religion namely, religious affiliation and religiosity and a review of their uses in previous studies as influences on consumer behaviour. The objective is, firstly, to understand these two important components of religion and secondly to establish their use as reliable constructs in consumer behaviour studies. The second part of this chapter looks at the different measurements of religiosity used in previous studies and then focuses on the approach chosen for this study. The third part of the chapter gives a perspective of three religious groups namely; Hindus, Muslims and Roman Catholics used as denominations in this study. The fourth part of this chapter contains a review of the literature on consumer behaviour variables used in the study. The chapter concludes with the development of hypotheses to be tested in this study based on the literature review.

## **2.2 Culture and consumer behaviour**

“The study of culture provides a number of answers as to why people behave the way they do. It affects the drives that motivate people to take further action. Cultural influences are often the reason why consumers place more weight on some product attributes than on others. Culture is recognised as a significant influence on buyer behaviour as it provides people with a sense of identity and an understanding of acceptable attitudes and behaviour within society. As such, culture is the logical starting point for examination of consumer behaviour” (Engel, Blackwell and Miniard, 1993). Henry (1976) was among the first to examine the relationship between culture and consumer behaviour. Among the three acclaimed models of consumer behaviour [Nicosia model (1966), Howard and Sheth model (1969) and Engel, Kollat and Blackwell model (1978)], the latter two incorporate cultural values as an environmental variable which influences the consumer. The model by Engel, Kollat and Blackwell (1978) is shown in Figure 2.1.

**Figure 2.1 Model of consumer behaviour**



Source: Engel, J.F., Blackwell, R.D. and Miniard, P.W. (1993), *Consumer Behaviour*, Dryden Press.

According to Howard and Sheth (1969), cultural values affect motives, brand comprehension, attitudes and intention to purchase. Linton (1945) argues that cultural values are not only about the product and services we consume but extend to all activities that characterise the behaviour of a particular society. For example,

although eating fulfils a basic need, the way in which individuals eat and the types of food they consume depend on how they have learned to eat. McCracken (1990) states that cultural values of a society find expression in the products and services that are demanded. The acceptance of new products, for example, may be very dependent on the cultural implication involved in the changing pattern of consumption. Products are “vehicles of cultural meanings” and consumers may be viewed as “sophisticated choosers and users of these cultural meanings” (McCracken, 1990).

A number of studies, as discussed below, have been carried out which confirm the strong influence of cultural values on consumer behaviour. In the consumer behaviour literature, values are recognised as a powerful force shaping consumers’ motivations, lifestyles and product choices (Carman, 1978; Kluchohn, 1969; McCracken 1986; Yau, 1988). Differences in value systems across cultures appear to be associated with major differences in consumer behaviour (Grunert and Scherhorn, 1990; Jackson, 1973; McCracken, 1989; Tansuhaj *et al.*, 1991). Values can help explain the differences in behaviour among people of different cultures (McCort and Malhotra, 1993) and these values seem to persist over time. Some marketers are now convinced that values are central to people’s development and as such influence their actions as citizens and their behaviour as consumers (e.g. Corfman *et al.*, 1991; Grunert *et al.*, 1989; Grunert and Scherhorn, 1990; Kamakura and Mazzon, 1991; Mitchell, 1983; Picken, 1987; Yau, 1988).

The value-system of a society includes the religious beliefs and values of that society which contribute significantly to the behaviour of its members (Greeley, 1963).

However, within the same society, religious values differ as they are differently advocated by each religion. Religion therefore influences the value system of members of that society but by attributing different behaviours to them (Schwartz and Huisman, 1995). According to Foxall *et al.* (1998), religious beliefs are interwoven with cognitive elements to form knowledge systems that justify and control attitudes and behaviour. It would seem then that religious values or religion have an influence on the behaviour of a society and probably on the way its members purchase products and services.

### **2.3 Religion**

Religion, as a component of culture, has traditionally and powerfully motivated human behaviour, moving people from the heights of compassion, selflessness, and devotion to untold depths of hatred, bigotry, and cruelty (Tamney and Johnson, 1985). However, a major problem which exists with research on religion is the absence of a generally accepted theory or definition of religion (Guthrie, 1980). Proposed definitions have ranged from “wish fulfilment” (Malinowski, 1948) to the “belief in spiritual beings” (Tylor, 1979). Eister (1974) observed that religion might not be definable in general terms. The general agreement is that religion, as a research variable, must be defined for each research setting (McDaniel and Burnett, 1990).

Religion is one of the fundamental elements of social behaviour (Berger, 1961; Gleason, 1969; Gurvitch, 1971; Merton, 1937) and as such has been studied from a variety of theoretical perspectives. Karl Marx (1886) perceived religion as a tool

used by the ruling class to subjugate the proletariat. Max Weber (1904) saw religion as a system of social values that stimulated economic growth and industrial development. Pargament and Hahn (1986) state that religion may help people understand and cope with life events by offering guidance, support and hope. Spilka *et al* (1985) see religion as providing a frame of reference for individuals to help them understand, predict and control events and to maintain self esteem. McMurry (1978) considers religion and family as reactive institutions that exert conservative influences on the individual. Gorsuch and Smith (1983) state that religion may affect how one understands the meaning of many problems, religious beliefs and practices which may guide the individual in the process of selecting solutions.

One common thread emerging from these views of religion is that it has an influence on people's lives and affects the way they behave. It seems reasonable, therefore, to develop a definition of religion which encapsulates some of these issues. The following definition of religion is therefore proposed. For the purpose of the present research study, religion is defined as:

“A belief in God accompanied by a commitment to follow principles believed to be set forth by God”.

This definition emphasises the importance of principles as set forth by God in every religion. Religions differ in their principles. This means that followers of each religion vary in their ways of life and adopt different behaviours. The degree of commitment to religious principles also leads to differences in behaviour. Behaviour of individuals also includes the way they behave in the market place. Therefore their adherence or degree of commitment to a particular religion may dictate their

purchasing behaviour. The proposed definition of religion is therefore appropriate for this research study as the definition emphasises the importance of religious principles in influencing behaviour.

A number of studies have been carried out to examine the influence of religion upon people's values, habits, attitudes and behaviour. According to Peterson and Roy (1985), religion provides a source of meaning and purpose for people; it makes life understandable and interpretable. Religion fosters established practices and provides a series of tools and techniques for social behaviour (Hawkins *et al*, 1980; Schiffman and Kanuk, 1991). In a study of religion and behaviour, Greeley (1963) suggested three different models that can be used to describe the relationship between religion and behaviour. In the first model, religion influences the members of the religious group, who, in turn, influence the organisation of the social system in accordance with their religious values. The second model assumes that the social system creates "need dispositions" in the participants, which, in turn, lead to certain kinds of religious activity and belief. The third model considers religion as a correlate or predictor of behaviour. Greeley refers to Lenski (1961), who held that a religious group operates as a network of informal relations and communications, which in turn facilitates the development and transmission of norms. Greeley also questioned the extent to which the theology of a given religion is responsible for the particular behaviour of members of that religious group. For example, Greeley found that the connection between Catholic theology and the Catholic birth rate seems straightforward: that is, because of their religious beliefs, devout Catholics do not control birth rate.

Other studies which have focussed on the relationship between religion and behaviour have confirmed that religion strongly influences an individual's emotional experience, thinking, behaviour, and psychological well-being (Chamberlain & Zika, 1992; McDaniel & Burnett, 1990; Pollner, 1989; Witter *et al*, 1985). Empirical findings (Chamberlain & Zika, 1992) support the existence of a positive relationship between religion and psychological well-being. When other demographic variables such as race and education, are controlled, religious activities are often cited to be among the most significant predictors of subjective well-being. McDaniel and Burnett (1990) conclude that religious beliefs tend to be causally related to different attitudes and/or behaviour among individuals in a population.

It seems that the literature provides evidence of a link between religion and behaviour. The influence is both on the cognitive and conative aspects of behaviour as has been shown in the above discussion. In other words, the influence of religion affects the psychological disposition of the individual as well as his physical actions. If religion has an influence on cognitive behaviour, the question that arises is whether this influence can be extended to purchasing behaviour, which forms the focal point of this study.

#### **2.4 Religion and consumer behaviour.**

In theoretical studies, religion has been sparsely linked with consumer behaviour prior to the 1990s as will be shown in this section. In 1978, Lovelock and Weinberg reviewed the marketing literature and identified two articles on religion and marketing. Cutler (1991) extended this study by reviewing the period from 1978 to

1989, covering some 7,000 marketing articles until 1989. Thirty-five articles related to religion were identified for the 30-year period 1959 to 1989. Out of these articles 80% were published in the 1980s. The articles were categorised by Cutler (1991) under five different groups as follows:

1. Applying marketing techniques to religion (6 articles)
2. Attitudes of the clergy to marketing (4 articles)
3. Religion's influence on marketing practices (6 articles)
4. Consumer behaviour and religion (6 articles)
5. Case studies and miscellaneous (13 articles)

A review of the literature for the current study has found additional articles on religion and consumer behaviour and/or marketing up to 1991. These articles have been added to Cutler's list under the respective headings. A detailed list of marketing articles on religion and their subject of study up to that period is illustrated in Tables 2.1 to 2.6.

**Table 2.1 Application of Marketing Techniques**

<b>Author</b>	<b>Year</b>	<b>Subject/Purpose of Study</b>
Healy & Delozier	1978	Proposes a model of the religious system within a marketing context
Dunlap & Rountree	1981	Development of a marketing model for religious organisations
Dunlap & Rountree	1982	Applying marketing to religious organisations
Anderson, Rountree & Dunlap	1984	Survey of student attitudes toward religion and test of marketing model of religion
Anderson & Rountree	1985	Marketing model used to predict attendance
Carman	1987	Economic model optimises ad expenditures

**Table 2.2 Attitudes towards the Use of Marketing**

Dunlap, Gaynor & Rountree	1983	Survey of clergies' use of marketing techniques
Gazda, Anderson & Sciglimpaglia	1984	Survey of attitudes of the clergy toward use of marketing activities in religion
McDaniel	1986	Survey of attitudes on use of marketing
Moncrief, Lamb & Hart	1986	Survey of clergy to assess the knowledge and use of marketing concepts

**Table 2.3 Religion's Influence on Marketing Practices**

Thompson and Raine	1976	Religion denomination preference as a basis for store location
Sethi	1980	Discusses church/business conflict on social issues and distribution of wealth
Fugate	1982	Discusses religious organisation involvement in the business world
Saches	1985	Discusses 1984 Catholic Bishop's letter and implications for marketing education
Lantos	1985	Biblical philosophy and the marketing concept
Brown	1986	Impact of religion on retailing
Lantos	1986	Religion is a basis for ethical decisions
Klein	1987	Discusses marketing implications of 1984 Catholic Bishop's Economic Letter

**Table 2.4 Consumer Behaviour and Religion (prior to 1991)**

Engel	1976	Empirical study contrasting psychographic profiles of denominations in Brazil
Hirschman	1983	Religious affiliation influences consumer behaviour
Wilkes <i>et al</i>	1986	Discusses measurement of religiosity
La Barbera	1987	The Born Again Christianity movement and consumer behaviour
Delener & Schiffman	1986	Empirical study of religion's effect on family decision making
Delener	1989	Relationship between religious background and information search
O'Guinn and Belk	1989	Religion and consumption of religious and secular offerings
Belk and Wallendorf	1989	The sacred and the profane in consumer behaviour
Delener	1990	Effect of religious factors on perceived risk in durable goods

**Table 2.5 Case Studies about Marketing and Religion**

Engel	1974	Billy Graham's crusade activities in Asia
Sweeney & Anderson	1981	Market segmentation within a local church
Young	1987	Utilisation of marketing concept

**Table 2.6 Miscellaneous studies on Marketing and Religion.**

Culliton	1959	Applying the 4 Ps to religion
Burger	1970	Application of marketing research to a religious organisation
Hempel & McEwen	1975	Survey of church members, church leaders and newcomers to a community regarding attitudes toward religion
Kotler	1980	Recommends marketing principles to churches
Cooper & McIlvain	1981	Discusses suitability of religious organisations for marketing research
Miller & Niffenegger	1982	Discussion of marketing techniques used by T.V evangelists
Stutts & Gourley	1982	Discussion of advertising practices of Christian Churches
Young	1986	Applying marketing research to religion
Walle	1988	Christian gospels as marketing communication

From 1991 to date, a number of additional articles about consumer behaviour and religion have been published in the marketing literature (Andeleeb, 1993; Arbor and Ringold, 1998; Bailey and Sood, 1993; Delener, 1994; Goff and Gibbs, 1993; Keng and Yang, 1993; La Barbera and Gurhan, 1997; Martin, 1996; Rawwas and Strutton, 1996; Turley, 1995). A list of these articles is illustrated in Table 2.7.

**Table 2.7 Religion and consumer behaviour (1991 onwards).**

Andeleeb	1993	Religious affiliation and hospital choice
Bailey and Sood	1993	Preliminary investigation into religious affiliation and consumer behaviour in Washington D.C
Goff and Gibbs	1993	Denominational brand switching
Keng and Yang	1993	Influence of religion on value choices
Delener	1994	Religious contrasts in consumer decision behaviour patterns
Turley	1995	Influence of religiosity on Irish consumers
Martin	1996	Influence of religion on customer-to-customer relationships
Rawwas and Strutton	1996	Influence of religion on consumers' ethical values
La Barbera and Gurhan	1997	Religiosity and subjective well-being
Arbor and Ringold	1998	Religion and perception of advertising

Other articles in this area have also been published in the *Journal for the Scientific Study of Religion* and journals of *Psychology* and *Sociology*. A review of the relevant literature from all these articles to date has been carried out for the purpose of this study and is discussed in the relevant sections.

In the consumer behaviour literature, which is the main concern of this study, religion has been studied from two main perspectives namely, religious affiliation and religious commitment. In the next section, these two perspectives are defined and discussed as they are used as constructs in the present study.

## **2.5 Religious affiliation**

Religious affiliation or the adherence of individuals to a particular religious group has been termed an ascribed status. This is because, like race and nationality, its

effect on the individual's life often predates birth, determines the number of children one has, the level of education one attains, the amount of wealth one accumulates and the type of decisions one takes in life (Hirschman, 1983).

Mayer and Sharp (1962), who studied the relationship between religious affiliation and worldly success (economic behaviour) carried out one of the earliest studies in this area. They found that those who made the greatest achievements were members of the Jewish and Eastern Orthodox faith. They were followed by Protestants and, to a lesser degree, Catholics. In other words, the degree of achievement of members of a religious group was linked to the religion they followed.

Hirschman (1983) points out that religious denominational affiliations may be viewed as "cognitive systems". A cognitive system is a set of beliefs, values, expectations and behaviours that are shared by members of a group (Berger, 1961; Gurvitch, 1971; Merton, 1937). In this perspective, members of a particular religion (for example, Jews) are viewed as possessing common cognitive systems. The cognitive system of a religious group has an influence on the behaviour of that group (Hirschman, 1983). In a series of studies, Hirschman (1981, 1982, 1983) found that religious affiliation had an influence on novelty seeking, information search and a number of consumption processes such as choice of entertainment, transportation and family pets. According to Hirschman (1983), few other variables have exhibited the range and depth of explanatory power that religious affiliation appears to offer.

The religious groups who have been the primary focus of behavioural science studies are Protestants, Catholics and Jews (Gallup, 1985). These studies have identified

several differences across denominational categories between Catholics, Protestants and Jews on the spectrum of behaviour.

As contrasted with Protestants and Jews, Catholics have been found to be

- more traditional (Herberg, 1964)
- more prone to external imposition of order (Herberg, 1964)
- less prone to external information or knowledge-seeking (Green, 1973; Herberg, 1964; Hirschman, 1981)
- lower in self-determination (Greeley, 1977)
- less oriented towards material possessions (Hirschman, 1983; Patai, 1977)
- more prone to place a low value on time utilisation (Hirschman, 1983)
- more prone than Protestants to place a higher value on time spent in non-productive leisure pursuits (Anderson, 1970; Patai, 1977)
- less flexible and rational than Jews (Patai, 1977)
- less inclined than Jews in deferment of gratification (Patai, 1977)
- less prone than Jews toward novelty seeking activities (Hirschman, 1982)
- less prone towards information transfer (Hirschman, 1981, 1982)
- less prone than Jews towards consumption innovativeness, with resulting high tendencies for brand and store loyalty (Hirschman, 1981).

These studies provide evidence that there are clear cognitive and behavioural differences between people of different religious affiliations. The question therefore is whether these differences also manifest themselves in the purchasing behaviour of these people.

## **2.6 Religious affiliation and consumer behaviour.**

Studies have been conducted in other areas of behavioural science which have looked at the relationships between religious affiliation and fertility (Samuelson, 1964), religious affiliation and political attitudes (Odegaard, 1960) and religious affiliation and personality characteristics (Hirschman, 1981; Patai, 1977). Although each of these studies provides evidence that religious affiliation may influence aspects of consumption, few consumer behaviour studies have shown that religious affiliation directly influences consumer behaviour.

One of the first studies on religious affiliation and consumer behaviour is by Engel (1976) in which he noted differences in the psychological profiles of two different denominations in Brazil. His findings suggest that religious groups differ in their perception of products and services, which, in turn, affect their purchasing behaviour. One of the other pioneering studies linking religious affiliation to buying behaviour is by Thompson and Raine (1976). They investigated whether or not customers who shop at one furniture store differed from the general population of the city in their religious affiliation. They also investigated whether religious affiliation was a significant determinant of furniture purchase at that store. Their results showed that the store had a greater amount of sales coming from Protestant religious denominations as compared to other denominations.

Affiliation to a particular religion may influence various aspects of the choice behaviour of its members (Hawkins, Coney and Best, 1980; Schiffman and Kanuk,

1991). For example Muslims favour Halal food and are likely to abstain from consumption of pork.

Hirschman (1981) found Jews to be more innovative than non-Jews and to be potentially less store and brand loyal. Later, Hirschman (1983) studied the effects of religious affiliation on consumption processes among three different religious groups namely, Catholics, Protestants and Jews. Her results were based on criteria and solutions to weekend entertainment, transportation, housing and family pet decisions. Hirschman concluded that Catholics were less likely to consider price an important criterion for transportation or family pet selection compared to Protestants but more likely than Jews to consider "residence conditions" an important criterion for residence selection.

Additional studies have indicated that religious affiliation may affect consumers' information-processing abilities (Hirschman, 1981), motives for engaging in leisure activities (Hirschman, 1982) and tendencies to engage in imaginative sequences and fantasies (Hirschman, 1982). One of the most suggestive and recent studies was carried out by Bailey and Sood (1993) in Washington D.C. They found that consumers from Buddhist, Hindu and Islamic religions differed in their shopping behaviour as compared to Judeo-Christian religions. However, the authors consider that one of the major limitations of the study was that the purchasing behaviour of consumers was measured using one product, a relatively expensive stereo sound system, affordable only by a particular segment. The authors also consider that behaviour patterns in other product situations in other economic-social-political environments could well differ.

Apart from this one study by Bailey and Sood (1993), most of the studies on religious affiliation and consumer behaviour have focused mainly on three prevalent religious groups in the United States namely, Catholics, Protestants, Jews and Buddhists (Andeleeb, 1993; Arbor and Ringold, 1998; Goff and Gibbs, 1993; Keng and Yang, 1993; Martin, 1996; Rawwas and Strutton, 1996). The purpose of the present study is to contribute to the existing literature by comparing and contrasting the purchasing behaviour of three religious groups, Hindus and Muslims and Catholics in a different economic, social and political context and across a number of products. The results of the study will establish the extent to which religious affiliation to each of these three religious groups has an influence on purchasing behaviour. The principles, theological bases and basic philosophy of each of these three religious groups are developed later in this chapter.

## **2.7 Religiosity**

Religiosity or religious commitment can be defined as:

“The degree to which beliefs in specific religious values and ideals are held and practised by an individual”(Delener, 1990).

Religiosity is a sub-category of human values and relates specifically to a person's relationship with God and how he/she expresses that relationship in society. It is accepted as one of the most important social forces in history as well as being a key force in individual behaviour (La Barbera, 1987).

Religiosity has been shown to influence different aspects of one's lifestyle. McClain (1979) compared non-feminists to feminists and found that feminists tend to be less religious or even anti-religious. Religious individuals have been found to be more conservative and less dominant than non-religious individuals (Barton and Vaughn, 1976; Eysenck, 1970; Hamby, 1973). *Intrinsically* religious individuals (those for whom religion is a central focus in life) are reported to show a greater concern for moral standards, discipline and responsibility as compared to *extrinsically* religious individuals: those for whom religion is expedient (Wiebe and Fleck, 1980).

From the above studies, it is strongly suggested that religiosity, as one dimension of religion, has an influence on people's behaviour. The degree to which one believes in one's religion may affect the way one behaves. If people's behaviour is influenced by their religiosity, this behaviour is also expressed in the way they make purchasing decisions. For the purpose of this study, the question that needs to be addressed, therefore, is to what extent religiosity has an influence on purchasing behaviour.

## **2.8 Religiosity and consumer behaviour**

According to Delener (1990), the available research suggests that religiosity, as a segmentation variable, has been recognised as one of the most important cultural forces and a key influence in buyer behaviour. This is because, according to Delener (1990) consumers can be categorised in their purchasing decisions by the degree to which they adhere to a particular faith. Marketers might therefore consider including consumers' religiosity as a legitimate segmentation variable for marketing their products and services. If larger market segments can be identified on the basis of

religious value profiles, marketing strategists could develop programmes that would enhance the important values of consumers in each market segment. Delener (1990) also states that a consumer's religious value orientation provides an important basis for positioning products and developing promotional strategies. He concludes that consumers may vary in the criteria they use to evaluate products and services based on their religious values. However, he states that not enough research has been carried out in this field and more work needs to be done among other religious denominations to confirm these contentions about religiosity and consumer behaviour.

Wilkes, Burnett and Howell (1986) examined religiosity as a variable within consumer behaviour studies. Their first objective was to explore whether varying levels of religious commitment among consumers are related to certain lifestyles in consumer research. Their second objective was to assess the appropriateness of alternate measures of religiosity to the examination of these relationships. Their findings suggest that religiosity is a viable consumer construct because it is correlated with lifestyle variables such as opinion leadership, risk avoidance, credit purchase and life satisfaction. The findings indicated that people with a high degree of religious commitment tend to have a more traditional sex role orientation, less likely to be opinion leaders and be more satisfied with their lives.

La Barbera (1987) in her study "Consumer behaviour and Born again Christianity", with a religiously intense group of born-again Christian consumers, held that their spiritual qualities, rather than their economic accomplishments, determine their

fundamental behaviour. These spiritual qualities are often translated into differences in their purchasing behaviour.

In 1990, a study by McDaniel and Burnett on the influence of religiosity on retail store evaluative criteria confirmed the influence of religiosity on people's choice of a retail store. A significant part of their investigation dealt with operationalising the construct, religiosity, as well as testing the different dimensions of this construct. Their findings suggest that one aspect of religion, religious commitment, may be significant in predicting the importance individuals place on certain retail store attributes. This corroborates the findings of Wilkes *et al* (1986) discussed above.

In the late 1980s and early 1990s, Delener (1986, 1989, 1990, 1994) carried out several studies on religiosity and its influence on various aspects of consumer behaviour. Delener's first study (Delener and Schiffman, 1986) looked at the effect of religiosity on family decision-making. This study demonstrated considerable support for the application of the religiosity construct in consumer research. Results showed that regarding purchase of major durable goods in Catholic households, husbands were the major influence in making purchase decisions. In Jewish households, on the other hand, the decisions were taken jointly. Findings also indicated that couples in non-religious households were more likely to make joint decisions than their counterparts in religious households.

The second study by Delener (1989) investigated differences in external search information and media usage patterns of Catholics and Jews, and the associated influence of religiosity. The findings suggest that Jews searched for information

more than Catholics and that the difference was greater for non-religious consumers. Delener (1989) also found differences in media usage between the two groups attributed to the religiosity of consumers in each religious group.

Delener's third study (1990) explored the effects of religiosity on perceived risk in purchase decisions from Catholic and Jewish households who had purchased a new car and/or microwave within the previous year. The findings suggest that Catholics are more likely to be sensitive to any potentially negative consequences of their purchase decisions: for example, poor functioning of the microwave or car. This sensitivity was more apparent for consumers with a high degree of religiosity. Highly religious individuals tend to feel less secure and less self-confident than non-religious individuals. Delener (1990) concluded that a consumer's religious commitment could provide an important basis for segmenting markets.

Delener's fourth study (1994) explored the differences in consumer related marital roles of Catholics and Jews in pro-religious and non-religious households. Findings of this study suggest that differential role behaviour vary according to religiosity. In pro-religious Jewish households and pro-religious households in general, husbands exerted more influence in deciding where to purchase an automobile. It was found that pro-religious Catholic couples jointly decided where and what to purchase while in pro-religious Jewish couples they decided when and what to purchase. Delener (1994) concluded that the importance of the decision-maker's religiosity must be considered in advertising, promotion and direct sales. Enhanced knowledge of religious differences in consumption decision processes may lead to marketers modifying their strategy to cater for religious differences.

In their exploratory research on the effects of religiosity on consumer behaviour in Japan and the United States, Sood and Nasu (1995) conducted a study using religiosity as a construct influencing the purchase of an expensive radio among American Protestants and Japanese. They found significant differences between the purchasing behaviour of devout American Protestants and non-devout American Protestants. Devout American Protestants differ from their less religious counterparts in that they:

- tend to buy products when they are on sale versus when they want them
- are open to purchase of foreign products
- tend to shop in all kinds of stores rather than best stores
- prefer stores with the lowest prices
- believe there is little relationship between price and quality and
- tend not to believe the claims made in advertising.

Sood and Nasu (1995) also found that devout Protestants were significantly concerned with prices, buying products when they are on sale, patronising many retail stores etc, as compared to their less devout counterparts. These findings, according to Sood and Nasu (1995), have obvious ramifications in developing the sourcing, distribution and pricing components of marketing programmes. The religiosity factor would have important implications in segmenting markets between devout and casually religious consumers. However, no differences were found between the purchasing behaviour of the devout and non-devout Japanese. According to Sood and Nasu (1995), this is because, although religion is an important element in the overall Japanese culture, it could be so interwoven with the culture that

relatively little conscious thought or activity is required; thus the devout and casually religious Japanese would have similar attitudes and behaviour. According to Sood and Nasu (1995), the unified nature of religion in Japan would tend to support this explanation. Therefore the degree of religiosity would be relatively unimportant in the case of Japanese consumers.

This study by Sood and Nasu (1995) was exploratory in nature and they suggest that this was due to their inability to build on findings of previous studies as very little work had been done in this area. Their intention was that their research would add to knowledge of the relationship between religiosity and consumer behaviour so that subsequent research could further test the influence of religiosity as a reliable construct on different aspects of consumer behaviour. The current study investigates the influence of religiosity, as an independent variable, on different aspects of consumer behaviour. These different aspects of consumer behaviour are discussed later in this chapter.

La Barbera and Gurhan (1997) carried out one of the most recent studies on the topic of religiosity and consumer behaviour. The research examined the role of religiosity on subjective well being among born-again Christians and non-born-again Christians. The aim of the study was to address whether there are differences between high and low religiosity consumers (devout and non-devout) with respect to the factors that correlate with their subjective well-being. This is because, according to the two authors, consumer subjective well-being has an influence on purchasing decisions. Born again Christians are associated with a higher degree of religiosity than non-born-again Christians. La Barbera and Gurhan (1997) studied the

interaction between religiosity and secular values. They found a positive relationship between religiosity and subjective well-being. Therefore, their study implies a psychographic segmentation that may be in operation among consumers who might otherwise be viewed as comparable market opportunities. That is, despite a common shopping and media environment, individuals who differ in religiosity demonstrate differences in their value structure, which marketers may wish to address. The study provides further evidence that religiosity can be used as a base for segmentation. The findings are consistent with those previously described by Sood and Nasu (1995).

Evidence from the above studies suggest strongly that religiosity is a reliable construct in consumer research. However, once more research in this area has concentrated on the Judeo-Christian religions (Delener, 1986, 1989, 1990, 1994; La Barbera and Gurhan, 1997, Turley, 1995). For the purpose of the current study, the degree of religious commitment or religiosity of three religious groups - namely, Hindus, Muslims and Roman Catholics - is examined with a view to determining its influence on their purchasing behaviour.

However, before developing hypotheses for this study, the measurement of religiosity as a construct, a subject of much debate, is discussed in the next section.

## **2.9 Measurement of Religiosity**

In an attempt to determine the relationship between religiosity, as an independent variable and other dependent variables, several studies will be discussed in the next two sections. These studies have sought to (1) identify the characteristics which

predict the salience of religion to an individual and (2) analyse how religiosity could be measured. Two major approaches to the measurement of religiosity stem from previous research namely, religiosity as a uni-dimensional construct and religiosity as a multi-dimensional construct. These two approaches have been subject to some controversy regarding the choice of the best measure of religiosity. The following discussion reviews the different features of each method so that the most suitable approach can be selected for this research.

### 2.9.1 Religiosity as a uni-dimensional construct

A number of previous research studies have conceptualised religiosity as a uni-dimensional construct, with church attendance or church membership as being the primary measure (Hirschman, 1983; La Barbera, 1987). These authors see religion as an ascribed status where one is born into a religious tradition and through the action of its institutional influences, the church, develops an identity or affiliation. The church is therefore considered, by advocates of the uni-dimensional approach, to be the main influence on one's religiosity and church attendance reflects the degree of religiosity of the individual (Hirschman, 1983).

However, this uni-dimensional approach has been severely criticised by many researchers who consider church membership and attendance as only **one** of many characteristics of religiosity. Sole reliance on church attendance has therefore been challenged (Benson, 1981; Pressey and Kuhlen, 1957; Steinitz, 1980). Church attendance was found to be more closely tied to physical health among persons of 65 than to religious feelings (Steinitz, 1980): that is people over 65 attend church

because they are healthy rather than for religious reasons. It was also reported that a person who goes to church regularly might be rated less religious than one who does not go to church at all. This is because an individual might go to church to avoid social isolation, please one's parents, to get a feeling of domination over others by availing oneself of a religious weapon or to form part of a superior group (Pressey and Kuhlen, 1957). Benson (1981) maintains that certain aspects of the religious experience cannot be quantified and church attendance is one of them. He even suggests that "one may go to church and still be a hypocrite": that is, church attendance alone does not necessarily constitute a high degree of religiosity in an individual.

The critics of church attendance as a sole measure of religiosity do agree, however, that it is one of the factors that contribute to religiosity as a construct and this is also advocated in some consumer behaviour textbooks (Engel, Blackwell and Miniard, 1993; Loudon and Bitta, 1993). In the current study, church attendance has therefore been used as **one** of the characteristics in the measure of religiosity.

### 2.9.2 Religiosity as a multi-dimensional construct

Criticisms of the uni-dimensional approach as a measure of religiosity have led to the development of better measures of the religious variable than that of church attendance in the 1950s. This is because simple, often single-item, measures were proving inadequate tools for discovering the correlates of religious behaviour (King and Hunt, 1972). In different ways, Allport (1950, 1954), Fichter (1954), Stark and Glock (1968), and Lenski (1961) directed attention to the lack of knowledge

regarding causes and consequences of individual differences in religion. These authors highlighted the inadequate measures then in use, and the multi-dimensional aspects of religious beliefs, commitment, and practice. Subsequently, a multi-dimensional approach to the measure of religiosity was advocated. This approach also had the objective of resolving the shortcomings of using church attendance as the only measure of religiosity as discussed in the previous section.

The multi-dimensional approach suggested that several characteristics should be used in the measure of religiosity. Previous studies by Allport (1954), Allport and Ross (1967), Dejong *et al* (1976) Demerath and Letterman (1969), Engel and Blackwell (1982), Fichter (1954), Fukuyama (1961), Garlow and Schoeder (1968), King and Hunt (1972), Lehman and Shriver (1968), Sood and Nasu (1995), Stark and Glock, (1968), Wilkes *et al* (1986), Yinger (1969) have all used a multi-dimensional approach to religiosity. The scope of their work is illustrated in Table 2.8

**Table 2.8 Multi-dimensional approach to religiosity- List of studies**

Author	Year	Subject/purpose of study
Allport	1950	The individual and his religion
Allport	1954	The nature of prejudice
Fichter	1954	Social relations in the urban parish
Allport & Ross	1967	Personal religious orientation and prejudice
Garlow & Schoeder	1968	Motives for participating in the religious experience
Lehman & Shriver	1968	Academic discipline as predictive of faculty religiosity
Stark and Glock	1968	American piety: The nature of religious commitment
Demerath & Letterman	1969	Religion in social context
Yinger	1969	A structural examination of religion
King & Hunt	1972	Measuring the religious variables
Dejong <i>et al</i>	1976	Dimensions of religiosity reconsidered
Engel and Blackwell	1982	Consumer behaviour
Wilkes <i>et al</i>	1986	On the meaning and measurement of religiosity in consumer research
Sood and Nasu	1995	The effect of religiosity and nationality on consumer behaviour in Japan and the US

One of the earliest attempts to measure religiosity was by Allport (1950,1954, 1966; Allport and Ross, 1967) who identified two dimensions of religiosity which were termed *intrinsic* and *extrinsic* religiosity. It was suggested that the *extrinsic* dimension was primarily conceived to reflect an explicit, utilitarian orientation to generally institutionalised aspects of religion while the *intrinsic* dimension was primarily conceived to reflect an implicit, personal orientation to more experiential aspects of religion. Allport (1966) held that *intrinsic* orientation characterises the mature person who internalises and lives by his religion, attends church frequently, is more equalitarian and tolerant. *Extrinsic* orientation is found in the immature person who tends to use religion for his own needs and who attends church infrequently. Allport and Ross (1967) offered an operational measure of these two dimensions in the form of a 20-item religious orientation scale which they used to assess intrinsic-extrinsic religiosity. These twenty items are categorised into extrinsic and intrinsic sub-scales of eleven and nine items respectively. Statements are given scores from 1 to 5 on a Likert scale (see Table 2.9).

The scale separates the *intrinsically* worded items (**I**) from the *extrinsic* (**E**), gives score values for each item and reports on item reliabilities. In all cases, a score of 1 indicates the most intrinsic response, while a score of 5 indicates the most extrinsic. The total score is the sum of 20 item scores. The scoring procedures permit the joint use of the extrinsic and intrinsic sub scale as a single scale (religious orientation scale) in which higher total scores reflect a more extrinsic orientation. In addition the two sub scales may be scored independently allowing for separate intrinsic and extrinsic scores. Respondents were categorised as *intrinsically religious* (agreeing with intrinsic but disagreeing with extrinsic), *extrinsically religious* (agreeing with

extrinsic but disagreeing with intrinsic) or *non-religious* (disagreeing with both intrinsic and extrinsic). *Intrinsic* type individuals are those who agree with intrinsically worded statements and who disagree with extrinsically worded statements. These individuals would usually fall below the median scores on both sub scales. *Extrinsic* type individuals are those who agree with extrinsically stated statements and disagree with statements on the intrinsic sub-scale. These individuals all fall above the median scores. The scoring method employed for the religious orientation scale is further discussed in Chapter Four.

**Table 2.9 The Religious-Orientation Scale**

STATEMENTS	SA	A	N OP	D	SD
1. (I) I enjoy reading about my religion	1	2	3	4	5
2. (E) I go to church because it helps me make friends.	5	4	3	2	1
3. (E) It does not matter what I believe so long as I am good.	5	4	3	2	1
4. (E) Sometimes I have to ignore my religious beliefs because of what people might think of me	5	4	3	2	1
5. (I) It is important for me to spend time in private thought and prayer.	1	2	3	4	5
6. (I) I would prefer to go to church. a. A few times a year. 5 b. Once every month or two. 4 c. Two or three times a month. 3 d. About once a week. 2 e. More than once a week. 1					
7. (I) I have often had a strong sense of God presence.	1	2	3	4	5
8. (E) I pray mainly to get relief and protection	5	4	3	2	1
9. (I) I try hard to live all my life according to my religious beliefs.	1	2	3	4	5
10. (E) What religion offers me most is the comfort in times of trouble and sorrow.	5	4	3	2	1
11. (I) My religion is important because it answers many questions about the meaning of life	1	2	3	4	5
12. (I) I would rather join a Bible study group than a church social group	1	2	3	4	5
13. (E) Prayer is for peace and happiness.	5	4	3	2	1
14. (E) Although I am religious I don't let it affect my daily life.	5	4	3	2	1
15. (E) I go to church mostly to spend time with my friends.	5	4	3	2	1
16. (I) My whole approach to life is based on my religion.	1	2	3	4	5
17. (E) I enjoy going to church because I enjoy seeing people I know there.	5	4	3	2	1
18. (E) I pray chiefly because I have been taught to pray.	5	4	3	2	1
19. (I) Prayers I say when I am alone are as important to me as those I say in church.	1	2	3	4	5
20. (E) Although I believe in my religion, many other things are more important in life.	5	4	3	2	1

(SA= Strongly Agree, A= Agree, NOP= No opinion, D= Disagree, SD= Strongly Disagree)

(I=Intrinsic, E=Extrinsic)

*Source: Allport and Ross, Journal of Personality and Social Psychology, 1967, 5, 4, (432-443)*

The religious orientation scale framework has provided the dominant conceptual and measurement paradigm for the psychology of religion since 1967 (Kirkpatrick and Hood, 1990). However, a number of other studies have contributed to substantiate

the multi-dimensional measurement of religiosity. These are discussed below and summarised in Table 2.10.

**Table 2.10 Dimensions used in the measure of religiosity**

Author	Year	Subject/purpose of study	Dimensions of religiosity
Garlow and Schoeder	1968	Motives for participating in the religious experience	Servitude to God, self improvement, search for family guidance, moral values, search for God, service to society and knowledge of religion
Lehman and Shriver	1968	Academic discipline as predictive of faculty religiosity	Ideological, ritual, cognitive and experiential
Stark and Glock	1968	American piety: The nature of religious commitment	Belief, practice, knowledge, experience and consequences
Demerath and Letterman	1969	Religion in social context	Belief, practice, knowledge, experience and consequences
Dejong <i>et al</i>	1976	Dimensions of religiosity reconsidered study	Belief, experience, religious practice, religious knowledge, individual moral consequences and social consequences.
Wilkes, Burnett and Howell	1986	On the meaning and measurement of religiosity in consumer research	Church attendance, importance of religious values, confidence in religious values and self perceived religiousness
Sood and Nasu	1995	The effect of religiosity and nationality on consumer behaviour in Japan and the US	Religious doctrine, religious practice, moral consequences and self rating of one's own religiosity

In 1968, Garlow and Schoeder attempted to identify a set of statements which individuals report as a reason for participation in religious activity. Their objective was to try and group individuals into “religious types”, sharing similar views about the religious experience. They used seven dimensions of religion namely, servitude to God, self improvement, search for family guidance, moral values, search for God, service to society and knowledge of religion. In the same year, Lehman and Shriver (1968) attempted to determine whether academic discipline is predictive of religiosity. They used four dimensions in their measure of religiosity: namely, ideological, ritual, cognitive and experiential. Stark and Glock (1968) in their book entitled “American piety: the nature of religious commitment” suggested that

religiosity should be measured using five dimensions: belief, practice, knowledge, experience and consequences. Demerath and Letterman (1969) also supported the five dimensions used by Stark and Glock (1968). King and Hunt (1972), in their study of "Measuring religious variables", made a comparison among a number of religious scales, with emphasis on those by Stark and Glock (1968) and Allport and Ross (1967). They confirmed that religiosity should be best measured as a multi-dimensional construct. In 1976, six major dimensions of religiosity were observed by Dejong *et al* in their support of the multi-dimensional nature of religiosity namely, belief, experience, religious practice, religious knowledge, individual moral consequences and social consequences. According to Dejong *et al*, religion cannot be conceived as a single, all encompassing phenomena. The purpose of their study was to address the following questions using a group of German and American students:

- a) Is there continuing evidence for several dimensions of religiosity such as those suggested by Stark and Glock (1968)? Is there evidence for a more general dimension underlying alternative meanings of the concept?
- b) Are there dimensions of religiosity which describe more than one cultural group? If so, how do the patterns of intercorrelations among dimensions compare across cultural groups?

Dejong *et al* (1976) found a cross cultural test of the dimensionality issue as basic to the development of a valid conceptualisation of religiosity; one not resting solely on the religious manifestations of American subjects. They observed that these dimensions are really sub-dimensions because they are held together by a more

global concept, a generic religiosity. They conclude that religiosity is a multi-dimensional phenomenon and several dimensions should be used in its measurement.

Wilkes, Burnett and Howell (1986) suggest four dimensions that should satisfy the measure of religiosity in studying its influence on consumer behaviour and these are:

- Church attendance
- Importance of religious values
- Confidence in religious values
- Self-perceived religiousness.

Their research attempted to determine the influence of religiosity on lifestyle. According to them, individuals with varying degrees of religious commitment tend to differ in the degree to which they embrace certain lifestyles. Furthermore, this relationship persists even after the effects of age, sex and income are removed. Wilkes *et al* (1986) also suggest that church attendance alone is not a satisfactory measure of religiosity and that a multi-item measure provided a more satisfactory fit than church attendance alone.

Sood and Nasu (1995) also advocate the four dimensions by Wilkes *et al* (1986) in their measure of religiosity and its effect on consumer behaviour. According to Sood and Nasu (1995), a common thread seems to have developed in the measure of religiosity and the four major items to be included in the measurement are restated as being beliefs in religious doctrine, religious practice, moral consequences and self rating of one's own religiosity. These measures were used by both Wilkes *et al*

(1986) and by Sood and Nasu (1995) to construct a four-dimensional scale items using five point Likert scales (Table 2.11).

In both of these studies, the research instrument is made up of statements based upon the four dimensions. Five- point Likert scales are used to measure each statement before summing up the scores on each scale. The total score becomes the degree of religiosity of the respondent.

**Table 2.11 Four-dimensional religiosity scale**

I go to a place of worship regularly.	SD-SA
Spiritual values are more important than material things.	SD-SA
Religious people are better citizens.	SD-SA
How do you characterise yourself?	NR-VR
Supreme reality is beyond the comprehension of the human mind.	SD-SA
Religion is self-education in conquering pain, sorrow and suffering.	SD-SA
A person's soul is immortal.	SD-SA
The individual person is not important.	SD-SA
One should strive for inner purity through contemplation and ceremonial acts.	SD-SA

(SD = Strongly Disagree, SA= Strongly Agree) (NR= Not Religious, VR= Very Religious)

*Source: Sood and Nasu, Journal of Business Research 34, 1-9 (1995)*

The scope of the work discussed above suggests agreement that religiosity is a multi-dimensional construct but there is some disagreement on the dimensions that should be used in its measurement. The measure depends on the type of research being carried out and religiosity must be defined for each research setting. However, it is clear from the literature that a multi-dimensional approach using several scale items

has a higher validity than a simple uni-dimensional measure, like church attendance alone (King and Hunt, 1972; Wilson, 1960). For the purpose of the current study, we can therefore draw a number of conclusions about a suitable measure of religiosity. These are discussed in the next section.

## **2.10 Selected measurement of religiosity**

The following conclusions can be drawn from the review of the literature:

- Religion is one of the fundamental elements of social behaviour (Berger, 1961; Gleason, 1969; Gurvitch, 1971; Merton, 1937) and as such influences the particular behaviour of individuals within religious groups.
- In the consumer behaviour literature, religion has been studied from two main perspectives: namely, religious affiliation and religious commitment. Religious affiliation is the adherence of individuals to a particular religious group. Religious commitment, also termed religiosity, has been defined as “ the degree to which beliefs in specific religious values and ideals are held and practised by an individual” (Delener, 1990). Both religious affiliation and religiosity have been seen to have an influence on aspects of consumer behaviour (Delener, 1988, 1990, 1994; Greeley, 1977; Herberg, 1964; Hirschman, 1983; La Barbera, 1987, 1997; Mayer and Sharpe, 1962; Patai, 1977; Sood and Nasu, 1995; Wilkes *et al*, 1986).
- In the above studies, religiosity has been used as an independent variable and has been shown to have an influence on personality, product choice, brand/store

loyalty, store patronage, lifestyle, family decision-making, perceived risk and consumer related marital roles.

- Although there is general agreement that religiosity is multi-dimensional in nature and should be measured as such, no consistent empirical evidence exists as to the characteristics that make up an individual's religiosity (Allport , 1954; Allport and Ross, 1967; Dejong *et al*, 1976; Demerath and Letterman, 1969; Engel and Blackwell, 1982; Fichter, 1954; Fukuyama, 1961; Garlow and Schoeder, 1968; King and Hunt, 1972; Lehman and Shriver, 1968; Sood and Nasu, 1995; Stark and Glock, 1968; Wilkes *et al*, 1986; Yinger, 1969)
- Studies on the relationship between religiosity and aspects of consumer behaviour have focused primarily on Jews, Protestants and Catholics in the United States without much attention being given to other religious groups such as Hindus and Muslims who constitute an important share of consumer markets worldwide.

In the light of the above observations, the current study has attempted to measure the influence of religiosity on consumer behaviour of Hindus, Muslims and Catholics in a specific setting, with a view to adding to the literature in this field. Before the selection of an appropriate measure for the religiosity construct, measurements used in previous studies have been analysed. These have been discussed in the section on the measurement of religiosity. As a result of this discussion, it was decided to select a multi-dimensional measure of religiosity. The specific scale chosen is the Religious Orientation Scale by Allport and Ross (1967). The reasons for this selection are as follows:

- The scale is believed to have made a substantial contribution to the empirical study of religion.
- The scale measures religiosity as a multi-dimensional construct.
- The reliability and validity of the scale has been tested in more than 70 research studies (Donahue, 1985) which shows that it is a reliable measure of religiosity.
- The dimensions used in the measurement scale satisfy the definition of religion selected for this study since they measure the degree of commitment of individuals to principles set forth by their religion.

The methodological issues regarding the Religious Orientation Scale are discussed in Chapter Four.

The next section of this chapter discusses the principles, theological bases and guiding philosophy of the three religious groups - Hinduism, Islam and Roman Catholicism - which are sampled in this study.

### **2.11 Religious groups used in this study**

The purpose of this section is to discuss the three religions - Hinduism, Islam and Roman Catholicism - in order to give insights into their beliefs and teachings. As discussed in the literature review, if religious beliefs have an influence on behaviour, it will be logical to assume that these influences stem from differences in beliefs and teachings. One can also extract or derive from the literature review that religion may have an influence on consumer behaviour caused by differences in the beliefs and teachings of each religion. Therefore, the analysis of the beliefs and teachings of

each of the three religious groups is important to the current study as the analysis would help to understand the reasons for different types of consumer behaviour.

It is already established that consumption of certain foodstuffs varies from one religious group to another (Hirschman, 1981). For example, Muslims do not consume pork and Hindus refrain from the consumption of beef. However, the degree to which an individual adheres to his or her religious faith or teachings (his religiosity) might also affect him or her as a consumer. This has also been tested in several previous research studies, as discussed in Section 2.8, where religiosity was found to influence certain aspects of consumer behaviour (Delener, 1988, 1990, 1994; La Barbera and Gurhan, 1997; McDaniel and Burnett, 1990; Sood and Nasu, 1995; Wilkes, Burnett and Howell, 1986). If religiosity and religious affiliation have an influence on shopping behaviour, then, it is important to understand the basic beliefs and teachings of each religious group and consider which ones impact upon purchasing decisions. In this study, one of the objectives is to determine whether religiosity and religious affiliation have an influence on the purchasing behaviour of members of three religious groups: Hindus, Muslims and Catholics. Each of these religions has different beliefs and teachings. An understanding of the beliefs and teachings of each religion is therefore important for the subsequent analysis in the current study.

If members of the three religious groups are found to differ in their purchasing behaviour and this difference can be accounted for by the beliefs and practices of each religion, this may then serve as a basis for developing appropriate marketing strategies targeted at each of these different religious groups. Consumers with

homogeneous beliefs and values could be grouped together in segments and appropriate marketing strategies targeted at each of the segments in a number of markets.

### 2.11.1 Hinduism

Hinduism is a belief system that began in India about 3,500 years ago. More than one billion people across the world follow Hinduism and are called Hindus. Hinduism does not have a single founder, nor does it have a single scripture. The principles of this religion are based upon the spiritual experiences of numerous sages and saints of the ancient, medieval and modern times. Thus, Hinduism is not a tradition of personalities but of principles (Hinnells and Sharpe, 1972).

Defining Hinduism is difficult due to its internal diversity, long history and strong geographical association with India. It is best defined as the religion of Hindus (Sharma, 1986). Hindus believe in one supreme God who is the real mother and father of all the people of the world. They believe that God is invisible, but can take any form called demi-gods to please his devotees. People pray and offer food and money to the gods at the altar in their homes and at temples. They believe that this will bring peace and protection from evil spirits. Hindus believe that there are many ways of reaching God such as prayer, meditation or pilgrimage (Crompton, 1971).

The major scriptures of Hinduism are the Vedas, Epics, Agamas, Darshanas and the Bhagavad Gita. The Vedas include religious teachings, general rules for social and individual behaviour, and prayers that the devotees use to worship God (Hopkins,

1971). The Epics illustrate the religious principles through stories of saints, kings, heroes, holy men and women. Agamas and Darshanas provide specific guidance for religious rites and ceremonies and prayers. The Bhagavad Gita is a summary of all Hindu teachings and is popularly referred to as the Bible of Hinduism (Goodall, 1996).

Hinduism teaches that the supreme God lives in all creatures, both humans and animals. Because of this, Hindus consider all life to be sacred. The cow is thought to be the most sacred of all, because it is the most giving animal. It eats only grass and grain, but in return keeps humans alive with its milk and provides leather. Hinduism emphasises the necessity of escaping from material life and of extinguishing desire. Another teaching of Hinduism is that all people of all religions are God's children. Therefore, Hindus must love all people of all religions, all cultures, regardless of their colour, gender, geographic location or religious association (Jurji, 1946). Another main belief of Hinduism is reincarnation, meaning to "re-enter the flesh". This is the idea that when a person dies, he or she comes back to life as another person or an animal. Hindus believe that a person's soul has many lessons to learn. By living many different lives, the soul will experience everything it is supposed to. When it no longer needs to learn anymore, the soul reaches a stage called "mukti", that is liberation. The soul will then stop being reincarnated as it becomes one with God. Karma is another belief that is somewhat related to reincarnation. It means "cause and effect". "As you sow, so shall you reap" is the cosmic law that governs all human actions (Morgan, 1987). A Hindu believes that if he has carried out a bad action against someone, then something bad will come onto him later on. This is known as bad Karma. There is also good Karma. If the Hindu does something good

to someone, it will bring something good later on. So the way people lived in their past lives can determine what kind of lives they now have. If they are unhappy, for example, it is probably because of something they did in their past lives.

Hinduism is very ritualistic and includes extreme self denial and self punishment. Hindus worship their God in many forms and each form represents God in a particular context. This view is similar to the ancient Greeks: for example, Brahma, Vishnu and Shiva are considered as the holy trinity and as supreme gods. There are a number of other demi-gods or saints such as Ganesha, the elephant-headed god, a son of Shiva and Lakshmi, wife of Shiva. Each demi-god is worshipped for the powers that it possesses and for its symbolic meaning. For example Ganesha is worshipped for his intelligence and wisdom while Lakshmi is worshipped for her contribution to wealth. Hindus worship both at home and at temples and the rituals usually involve purification through fire, water and offerings of fruit and flowers.

Hindus believe they are born into different groups, called castes (Berry, 1971). The caste system is divided into four main groups. The highest and most important caste is the one called Brahman which include priests and scholars. These are followed by the Kshatriyas who are the warriors and the rulers. The third group is the Vaishyas, who are the shopkeepers and the businessmen. The lowest caste is the Shudras who are the servants and manual workers. The idea behind this system is that every person should be born to perform a certain job, marry a specific person, eat certain food and have children. Hindus believe that if people abide by the rules of the caste they belong to, they will be reborn into a higher caste in the next life. Furthermore, Hindus believe that people commit sins because of ignorance of God and his natural

physical and spiritual laws. Thus ignorance is the disease that causes pain and suffering in the world. Knowledge and learning are the treatment of this disease. Thus Hindus consider education as their highest priority. Because of the emphasis on education, in Hindu tradition, a teacher is respected the most and is given the highest honour in society. In Hinduism, the guru-disciple (teacher-student) relationship is viewed as the most sacred relationship in life. Hinduism reveres old age and treats all elders with great reverence (Berry, 1971).

The above beliefs and practices of the Hindu religion may have an important bearing upon the purchasing behaviour of its members. The acceptance of the Hindu of being born into a specific caste and the expectation and willingness to behave in accordance with the norms of that caste indicates a certain fatalism or inability to change things. This fatalism and the importance of religious beliefs such as self-control, calm, detachment and compassion would indicate a relatively passive purchasing behaviour (Bailey and Sood, 1993). This could mean that minimum effort would be made by devout Hindus to search for information, to acquire new products, to request quality service or low prices. These beliefs could in fact lead to acceptance of poorer service and high prices.

#### 2.11.2 Islam

Islam is the youngest of the world's major religions. The name of this religion is Islam, the root of which is Silm and Salam, which means peace. The Muslim population is estimated at more than one billion and is believed to be increasing by approximately 25 million per year (Ali, 1983).

Islam encompasses personal faith and piety, the creed and worship of the community of believers, a way of life, a code of ethics, a culture, a system of laws – in short, guidelines and rules for life in all its aspects and dimensions.

Islam means submission to the One God and to live in peace with the creator, within one's self, with other people and with the environment (Ali, 1983). Thus Islam is a total system of living. A Muslim is expected to live in peace and harmony with all of these elements. Hence, a Muslim is any person anywhere in the world whose obedience, allegiance and loyalty are to God, the Lord of the Universe.

According to Islam, Allah is the name of the One God. Muhammad was chosen by God to deliver his message of peace, namely Islam. He was entrusted with the Message of Islam and the revelation he received is called the Qur'an, while the message is called Islam (Rippin, 2001). Muslims consider Muhammad as being the summation and culmination of all the prophets and messengers that came into this world before him. He was entrusted with the power of explaining, interpreting and living the teachings of the Qur'an.

The legal sources of Islam are the Hadith and the Qur'an. The Qur'an is considered to be the exact word of God. The Hadith is the report of the sayings, deeds and approvals of the Prophet Muhammad (Brown and Palmer, 1987). The Prophet's sayings and deeds are called the Sunnah. The Seerah is the writings of followers of Muhammad about the life of the Prophet. Hence, it is the life history of the Prophet Muhammad which provides examples of daily living for Muslims (Jurji, 1946).

One of the main Islamic principles is Oneness of God. This means that Muslims reject the idea of trinity or such a unity of God, which implies more than one God in one (Brown and Palmer, 1987). A second principle is Oneness of mankind. People are created equal in front of God (Hovanissian, 1985). There is no superiority for one race over another. Muslims believe that God made us of different colours, nationalities, languages and beliefs so as to test who is going to be a better individual than others. No one can claim that he is better than others are. It is only God who knows. Muslims believe that God sent different messengers throughout the history of mankind. All came with the same message and the same teachings. It was the people who misunderstood and misinterpreted them. Another important belief of Muslims is that there are unseen creatures such as angels created by God in the universe for special missions.

According to Islam, there is a “Day of Judgement” when all people in the world, throughout the history of mankind until the last day of life on earth, are to be brought for accountability, reward and punishment (Smith, 1981). Muslims believe that people are born free of sin. It is only when they reach the age of puberty and when they commit sins that they are to be charged for their mistakes. No one is responsible for or can take responsibility for the sins of others. However, the door of forgiveness through repentance is always open (Rippin, 2001).

Muslims believe that Islam is a total and complete way of life. It encompasses all aspects of life. As such, the teachings of Islam do not separate religion from politics. As a matter of fact, state and religion are under the obedience of Allah through the

teachings of Islam. Hence, economic and social transactions, as well as educational and political systems are part of the teachings of Islam.

Muslims are instructed to practise what they believe. In Islamic belief, there are five pillars (Ali, 1983), namely:

1. Creed (Shahada): The verbal commitment and pledge that there is only One God and that Muhammad is the messenger of God is considered to be the Creed of Islam.
2. Prayers (Salat): The performance of the five daily prayers is required of Muslims.
3. Fasting (Saum): Fasting is total abstinence from food, liquids and intimate intercourse (between married couples) from dawn to sunset during the entire month of the Ramadan.
4. Purifying Tax (Zakat): This is an annual payment of a certain percentage of a Muslim's property, which is distributed among the poor or other rightful beneficiaries.
5. Pilgrimage (Hajj): The performance of pilgrimage to the Makkah is required once a life time if means are available. Hajj is in part in memory of the trials and tribulations of Prophet Abraham, his wife and his eldest son.

Furthermore, Islam establishes certain dietary requirements (Jurji, 1946). It restricts Muslims from consuming certain items such as pork and its by-products, alcohol and any narcotic or addictive drugs. Muslims are also not allowed to gamble. The holy day of Muslims is Friday. It is considered to be sacred and according to Islamic belief, the Day of Judgment will take place on Friday.

There are a number of possible effects of Islamic beliefs and practices on consumer behaviour. Given that devout Muslims believe that the outcome of their actions is God's will, it would seem that devout Muslims would be great risk takers and innovators. They would therefore try out new brands or new retail stores, since the outcome would depend on God's will rather than their own doing. It would also seem that devout Muslims would not search for information or be responsive to advertisements as the outcome will not be affected by their actions.

### 2.11.3 Roman Catholicism

Catholicism is one of the divisions of Christianity. In order to understand Catholicism, it is important to grasp the basic features of Christianity. Christianity is the religion that is based on Jesus Christ. It is not only named for him; it is centred on him as its actual content and substance. Christianity is not based on theoretical or abstract doctrine. It has been founded on a concrete, empirical occurrence in the world. That historical event is the life, death and resurrection of Jesus Christ. Jesus was a Jew and the first Christians were Jews. Christianity, therefore, comes out of Judaism (Jurji 1946).

Many of the teachings of the Old Testament can be found in Christianity. One of the most striking formulations of Christian teaching is the Great Commandment, in which Jesus used messages from the Old Testament, which he combined in his new way. Furthermore, the Kingdom of God, which is an important part in the Old Testament, plays a focal point in Jesus' teaching and ethics (Palmer, 1990). Moreover, Jesus called for believers to act like children in offering God their

obedience, trust and love even though in the real world, they were to be mature, sophisticated and self-reliant. This is quite similar to the teachings of the Old Testament. However, the main teachings of Christianity are found in the Bible which contains both the Old and the New testament.

The threefold nature of God as Father, Son and Holy Spirit, that is the Trinity, is fundamental in most branches of Christianity (Fouyas, 1972). The Trinitarian doctrine is accepted as meaning "One God in Three Persons". This Trinity is the focus of doctrine and worship in Christianity. God the Father is the one ultimate ground of all existence; all else is second to him. Christ is the Son and Christians of all persuasions regard him as in some unique way their personal Saviour. This is the heart of doctrine, worship, devotion, meaning and life for the Christian. The Holy Spirit denotes the invisible reality of God working in the world.

Worship is important in Christianity because spiritual life is nourished thereby, and only with God's help can the Christian life be lived (Lewis and Jones, 1998). The principal ideas of the main forms of worship are:

- Praise and Adoration: The first duty of a Christian is to glorify God and enjoy him forever.
- Thanksgiving: The note of thanksgiving is in some ways the most persistent element of Christianity. At all times, even in suffering and adversity, one is to give thanks.
- Confession and Penitence: Before the glory of God, the Christian feels his unworthiness and makes confession in one form or another.

- Petition: There is no rule against asking or seeking help, mercy, gifts and blessings from God in worship.
- Forgiveness, Absolution: The peace and comfort of God is freely given to all who ask it. Jesus Christ is the guarantee of this.
- Instruction and Education: Christian worship may include specific teaching about God and holy things.
- Commitment, Dedication: Just as God has given of himself in Jesus Christ, so the Christian is to fulfil his Christian covenant by dedication and commitment of his life to God. The formal offering of money symbolises and expresses dedication, which may also be expressed in other liturgical elements.

Throughout history, Christians have tended to separate into rival groups, but the main body of the Christian Church was united under the Roman emperors. During the middle ages, the main church became divided into a Latin (Western European) and a Greek (Byzantine or Orthodox) branch. The Western or Latin Church was in turn divided by the Reformation of the 16<sup>th</sup> century into the Roman Catholic Church and a large number of smaller protestant churches. Protestants differ from Roman Catholics in that they reject the notion that divine authority is channelled through one particular human institution or person such as the Pope. Although both Churches stress the authority of the Bible, the Roman Catholics also look to the Pope as a source of authority.

According to Roman Catholic teaching, the church is the exclusive channel of God's grace in Jesus Christ and the two principal means for transmission of this grace are prayer and the sacraments. The sacraments are distinctive ritual observances of Christianity (Bullough, 1963). The Catholic Church has seven sacraments, which are

Baptism, Confirmation, Eucharist, Penance, Anointing of the Sick, Holy Orders and Matrimony.

The principal function of the church is to disperse the sacramental grace of which it is custodian. The mass is a complex whole, each major part having its rationalised place and meaning. If Christ is the heart of the church, the mass is the blood that carries life to all parts of the Body of Christ, as the church is often called (Jurji, 1946). The Catholic Church guarantees the faithful that the veritable sacramental grace of Christ is brought to them during the mass. To the true Catholic this ensures one's salvation and is the basis of faith and life.

According to Bailey and Sood (1993), the Catholic beliefs and teachings would have considerable influences on the purchasing behaviour of Catholics. The authors suggest that devout Catholics would tend to prefer products that are more popular and which are well-known brands. Devout Catholics would also search for information and be responsive to advertising, a position consistent with conformity found in their religion.

The above discussion on the doctrines, beliefs, teachings and practices of the three religious groups, Hindus, Muslims and Catholics, shows clearly that differences exist in their beliefs. If the Hindu believes that God can take many forms, the Muslim believes that God has only one form, while the Catholics believe that Jesus Christ is the Son of God. This is one example of many which differentiates the teachings and beliefs of each of these religions. As discussed in the literature review, if religion has an influence on behaviour, it will be logical to assume that these differences in

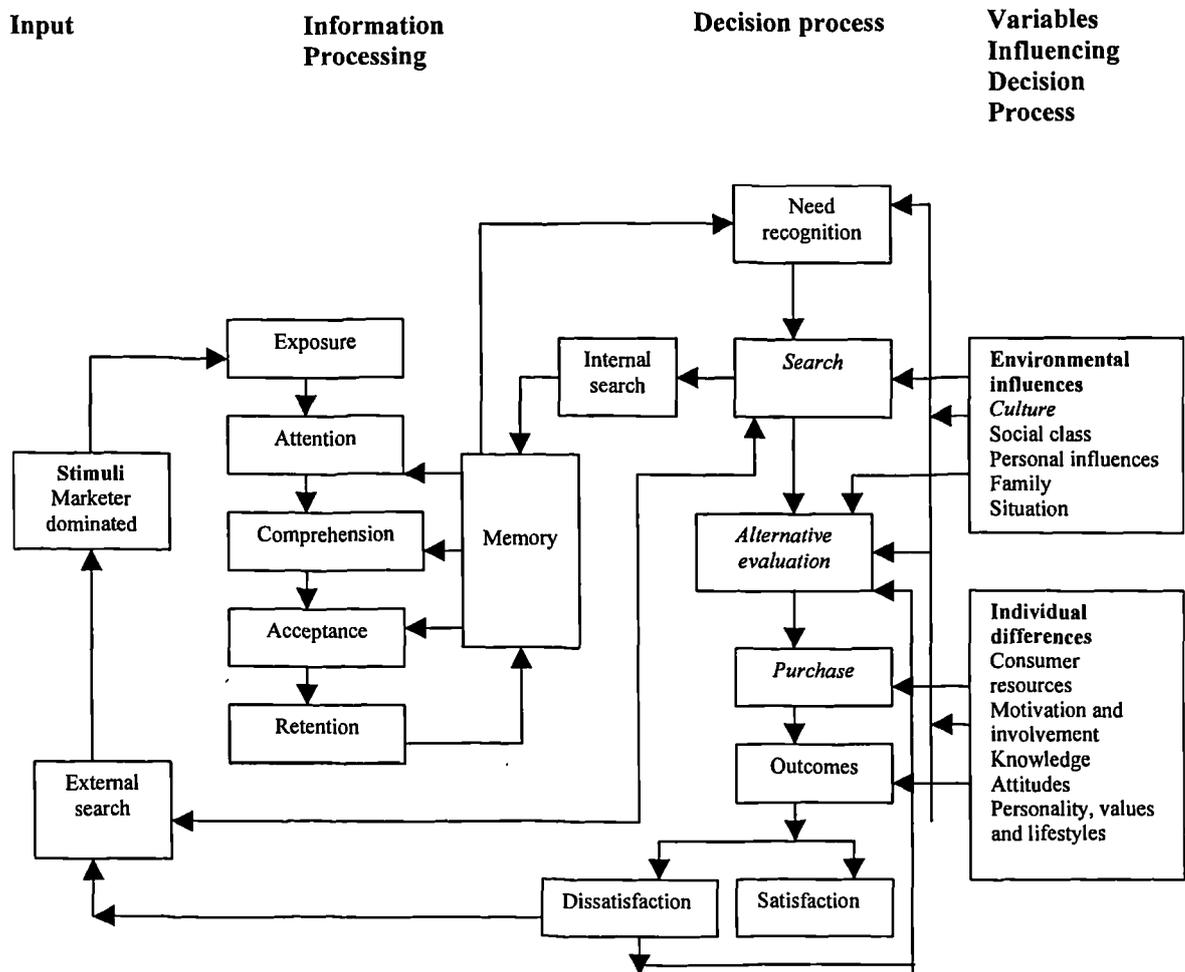
behaviour are attributed to different beliefs and teachings of that religion (religious affiliation of members). One can also derive from the literature review that religion may have an influence on consumer behaviour caused by differences in the *degree* of beliefs (religiosity of members) in the teachings of each religion. Therefore, an analysis of the beliefs and teachings of each of the three religious groups was important in providing information in order to understand the reasons why religious affiliation and religiosity may influence consumer behaviour.

A review of the literature on culture, religion, religious affiliation and religiosity and their influence on behaviour has been presented in Sections 2.2 to 2.11. It has been shown that religious variables are reliable constructs in consumer behaviour research. Previous studies have looked at different aspects of consumer behaviour ranging from purchase of specific products (Thompson and Raine, 1976) to the choice of retail outlets (McDaniel and Burnett, 1990) but these studies have concentrated more on Jews and Protestants. The current study looks at the influence of religious variables on Hinduism, Islam and Roman Catholicism on selected aspects of consumer behaviour across a number of products.

In the next section, a review of the aspects of consumer behaviour chosen for this study is carried out. The review highlights the importance of these aspects of consumer behaviour in the marketing literature as important determinants of purchase. The relationship between (1) religiosity and (2) religious affiliation and these aspects of consumer behaviour are also discussed in order to develop hypotheses for the current study.

## 2.12 Aspects of consumer behaviour

**Figure 2.2 Model of consumer behaviour**



Source: Engel, J.F., Blackwell, R.D. and Miniard, P.W. (1993), *Consumer Behaviour*, Dryden Press.

In deciding what to purchase, the consumer faces a number of decisions. The decision making process is made up of a number of stages starting with recognition of a need followed by information search, evaluating alternative solutions, choice and post purchase evaluation. Each stage in the process is influenced by a number of

factors as illustrated in the consumer behaviour model (Engel, Kollat and Blackwell, 1993) in Figure 2.2.

Each stage in the decision making process consists of different activities conducted by consumers which culminate in the purchase or rejection of a product. The information search stage is characterised by the search for information from internal and external sources which have a direct influence on product choice. The evaluation stage involves the comparison of different product and retail store attributes in order that a decision can be made as to which brand to purchase and which store to select. The choice stage is characterised by the actual purchase of the product. The outcome of the decision-making process results in a particular type of shopping behaviour. Given the number of stages and activities associated with each stage of the decision making process, it was not possible to consider all the stages within the scope of the current study. Therefore, three aspects of the model were selected: external information search, importance attached to retail store attributes (retail store preference) and shopping behaviour. These aspects of consumer behaviour have been selected because they are central to consumption processes as shown by the model. These aspects and their relationship with religion (as a component of culture, one of the environmental influences in the model) are discussed in the next sub sections.

#### 2.12.1 Shopping behaviour

An emerging area of study of the psychological aspects of buyer behaviour involves examining the complex relationships among psychological variables as they relate to buyer behaviour, emphasising how the psychological characteristics of individuals

interact and how those interactions describe and predict how consumers shop (McDonald, 1993).

In an article entitled “Why people shop?” (1972), Tauber argues that the field of consumer behaviour consists of three distinct activities: *shopping*, *buying and consuming* and that it is important to understand the behavioural determinant of each since a unified theory of shopper behaviour does not exist. His findings suggest that shopping behaviour is based on both *personal* and *social* motives. According to Tauber (1972), consumers shop when they need attention, need to be among peers, feel a need to exercise or have leisure time.

Similarly, a number of other conceptual frameworks have been used to understand the nature of shopping behaviour. One of the earliest studies is by Stone (1954) in which this author interviewed consumers about their attitudes towards shopping. Stone identified four basic shopping orientations. The *economic shopper* whose prime consideration is price; the *ethical shopper*, who claims to employ moral considerations in the choice of a retail outlet; the *personalising shopper*, who sees shopping as an opportunity for interaction; and finally the *apathetic shopper*, who shops only out of necessity. Stone (1954) concluded that each shopping orientation represented a type of shopping behaviour. Further research into these shopping orientations derived by Stone were carried out by Stephenson and Willet (1969), Darden and Reynolds, (1971), Tauber (1972), Darden and Ashton, (1975), Westbrook and Black (1985). These researchers were more concerned with the commercial benefits that this topology seemed to offer. Stephenson and Willet (1969) attempted to correlate the way in which shoppers purchase products with the

number of stores they are likely to patronise. Darden and Reynolds, (1971) also sought to link Stone's shopping orientations with the purchase of products. They concluded that some shoppers are concerned with buying (economic shoppers) while others are more concerned with socialising (personalising shoppers).

Although Stone's shopper orientations have had considerable influence upon research on shopping, a number of researchers have looked at other factors that influence shopping behaviour. Some researchers have suggested that shopping is a function of the nature of the product (Holton, 1956), the degree of perceived risk in the product class (Cox, 1967), amount of information search (Howard and Sheth, 1969), store location, product assortment and store image (Bucklin, 1967). Roberts (1969) suggests that shoppers are influenced by employment, social, religious, educational and recreational activities. These researchers came up with a number of additional topologies such as the *recreational* shopper, who gains satisfaction from the act of shopping itself (Bellenger *et al*, 1980); and the *involved* shopper, who takes shopping as serious business (Williams *et al*, 1978).

The above findings suggest that shoppers can be categorised according to the benefits they derive from shopping and that they can be grouped according to shopper types. The benefits that consumers derive from shopping can be summarised as based on (1) their attitudes towards the product, (2) store choice and (3) their personal characteristics (Bellenger *et al*, 1980). These authors suggest that shopping behaviour is also characterised by the amount of time spent shopping, the pleasure derived from shopping, the amount of information search prior to shopping and the exposure to promotional messages from the media or in-store.

In the consumer behaviour literature, evidence of the influence of buyer characteristics on shopping behaviour has been associated to religiosity and religious affiliation in some studies. As discussed in Section 2.6 and 2.7, Hirschman, (1981) suggest that religious affiliation seems to have an influence on shopping behaviour. Sood and Nasu (1995) suggest that religiosity and religious affiliation of American Protestants seem to have an influence on different shopping orientations. However, these researchers claim that more research needs to be carried out across a number of products in different buying environments to better understand the influence of religious factors on shopping behaviour.

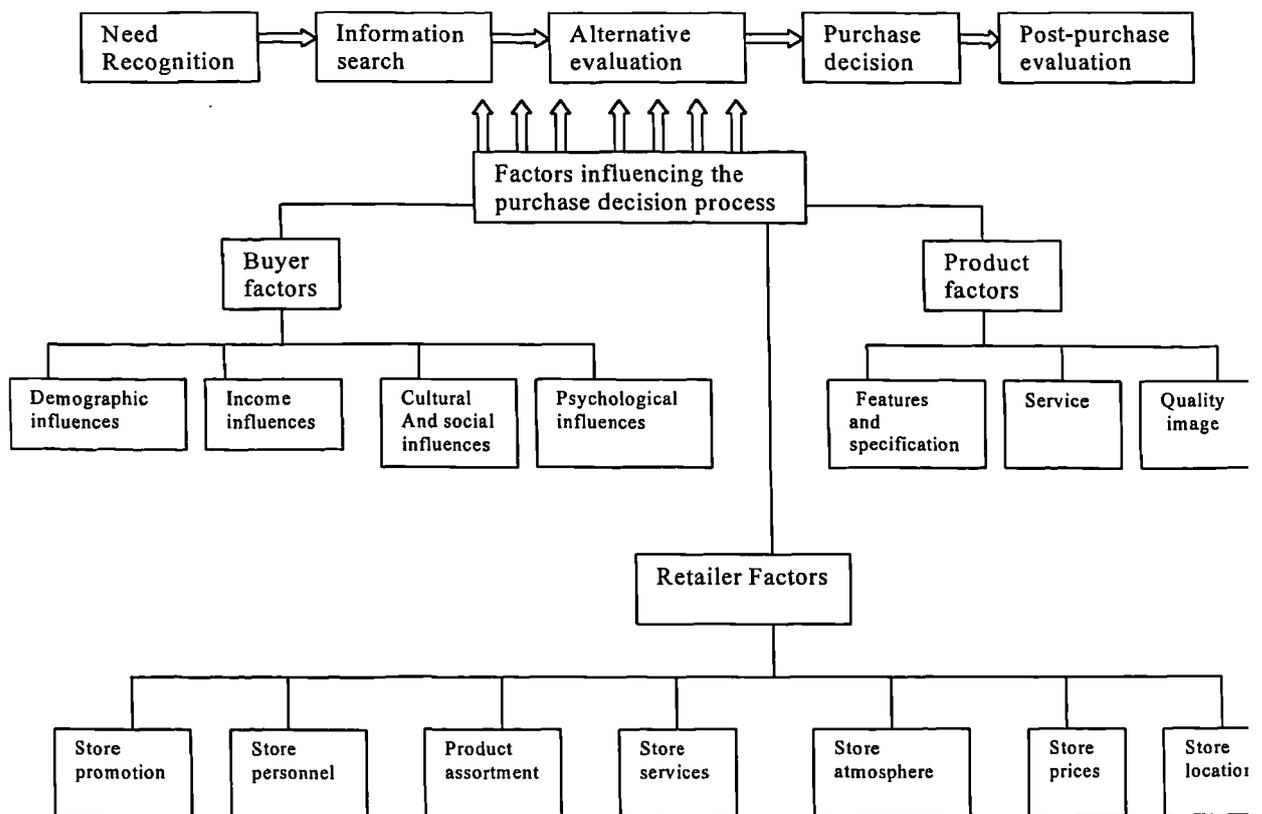
In the current study, in order to investigate the influence of religious affiliation and religiosity on shopping behaviour of Hindus, Muslims and Catholics, respondents will be grouped into shopper types according to their shopping orientations. The shopping orientations will be measured based on the criteria used by Stone (1954), Stephenson and Willet (1969), Darden and Reynolds (1971), Tauber (1972), Darden and Ashton, (1975), Westbrook and Black (1985) and Sood and Nasu, (1995). The shopping orientations are discussed in more detail in Chapter Six.

#### 2.12.2 Retail store preference

Darden *et al* (1983) contend that differential store choice behaviour of consumers is as important to retailers as brand choice behaviour is to manufacturers. According to these authors a number of factors suggest the priority of store choice as compared to brand choice. Firstly, they suggest that many consumers make periodic and even regular trips to a retail store without purchasing anything but only to find out what is

available. Consumers may therefore choose the store first without considering the brands and then make a selection of the brands which the store carries. Secondly, Darden *et al* (1983) suggest that consumers choose a store because of its reputation and then purchase products from that store. According to these authors, the success of generic brands as compared to private manufacturers' brands is evidence that consumers choose the store first and then the brands. The combination of the above factors suggest that preference for certain store attributes, rather than brand choice, may often be the variables of interest in a model of consumer behaviour. This contention is supported by Hasty (1983) who suggests that store attributes have an influence on the decision-making process of the consumer. The purchasing behaviour model put forward by Hasty (1983) is illustrated Figure 2.3.

**Figure 2.3 Retail store attributes in the decision making process**



Source: Hasty R W (1983), *Retailing*, Harper & Row.

According to Hasty (1983), preference for a retail store is based on store promotion, store personnel, store product assortment, store service quality, store atmosphere, store prices and store location.

A number of other researchers have investigated into the determinants of store choice as a means of understanding consumer behaviour. Dash *et al* (1976) studied risk and personality-related dimensions of store choice. Titus and Everett (1995) looked at the consumer retail search process. Dawson *et al* (1989) studied shopping motives and retail outcomes. Sirgy *et al* (2000) studied retail environments. All these researchers suggest that retail store attributes are major determinants of store choice.

The dimensions consumers use to appraise a store are summarised by Foxall *et al* (1998) as being:

- *overall evaluation*, which includes quality, variety, helpfulness of personnel and safety.
- *environment*, which includes considerations for traffic noise, proximity and cleanliness.
- *efficiency*, which includes factors such as distance from home and crowding.
- *accessibility*, which includes parking and access to public transportation.
- *social factors*, which includes atmosphere and friendliness of personnel.

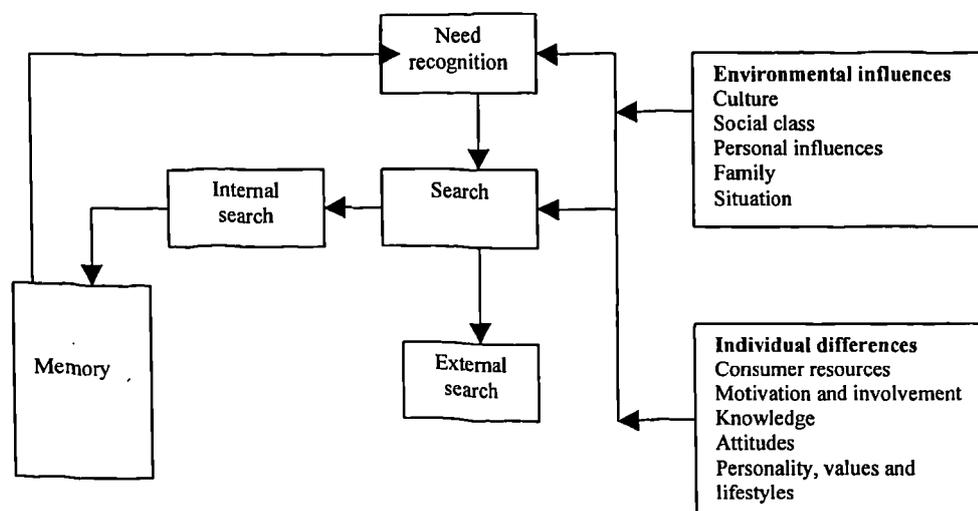
These dimensions are very similar to those advocated by Hasty (1983). However, preference for some of the retail store attributes as opposed to others is determined by personal values and characteristics of the consumer (Sheth, 1983).

Sheth (1983) specifically mentions the religious variable in advocating that both product determinants (product category, usage and brand disposition) as well as personal determinants (personal, social and epistemic values) form the basis of a consumer's shopping motives. He also predicts that "a person's religious orientation acts as a determinant of a customer's general shopping motives across a broad spectrum of product classes". A study by McDaniel and Burnett (1990) on retail store evaluative criteria suggests the influence of religiosity on people's choice of a retail store (see Section 2.8) while a study by Thompson and Raine (1976) suggests the influence of religious affiliation on store choice (see Section 2.6). It is therefore expected that religiosity and religious affiliation would significantly influence

consumer retail store preferences. In this study, whether retail store preferences among Hindus, Muslims and Catholics differ according to religious affiliation and religiosity have been investigated. The retail store attributes suggested by Hasty (1983) and Foxall *et al* (1998) have been used to measure retail store preference.

### 2.12.3 External information search

**Figure 2. 4 Search for information**



Source: Engel, J.F., Blackwell, R.D. and Miniard, P.W. (1993), *Consumer Behaviour*, Dryden Press.

In most consumer behaviour models (Figure 2.4), the information search stage is considered to be an important aspect of the consumer decision process. During the information search stage, consumers collect information in order to improve their purchase decisions (Engel *et al*, 1993). The information search process is described as being internal or external. Internal information search occurs when consumers use existing information already stored in their memory, whereas external information search involves seeking information from the environment. Understanding how consumers acquire information is important for marketing management decisions

because information search represents the primary stage at which marketing can provide information and influence consumers' decisions (Srinivasan, 1990; Wilkie and Dickson, 1985).

Most of the studies that have dealt with external information search have identified the types and/or number of sources used by individuals in their search (Beatty and Smith, 1987; Bettman, 1979; Claxton, Fry and Portis, 1974; Furse, Punj and Steward, 1984; Hirschman and Mills, 1980; Kiel and Layton, 1981; Klippel and Sweeney, 1974; Newman and Staelin, 1973; Westbrook and Fornell, 1979). Other studies have attempted to identify the importance of various sources of information (Punj and Stealin, 1983). Two research studies have investigated the influence of religion on external information search (Delener, 1989; Hirshman, 1982).

These two studies suggest that religion has an influence on external information search. The researchers started on the premise that personality traits influence external search for information. According to them, the Howard and Sheth (1969) consumer behaviour model and that of Engel, Kollat and Blackwell (1978), both suggest individual cognitive differences in external search behaviour among consumers. Since a cognitive system consists of a set of values, beliefs and expectations which is shared by members of a group (Berger, 1961), adherents to a particular religion may be considered to possess an identifying cognitive system (Delener, 1989). Religion, therefore, significantly influences information search. The study by Delener (1989) found that Jews searched for information more than Catholics. This author also reported that information search differed between highly

religious and non-religious consumers. Given that information search constitutes the major component of the basic model of consumer behaviour (Howard and Sheth, 1969; Engel, Kollat and Blackwell, 1978) and has been found to be influenced by religious affiliation and religiosity among Jews and Catholics, marketing literature will be further enriched if it is found that external search differs between the three religious groups of Hindus, Muslims and Roman Catholics, which is tested in the present study.

### **2.13 Hypotheses**

The present study was designed to build upon the theoretical bases in both the religiosity literature as well as the consumer behaviour literature, and to synthesise the empirical evidence in these two divergent research areas into a single theoretical framework. As a result of the literature reviews in both areas, several underlying theoretical principles seem to emerge. A significant amount of research demonstrates that various differences in psychological character and behaviour among individuals with different religious affiliations and religiosity lead to different purchase decisions. A number of hypotheses are stated to help ground this study into whether differences in consumer behaviour exist between Hindus, Roman Catholics and Muslims.

#### **2.13.1 Shopping behaviour**

Stone (1954), Stephenson and Willet (1969) and Sood and Nasu (1990) have suggested that shoppers can be categorised according to the importance they attach to

product attributes as well as to the way they go about their shopping. Shoppers have been characterised as personalising shoppers, ethical shoppers and store loyal shoppers among others. McDaniel and Burnett (1990) suggest that it is expected that highly religious individuals are more likely to be “personalising shoppers” as they are more conservative and traditional. Sood and Nasu (1990) in their study of the relationship between seven American Protestants shopper types and religiosity found that devout protestants were more concerned with prices and buying products while they were on sale as compared to casually religious protestants. It can therefore be hypothesised that both religiosity and religious affiliation has an influence on the way people shop and the importance they attach to product attributes. The following hypotheses are therefore proposed:

**H1<sub>0</sub>: Shopping behaviour does not differ significantly among Hindus, Muslims and Catholics.**

**H1<sub>1</sub>: Shopping behaviour differs significantly among Hindus, Muslims and Catholics.**

**H2<sub>0</sub>: There is no significant difference between the shopping behaviour of highly religious consumers and that of non-religious consumers.**

**H2<sub>1</sub>: There is a significant difference between the shopping behaviour of highly religious consumers and that of non-religious consumers.**

### 2.13.2 Retail store preference

Research indicates that individuals who are highly religious tend to possess certain identifiable and psychological characteristics (McDaniel and Burnett, 1990). People with a high degree of religiosity tend to be

- more moral, more conscientious and consistent (Wiebe and Fleck, 1980),
- more disciplined and responsible (Hamby, 1973),
- more dependent and sociable (Hamby, 1973; Wiebe and Fleck, 1980),
- more empathetic (Wiebe and Fleck, 1980),
- more conservative and traditional (Barton and Vaughan, 1976; Hamby, 1973; Tate and Miller, 1971),
- more submissive and trusting (Hamby, 1973; Kahoe 1974, Tate and Miller(1971),
- less dominant ((Barton and Vaughan, 1976; Eysenck, 1970; Hamby, 1973),
- less prone to hold “feminist” positions on women’s issues (McClain, 1979),
- more insightful and mature (Hamby, 1973),
- more positive regarding their quality of life (Hadaway and Roof, 1978).

These psychological factors tend to relate to specific retail store evaluative criteria (McDaniel and Burnett, 1990). Sheth (1983) specifically mentions the religious variable in advocating that both product determinants (product category, usage and brand disposition) as well as personal determinants (personal, social and epistemic values) form the basis of a consumer’s shopping motives. He also predicts that “a person’s religious orientation acts as a determinant of a customer’s general shopping

motives across a broad spectrum of product classes". It is therefore expected that religiosity and religious affiliation would significantly influence consumer retail store evaluative criteria.

Since highly religious individuals tend to be more conscientious than less religious individuals (Wiebe and Fleck, 1980), this might be expected to manifest itself in the importance placed on product-oriented attributes such as product quality and variety. If highly religious individuals tend to behave in a more disciplined and responsible manner (Hamby, 1973; Wiebe and Fleck, 1980), these characteristics might manifest themselves in the importance attached to financial factors involved in the purchase of products, that is cash versus credit and/or level of prices of products in store. Cash purchases usually require greater self-restraint and discipline than credit purchases. Therefore, highly religious individuals may be expected to attach less importance to credit availability.

Since religious individuals are disciplined and responsible, they are expected to be more price-conscious than less religious individuals (Sood and Nasu, 1995). Highly religious individuals tend to be also more conservative and traditional (Barton and Vaughan, 1976; Hamby, 1973; Tate and Miller, 1971) and more insightful and mature (Hamby, 1973); they are expected to attach less importance to store attractiveness criteria such as window display.

Background literature pertaining to the expected relationship between religiosity and shopping convenience/efficiency is not definitive. However, Anderson (1970) and Patai (1977) found that Catholics are more prone to place a higher value on time

spent in non-productive leisure pursuits. Hirschman (1983) found that Catholics are more prone to place a low value on time utilisation. It would seem therefore that Catholics, as a religious group, may not consider shopping efficiency/convenience as being as important as would other religious groups such as Protestants and Jews (Hirschman, 1983).

Given that religious affiliation has an influence on shopping convenience/efficiency, it is expected that highly religious individuals will attach more importance to shopping efficiency, being more conscientious and consistent (Wiebe and Fleck, 1980) and more disciplined and responsible (Hamby, 1973). On the other hand, it is expected that highly religious individuals will attach less importance to shopping convenience, being more empathetic than less religious individuals (Wiebe and Fleck, 1980). The following hypotheses are therefore proposed:

**H3<sub>0</sub>: There is no significant difference in preferences for retail store attributes between highly religious consumers and non-religious consumers.**

**H3<sub>1</sub>: There is a significant difference in preferences for retail store attributes between highly religious consumers and non-religious consumers.**

**H4<sub>0</sub>: There is no significant difference in preferences for retail store attributes among Hindus, Muslims and Catholics.**

**H4<sub>1</sub>: There is a significant difference in preferences for retail store attributes among Hindus, Muslims and Catholics.**

### 2.13.3 External information search

Howard and Sheth (1969) and Engel, Kollat and Blackwell (1978) suggest that there are individual cognitive differences in search and processing behaviour. One particular determinant of personal values identified by Sheth (1983) is religion. It is predicted that “a person’s religious orientation, as with other personal traits such as sex, age, and race acts as a determinant of a customer’s general shopping motives across a broad spectrum of product classes.” The religiosity variable could therefore significantly influence information search (Delener, 1990). Rokeach (1960) found a high degree of authoritarianism and dogmatism among Catholics as they scored highly on both scales and those two scales seem to be correlated with high scores on religious orthodoxy (Rokeach, 1960; Rim, 1970). Schaninger and Buss (1984) have shown that consumers with high tolerance for ambiguity and low rigidity are likely to search for more information. It is therefore suggested by Delener (1990) that highly religious individuals search relatively less for information. Based on the above arguments the following hypotheses are proposed:

**H5<sub>0</sub>: There is no significant difference in external information search between highly and non-religious consumers.**

**H5<sub>1</sub>: There is a significant difference in external information search between highly and non-religious consumers.**

**H<sub>0</sub>: External information search does not differ significantly among Hindus, Muslims and Catholics.**

**H<sub>1</sub>: External information search differs significantly among Hindus, Muslims and Catholics.**

## **2.14 Conclusion**

This chapter has reviewed the literature regarding culture, religion, religious affiliation and religiosity and their relationship with consumer behaviour. Religion has been seen to influence people's emotional experience, thinking, behaviour and psychological well being. It has been argued that religious affiliation and religiosity are two dimensions of religion. It has been demonstrated that members of different religious groups differ in their behaviour given the differences in their cognitive systems. It has also been shown that religiosity has an influence on behaviour in that pro-religious members of a religion differ from non-religious members. It is also clear that both religious affiliation and religiosity have an influence on consumption processes and purchase decisions. There is therefore ample evidence to support religiosity as a viable construct in the current study of consumer behaviour. However, the measurement of religiosity has caused a lot of controversy and previous measurements have been under severe criticisms. An attempt has been made to analyse the various measurements used in determining religiosity. The controversy has culminated in some form of consensus that the religiosity construct must be defined for each type of research, bearing in mind practicality, reliability and

validity of the scales and scale items used. There is general agreement that a multi-dimensional measurement should be used and that it should include church attendance, religious beliefs and values, moral consequences and self-religiousness. Based on an analysis of different measurement scales, the Religious Orientation Scale by Allport and Ross (1967) was selected. Justification for this choice has been provided.

Next, there was a presentation of the beliefs and practices of three religious groups: namely, Hindus, Muslims and Roman Catholics, used in this study. A discussion of the beliefs and teachings of each of the three religions was carried out in order to provide an understanding of the philosophy and guiding principles of each. This discussion would also serve as a basis for subsequent interpretation of the findings obtained for the current study.

The rationale for the choice of specific consumer behaviour variables has also been discussed and finally, at the end of the chapter, hypotheses have been developed, based on the literature review and in line with the objectives of the study. The next chapter gives an overview of the location where this research study has been carried out and looks at the salient features of the research setting.

## **CHAPTER THREE**

### **MAURITIUS, A SMALL ISLAND ECONOMY, SETTING FOR THE CURRENT RESEARCH.**

#### **3.1 Introduction**

This chapter puts into context the current research study and describes the features and choice of the research setting. Mauritius, a small island economy, was chosen for the research setting. It is important for the researcher to contextualise this research to give an insight into the salient features and characteristics of the research setting which may influence the outcome of the research. Apart from the fact that the researcher is from Mauritius, a number of other reasons have prompted the choice of Mauritius as the research setting:

It has often been argued by researchers that in order to achieve a perspective on consumer behaviour, there is a need to conduct research in specific cultural settings so that similarities and differences among cultures can be found and compared (Engel, 1976; Yau, 1988). These researchers warn that transplantation of models derived from North America and Europe can be extremely dangerous because people in different cultures have different views and individual choices are made because of very complex social influences or situations. The influences on consumer behaviour (religious affiliation and religiosity) being tested in this study are two variables that

are subject to these differences. This study was therefore carried out in the island of Mauritius where a blend of cultures exists.

While many countries claim that they are cosmopolitan, only few really qualify. Mauritius is one of the rare genuinely cosmopolitan societies. The Mauritian social context provides the ideal blend of cultural, ethnic and religious groups among which cross-cultural research can be carried out. The three religious groups chosen in this study - Hindus, Muslims and Roman Catholics - represent the major religions practised in Mauritius and make up 98% of the total population (Housing Census 2000). The Mauritian population therefore provides an appropriate universe from which a sample representing all three religions can be derived. The marked influence of religion in all spheres of life in Mauritius also makes the country a suitable setting for the study of the influences of religion on behaviour.

Mauritius, as a small island state, has all the characteristics of small economies (as is discussed in this chapter) and is therefore an appropriate context for generating research results that could be applicable to other similar markets. The behaviour of consumers in small economies is becoming increasingly important to marketers. This is because these countries are experiencing rapid economic growth accompanied by substantial increases in purchasing power and changes in consumption patterns (Armstrong *et al*, 1998). Mauritius is an example in this area and can be used as a model for other small economies (Armstrong and Read, 2000).

Thirdly, no research has been carried out in such a culturally diverse small island economy to look at the buying behaviour of consumers based on religious

differences. Such small island economies may have certain distinctive characteristics in terms of buyer behaviour that could be of interest to consumer research.

This chapter is divided into two parts. The first part puts into context the island of Mauritius as a model to other small economies and describes its economic, political, social and commercial environments. The second part of the chapter is a discussion of the role and influence of religion and language on the people of Mauritius.

### **3.2 Overview**

Mauritius, located near the Tropic of Capricorn eight hundred kilometres east of Madagascar, is a crowded, bustling, complex, democratic and recently prosperous island. Its total population is slightly over a million, giving it a population density of about 550 inhabitants per square kilometre. The entire population has ancestral origins elsewhere: Europe, Africa, India and China. Mauritius has been an independent and sovereign nation since 1968 and became a Republic in 1992. Under the constitution, which is based on the British parliamentary democracy, executive power rests with the Prime Minister and the Cabinet. The President, who is the Head of State, appoints the Prime Minister after general elections, which are held freely and regularly every five years.

Mauritius enjoys a fairly stable political climate and actively participates in world affairs through membership of the British Commonwealth, and other international organisations. These are the United Nations, the Organisation for African Unity (OAU), The Common Market for Eastern and Southern Africa (COMESA), the Southern African Development Community (SADC) and the Indian Ocean

Commission (IOC). Mauritius is also one of the initiators of the Indian Ocean Rim Association which aims at promoting regional co-operation among countries of the Indian Ocean Region.

The Mauritian economy has undergone remarkable transformations since independence (Ashurst, 1998; Rotberg, 1999; Kibazo, 1996). From a poor country with high unemployment, exporting mainly sugar and vulnerable to changes in world demand, Mauritius has become relatively prosperous with a well-diversified economy (Craig, 1992). The sustained growth achieved over the years has significantly strengthened business confidence in the country. The main challenge remains the continued transformation of Mauritius into a Newly Industrialised Country (NIC).

### **3.3 Historical Setting<sup>1</sup>**

#### **3.3.1 The Dutch Period**

While Arab and Malay sailors knew of Mauritius as early as the 10th century AD and Portuguese sailors first visited in the 16th century, the island was not colonised until 1638 by the Dutch. Mauritius was populated over the next few centuries by waves of traders, planters and their slaves, indentured labourers, merchants and artisans (Lutz and Wils, 1994). The island was named in honour of Prince Maurice de Nassau by the Dutch, who abandoned their colony in 1710.

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<sup>1</sup> For a detailed history of Mauritius, see: Addison J and Hazareesingh K (1984), Bissoondoyal S (1963).

### 3.3.2 The French Period

The French claimed Mauritius in 1715 and renamed it Ile de France. It became a prosperous colony under the French East India Company. During the French colonial rule, from 1767 (when the French Government took control) to 1810, the capital and main port, Port Louis, became an important centre for trade and a key naval and privateer base from which operations were launched against the British. In addition, French planters established sugar cane estates and built up their fortunes by employing slaves brought from different parts of Africa, namely Madagascar and Mozambique (Addison and Hazareesingh, 1984).

### 3.3.4 The British Period

In 1810, the British captured Mauritius and their possession of the island was confirmed four years later by the Treaty of Paris. Under the British, Mauritius was no longer a free port. To compensate for the resulting loss in trade, the government encouraged sugar production. In 1825, Britain equalised the duty on sugar from all of its colonies, providing a strong stimulus for Mauritians to produce more sugar. By the mid-nineteenth century, Mauritius had reached the summit of its importance in the world sugar market: it was Britain's main sugar-producing colony and produced 9.4 percent of the world's sugarcane between 1855 and 1859 (Lutz and Wils, 1994).

After slavery was abolished in 1835, indentured labourers from India replaced slaves as a source of cheap labour for the sugar plantations. Included in those Indian

immigrants were Muslims from what is now Pakistan. Between 1834 and 1910, around 450,000 Indians migrated to Mauritius. Around 150,000 left the island by the beginning of the twentieth century so that the island had a net gain of around 300,000 Indians during the period (Wellisz and Lam Shin Shaw, 1993).

By 1871 more than sixty eight percent of the population was Indian, of which more than twenty five percent had been born in Mauritius. In 1931 the proportion of Indians in the population was the same, but more than ninety three percent of them were natives. By contrast, Mauritius had no immigration from Africa. The freed slaves and their Creole offspring left the plantations to become fishermen, dockworkers and civil servants and formed about twenty percent of the population in 1931. A number of Chinese immigrated during the nineteenth century.

As from the 1860s, the island's sugar economy declined in the face of varied pressures. As sugar beet production and sugar production in other countries increased, world prices declined. The opening of the Suez Canal in 1869 diverted trade routes away from the Indian Ocean. The Franco-Mauritian plantation owners responded by selling less productive portions of their landholdings from 1870 to 1920. This process allowed many Indians who could put together enough capital to become small landowners. By 1921, Indians owned about thirty five percent of the island's cultivated land (Lutz and Wils, 1994).

### 3.3.5 The years before Independence

British administrative and judicial officials ruled over the powerful Franco-Mauritians of the island during the years before independence. The Franco-Mauritian community was mostly made up of members, who derived their status and wealth from owning plantations, although a few of them were senior officials. Below the Franco-Mauritians on the social ladder were the Creoles, descendants of African slaves, some of mixed white descent, who tended to be French-speaking and generally supportive of the Franco-Mauritians. In the nineteenth century, Indians were at the bottom of the ladder of social status until their economic opportunities broadened (Wellisz and Lam Shin Shaw, 1993).

As the Indian population became numerically dominant and the voting franchise was extended, political power shifted from the Franco-Mauritians and their Creole allies to the Hindus. Elections in 1947 for the newly created Legislative Assembly marked the country's first steps towards self-rule. An independence campaign gained momentum after 1961, when the British agreed to permit additional self-government and eventual independence. A coalition composed of the Mauritius labour Party (MLP), the Muslim Committee of Action (CAM) and the Independent Forward Bloc (IFB) - a traditionalist Hindu party - won a majority in the 1967 election. In the same year, the coalition requested independence from Britain. The new nation came into being on March 12, 1968, as an independent member of the Commonwealth (Wellisz and Lam Shin Shaw, 1993).

### **3.4 The Mauritian economy**

The economy of Mauritius has passed through several distinct phases and, in the process, has successfully diverted from a mono-crop culture highly dependent on the export of sugar into manufactured exports and tourism.

#### **3.4.1 The economic situation in the 1960s and 1970s**

A key challenge faced by microstates is the small size of the domestic market (Knox, 1967; Armstrong *et al*, 1998; Briguglio, 1995). The unit costs of local output of a wide range of goods and services are relatively high because of the size of the market, therefore preventing the development of large scale manufacturing industries (Thomas, 1982). In addition, the small domestic market limits local competition because of the small number of firms involved in any economic activity, including wholesale and retail distribution. The diseconomies of scale associated with small size also inhibit the development of indigenous technologies, affecting Research and Development, technical progress and technology acquisition.

Because of their small geographic area, it is more likely that the natural resource endowment of microstates will be both limited and relatively undiversified. For small economies where agriculture plays an important role in economic development, as is the case for Mauritius, this sector may absorb a relatively large proportion of the land endowment, therefore leaving little scope for alternative production activities of this

resource (Commonwealth Secretariat, 1996). Furthermore, the relatively low population of small states implies that labour is a critical resource constraint. This implies that growth is more likely to be powered by investing in human capital and physical capital (Bhaduri, Mukherji and Sengupta, 1982). The quality of labour, however, is a function of both the level and quality of the education and training of the labour force.

The early years preceding and following the independence of Mauritius (1964-72) were characterised by lack-lustre economic performance and conservative financial management. The economy grew slowly at an annual average rate of about 1.8 percent (World Bank Report, 1988). The 1970s were also marked by a strong government commitment to diversify the economy and to provide more high-paying jobs to the population. The promotion of tourism and the creation of the Export Processing Zone in 1971 helped to attain these goals. The boom in sugar prices in 1973 and 1974 coupled with favourable conditions paved the way for a spurt in economic growth; the economy grew by more than 10 percent per year between 1972 and 1977 (World Bank Report, 1988). Gross Domestic savings increased and provided the capital necessary to accelerate the development of the manufacturing and services sectors.

However, the economic situation deteriorated rapidly in the late 1970s. The subsequent reversal in the terms of trade caused by a 23 percent decline in sugar prices in 1976 (Wellisz and Lam Shin Shaw, 1993) and the second oil price shock of 1979 led to a rapid deterioration in the balance of payments. The economy started

stagnating. Inflation increased to forty two percent in 1979-1980 and unemployment started increasing (World Bank Report, 1988).

#### 3.4.2 Rapid growth in the 1980s

The small market size and the narrow domestic resource base in a small economy limit the number of feasible domestic economic activities. These characteristics justify the need for specialisation, limiting export-oriented domestic output to a narrow and undiversified range of products (Armstrong and Read, 2000). Such export specialisation of small economies exposes them to external shocks in terms of export prices and earnings instability (MacBean and Nguyen, 1978). The vulnerability to external shocks is exacerbated by a dependence upon export markets in just a few countries. Diversification of the economy is the ideal solution to problems of concentration but there is limited potential for this in many small states.

In the late 1970s, Mauritius approached the World Bank and the International Monetary Fund for assistance in order to overcome the negative economic situation. In exchange for loans and credits to help to pay for imports, the government agreed to implement Structural Adjustment Programmes, which included the institution of certain measures, including cutting old subsidies, devaluing the currency and limiting government wage increases.

During the 1980s, Mauritius carried out sustained policy reform programmes to liberalise its product and financial markets and strengthen its ability to face the challenges of global competition. The economy experienced steady growth of about

6 percent on average over this period (World Bank Report, 1992), reaching full employment in the late 1980s. Manufacturing emerged as the most important sector in the Mauritian economy surpassing the traditional sugar sector in terms of gross foreign exchange earnings, job creation and contribution to GDP.

Tourism also boomed, with an expansion in the number of hotels, from 60 in 1987 to 75 in 1990 and hotel beds from 6418 in 1987 to 9572 in 1990 (CSO, 1991, Handbook of Statistical Data on Tourism). This sector witnessed remarkable growth, both in terms of gross earnings and tourist arrivals. It is today the third most important source of foreign exchange earnings after the Export Processing Zone and sugar.

The main reasons for growth have been the following:

1. Government policies set in place in the late 1970s and early 1980s created a favourable environment in which private sector initiative flourished. Among the measures adopted by government were a revision of the tax structure, export promotion incentives, tax holidays and other concessions in order to attract foreign investors and investment in human capital and technological change,
2. Second, over the period 1982 to 1988, the Mauritian economy has been able to ride on the crest of the upturn in the world economy and benefited from favourable terms of trade and a strong demand for its exports.

3. Mauritius benefited from a number of preferential trade arrangements, especially with the European Economic Community through the Lome Convention and Sugar Protocol and, to a lesser extent, through the Multi Fibre Agreement with the US.
4. There was a ready supply of labour to support the government's strategy.

#### 3.4.3 Sustaining growth in the 1990s

Small island economies are highly vulnerable in the global economic environment relative to larger states mainly because of their critical economic characteristics. Economic vulnerability is exacerbated by political, strategic and ecological vulnerability. The main source of political and strategic vulnerability of small island economies lies in their dependence on larger powers (Clarke and Payne, 1987).

The Mauritian economy started slowing down in the late 1980s and early 1990s. Skilled labour shortages became evident in industry and wages started rising in the Export Processing Zone (World Bank Report, 1992). These factors had a negative impact on competitiveness of Mauritian exports in the world market.

Consequently, the government embarked on a gradual financial liberalisation process. Interest rates and exchange rates were liberalised. Credit ceilings and foreign exchange controls were removed. Monetary policy became more effective by giving a more important role to the forces of the market and having recourse to minimal government intervention.

#### 3.4.4 The second phase of industrialisation

By creating an efficient and expanding manufacturing capacity, industrialisation makes a vital contribution to accelerating economic growth and development. The main issue facing small island states is to choose between an import substitution industrialisation strategy or an export oriented one. Because of the inadequacies of the domestic market potential, small countries whose governments promote import substitution of manufactured goods usually experience severe foreign exchange constraints and relatively low growth (Thomas, 1982). As a result, modernisation based upon export oriented manufacturing is the strategy followed by many small countries. Export promotion industrialisation strategies have been successful in many small economies, for example, Singapore and Mauritius, through the investment of multinational corporations.

The experience of the last quarter-century shows that it is possible for a country like Mauritius with a small population and an initial low average level of income to transform its economy, so that it grows quickly with the manufacturing sector contributing substantially to that growth (Armstrong and Read, 2000). Most of the successful countries, including Mauritius, have benefited from preferential trade agreements, for example the Multi-Fibre Agreement, in their export markets.

During the 1990s, Mauritius embarked on its second phase of industrialisation. One of the main aims of the new development plan was to move gradually from a labour

intensive economy to one which is capital and skill intensive. Increasing attention was given to manpower training and development of skills to improve productivity. Mauritius encouraged foreign direct investment and technical know-how in order to sustain the relatively high growth rates of the last decade. (Government of Mauritius, 1997, Vision 2020)

The other aims of the second industrialisation process were to modernise the sugar sector, expand and diversify manufacturing infrastructure, diversify agriculture and develop tourism.

In recent years, progress in the technology of transportation and communication has led to the democratisation of international tourism. National development plans in small island states usually see the tourist industry contributing to many goals. These are increasing foreign exchange earnings and enhancing generation of employment but reducing Balance of Payments deficits and. The establishment of positive and mutually supportive linkages with other sectors of the economy leads to a decreased reliance on imports while at the same time preserves traditional values and cultures. Small states in the Caribbean (e.g. Bahamas, Jamaica), in the Pacific (e.g. Tonga, Fiji) and in the Indian Ocean (e.g. the Maldives, the Seychelles and Mauritius) are encouraging foreign tourism as a means to promote economic growth. Many small islands are heavily dependent on tourism. Tourism is the most important sector of the Bahamian economy accounting for about one third of GDP and employing, directly and indirectly, over half of the population. In Mauritius, tourism is the third main sector accounting for about one fifth of GDP.

Special incentives were given to Mauritian entrepreneurs wishing to invest in areas like jewellery, electronics and information technology.

#### 3.4.5 Economic challenges<sup>2</sup>

Many small island states have diversified in offshore service activities, particularly in finance, insurance and ship registration. Diversification strategies into such dynamic sectors where economies of scale play little part help small island economies to overcome their disadvantages. Diversification into such sectors has its costs such as the need to create the right infrastructure and communication facilities.

According to Roberts (1994), there are two kinds of financial centres active today: functional centres, “where transactions are actually undertaken and value added is created in the design and delivery of financial services”, and paper centres, “where actions are recorded but the value added involved is actually created elsewhere”. While small island economies are capable of hosting “paper” operations, only a few have the potential to become “functional” centres. A critical risk that small island economies have to face when opting to diversify in financial services concerns the difficulty in enforcement when there is a threat from fraud or money laundering.

In 1994, Mauritian agricultural exports faced threats from Europe's Common Agricultural Policy and from the creation of the World Trade Organisation, making the future of the Lome<sup>3</sup> Convention uncertain. Furthermore, Mauritian textile exports

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<sup>2</sup> Ministry of Industry and Industrial Technology report : “Mauritius at crossroads: the industrial challenges (1990)

<sup>3</sup> The Lome Convention is a development co-operation agreement for aid and trade between Northern and Southern Countries signed in 1975. For more details see European Centre for Development Policy Management in references.

depended on the Multi Fibre Agreement to survive. With the creation of the World Trade Organisation, this agreement was to undergo profound changes, implying further threats to the Mauritian economy.

The Mauritius government adopted measures to transform itself into a centre for offshore banking and financial services. The Port Louis Stock Exchange and the offshore business centre which had already been set up in 1989, were given additional incentives to boost this sector. A number of offshore banks set up operations in Mauritius. The Offshore Business Centre started promoting the establishment of offshore companies in business activities including fund management, consultancy and services. The Stock Exchange expanded its activities and the volume of transactions has been increasing over the years. Furthermore, in view of the New World Economic Order (increased liberalisation and regionalisation) and the new resolutions from the World Trade Organisation, Mauritius consolidated links with countries in the South and East African region, Asia and Australia. Mauritius became an active member of the SADC and the COMESA. Furthermore, because of its geographical and strategic location in the Indian Ocean, Mauritius had considerable potential to develop favourable economic prospects within the Indian Ocean Rim, a new organisation, grouping together all countries bordering this ocean. Mauritius also started to invest in the region, especially in Madagascar. In 1998, Mauritius signed an agreement with Mozambique whereby it obtained development rights over 100,000 acres of land in Mozambique which are currently being exploited by Mauritian entrepreneurs.

The success of the next phase of Mauritian economic development will depend on the availability of skilled labour at all levels and on the country's ability to attract investment in more sophisticated technologies and higher value-added activities (Ministry of Economic Development and Regional Co-operation report, 1999).

### 3.4.6 Economic indicators (1990-2000)

A list of key economic indicators for Mauritius are shown in Table 3.1

**Table 3.1 Key Economic Indicators**

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999*	2000**
Population ('000)	1058	1070	1084	1097	1112	1122	1133	1147	1159	1179	N/A
GDP Real Growth Rate(%)	7.2	4.4	6.6	5.0	5.2	5.6	6.2	5.3	5.2	3.0	8.0
Gross National Product (GNP per capita-'000Rupees)	36.8	41.5	45.9	51.6	56.3	61.3	66.9	74.1	82.5	89.3	101.2
Inflation (%)	10.7	12.8	2.9	8.9	9.4	6.1	5.8	7.9	5.4	7.9	5.3
Unemployment Rate(%)	2.6	2.2	2.1	1.8	1.6	1.6	1.9				
Tourist Arrivals ('000)	278	292.5	321	350.4	388.2	406.6	450.5	531.8	555.6	565.3	620.0
Overall Balance Of Payments (Rupees Million)	3041	2456	3048	-909	-962	-1009	384	1600	-2293	446	214

\* Estimates, \*\* Provisional

Source: Bank of Mauritius Annual Report (2000)

The review of the history and economy showed the different stages in the historical and economic development of Mauritius. Since the objective of the current study is to assess the influence of religion on consumer behaviour in Mauritius, it was important to highlight how Mauritius became pluri-cultural. This was achieved through the historical review. Furthermore, the historical and economic review has shown how Mauritius has evolved from a mono crop British colony to a small island economy characterised by high growth rates. Rapid economic development has been accompanied by important social change. The expanding economy has brought

higher incomes and higher levels of consumption of a wide range of goods and services (Government of Mauritius, 1997). Since the current research is a study of consumer behaviour in Mauritius, it was important to consider the economic factors which have brought about changes in consumption patterns in Mauritius. The changes in consumption patterns are discussed in Section 3.8.

### **3.5 Population and demography<sup>4</sup>**

The population of Mauritius in 1999 was estimated at 1.174 million, with an estimated population growth rate of 0.03 percent for the next five years. The country's population density, more than 550 inhabitants per square kilometre, is one of the highest in the world. The majority of the island's inhabitants are relatively young, the median age group being 28-35 in 1999. The capital Port Louis is the largest city, with a population of 138,200 in 1999. In 1999, the population was relatively evenly divided between those residing in rural and urban areas.

The population growth rate increased between 3 percent and 4 percent in the 1950s, resulting in large part from the elimination of malaria, higher living standards and improved health care. Worried that such high growth rates would impede the island's development and tax its resources, the government and private groups instituted extensive family planning efforts. The different campaigns for birth control reduced the country's birth rate significantly. The rate dropped to around 2 percent in the 1960s and fell to 1.1 percent in 1973. In the 1980s, the rate fell below 1 percent. The latest figures reveal a relative increase to 1.7% in 1999. The fear of the

government and the private sector is that in 30 years time Mauritius will have to face an ageing population issue, which will lead to serious problems in terms of labour force and provision of social security services.

### **3.6 Ethnicity**

Mauritius has no native population. The forebears of the various ethnic groups composing Mauritian society arrived as settlers, slaves, indentured labourers and immigrants.

According to official categories (Central Statistical Office, 1990), the largest ethnic groups are Hindi-speaking from North India (42 percent). “Creoles” of largely African descent represent 28 percent, Muslims of Indian origin 16 percent, Tamils and Telegus of South Indian descent 9 percent, Chinese 3 percent and Mauritians of French descent 2 percent. However, from the Mauritian constitution (1968), only four population categories are recognised: Hindus (51 percent), Muslims (16 percent), Sino-Mauritians (3 percent) and the general population (30 percent).

The ancestors of the Hindu and Muslim populations came predominantly from the Indian subcontinent and, from the censuses of 1846 to 1952 were classified as “Indo-Mauritians”. The ancestral language of most Hindus is Hindi or Bhojpuri, with a minority of Tamil, Telegu, Gujarati and Marathi speakers.

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<sup>4</sup> This information was obtained from preliminary results of the Mauritian Central Statistical Office, Housing Census (2000).

The Muslim population is mainly Hindi-speaking. Other languages include Bhojpuri, Gujarati, Urdu and Arabic. Among the Shia minority, some have their origins in different parts of India, others are adherents of the Agha Khan from East Africa, and still others are Ahmadist from Punjab.

The earliest Chinese immigrants in the island came from the Canton region and spoke Cantonese. However, most Sino-Mauritians are descendants of Mandarin-speaking settlers from Hunan. Most of the Sino-Mauritians (98%) are Roman Catholics.

Unlike members of these specific population categories, those grouped under the general population do not share close ethnic and cultural bonds. Members of the general population have in common only the fact that they do not belong to the other three groups. This category includes Franco-Mauritians, other European immigrants, and Creoles. The Creoles are ethnically diverse, some with Black African ancestry, others of mixed descent, and still others from parts of Asia. Most of the general population is Catholic with a small percentage of Protestants and other Christian faiths.

The criteria for distinguishing between ethnic groups in Mauritius are not consistent (Eriksen, 1998). One group, which contains both Catholics and Buddhists, is designated on the basis of geographic origin: the Sino-Mauritians. Two groups are designated on the basis of religion: the Hindus and Muslims. The fourth official category, the General Population, contains people of various origins and varied physical appearance, but usually followers of the Catholic religion. However, the

largest ethnic groups in Mauritius - the Hindus, Muslims and Creoles - each represent one major religion, Hinduism, Islam and Catholicism respectively. The classification of the different ethnic groups according to three major religions suggests that religion is the criterion that provides a better means of differentiating among ethnic groups in Mauritius (Eriksen, 1998). Mauritius is therefore an appropriate setting to investigate how differences among these three religions lead to differences in the behaviour of their members.

### **3.7 Political system**

Mauritius is a parliamentary democracy and has a status of republic with a president as Head of State. The electoral system in Mauritius is patterned to a large extent on the British system. The parties are mostly organised along ethnic lines, and many Mauritians vote for candidates who they feel represent their ethnic interests (Eriksen, 1999). Hindus coming from northern India have uninterruptedly been in control of the political system and government since the 1950s.

An important element in the Mauritian political system, unlike the British system, is the Best Loser arrangement, which guarantees the representation of all ethnic groups through allotting eight National Assembly seats to runners-up at General Elections. The “best losers” are chosen according to their ethno-religious affiliation so as to ensure the representation of all ethnic groups in the Legislative Assembly. In this way, the importance of ethnic differences is made an integral part of the electoral system.

### **3.8 Household consumption patterns<sup>4</sup>**

Mauritius has experienced a surge in consumption over the last decade as a result of economic growth (Central Statistical Office, 2000). The number of households on the island has increased from 242,000 in 1990 to 300,000 in 1999. The increase in consumption can be partly attributed to the substantial increases (56%) in income of the average Mauritian family over the last decade. Products and services, which had been out of the reach of Mauritian consumers, have now become affordable. White goods such as refrigerators, washing machines, microwaves and the like have today become almost necessities. The opening of high street supermarkets and hypermarkets, most of them of international repute has provided more and easier access to shoppers (Essoo and Chellum, 1999). More women have been joining the workforce, increasing the household income, and this has led to the development of other industries such as fast food and ready meals. The consumption of leisure and health activities has also increased with the resulting increase in leisure and health centres.

The Mauritian family has also undergone drastic changes in the last decade with an increase in nuclear families as compared to extended families before the 1990s. This has resulted in an increase in the demand for housing and other related products and services. Major housing developments in the form of apartment blocks have been made (see table 3.2). The Mauritian consumer has changed into an educated and well-resourced shopper through the creation of consumer organisations (Essoo and Chellum, 1999). Mauritius today shows all the signs of a newly industrialised

country and as such is attracting attention from manufacturers and suppliers all over the world.

**Table 3.2 Mauritian household consumption patterns (1990-1999)**

	<u>1990</u>	<u>1999</u>
No of Households	242,000 <sup>a</sup>	300,000 <sup>c</sup>
Household size	4.8 <sup>a</sup>	4.5 <sup>c</sup>
Housing units	198,600 <sup>a</sup>	223,800 <sup>c</sup>
Workforce		
Male	301,400 <sup>a</sup>	341,600 <sup>c</sup>
Female	130,600 <sup>a</sup>	175,700 <sup>c</sup>
Monthly Household income (Rupees)	6,503 <sup>b</sup>	10,179 <sup>d</sup>
Household expenditure (Rupees)	5,225 <sup>b</sup>	7,846 <sup>d</sup>

Sources: a = Mauritius Housing Census 1990, Mauritius Central Statistical Office

b = Mauritius Household Budget Survey, 1991/92, Mauritius Central Statistical Office

c = Preliminary Findings, Mauritius Housing Census 2000, Mauritius Central Statistical Office

d = Mauritius Household Budget Survey, 1996/7, Mauritius Central Statistical Office

### **3.9 The role of religion and language**

The first part of this chapter has given an overview of the historical, economic, political and social aspects of Mauritius. This was necessary to situate Mauritius in the global context and to understand its affinities with small island economies as the results of this study could be useful in understanding the influence of religion in other similar economies. The overview was important to this research because it provided information on the salient features and complexities of Mauritian society and the economy. It was important to look into the complexities of Mauritian society because it provided an understanding of the division of the population along religious lines. The review of the history and economy provided an understanding of how

Mauritius has achieved economic prosperity culminating in a sophisticated consumer society, an appropriate setting for conducting consumer research.

The second part of this chapter is a discussion of the influence of language and religion in Mauritius. The discussion begins with languages spoken on the island as this is relevant to the understanding of division of the population across religious lines. The discussion on religion, which is more relevant to this study, explains the importance and role of religion in some aspects of life in Mauritius.

Religion and language are the most important formal principles of division of the Mauritian population along ethnic lines. Both provide organisational “vessels” for the articulation of interests not necessarily identical with their formal content; both are symbolic bearers of cultural identity (Eriksen, 1998).

### 3.9.1 Language

Language is perhaps the most complex aspect of the Mauritian social mosaic. This complexity derives from the number of languages spoken combined with the uses to which they are put and the socio-political connotations they bear. Philip Baker (1972) and Peter Stein (1982), scholars studying language use in Mauritius have found that English is associated with “knowledge”, French with “culture”, Creole with “egalitarianism” and other languages with “ancestral heritage”. Consequently, although Creole is the most widely spoken language in the country, French predominates in the media and English is the official language of government and school instruction.

Radio and television broadcasts reflect the linguistic diversity of Mauritius with programmes in French, English, Telegu, Mandarin, Tamil, Hindi, Bhojpuri, Gujarati, Marathi, Urdu, and Creole. According to the 1990 Housing census, the top five languages were Creole, Bhojpuri, Hindi, French and Tamil.

In the Mauritian schooling system, equality is emphasised rather than differences. Thus, core curricula are uniform island-wide, as are exams. However, classes in “ancestral languages” are offered as optional subjects. It can be said, therefore, that the Mauritian schooling system stresses equal opportunities for all yet allows for the expression of cultural differences.

### 3.9.2 Religion

Although the Hindus in Mauritius have their roots in different parts of India, they all follow the teachings of Hinduism. The Muslims are followers of Islam, irrespective of whether they are Sunnis or Ahmadists. Most of the Chinese have converted to Catholicism and therefore there are few Buddhists on the island. Roman Catholicism is the main form of Christianity that is present in Mauritius (Eriksen, 1998).

Religion is at the centre of most activities, interests and opinions in Mauritius. Mauritian society is noteworthy for its high degree of religious tolerance (Eriksen, 1998). Mauritians often share in the observances of religious groups other than their own. In part as a result of the multiplicity of religions, Mauritius has approximately 13 national holidays, most of which are given to celebrate religious festivities of each religion. According to the 1990 Housing Census, 51 percent of the population was Hindu, 27 percent Roman Catholic, 16 percent Muslim, 0.5 percent Protestant and

5.5 percent belonged to other groups. The popular idiom “Everybody prays in his/her own way” has nearly achieved legal status. A walk through Port Louis, the capital, may bring one past, within half an hour or so, a Sunni Mosque, a Catholic Church, two Hindu temples - one North Indian, one Tamil - and one Buddhist Pagoda. However, although religious tolerance prevails, religion is one of the most formal principles of division of the Mauritian population along ethnic lines. (Eriksen, 1998). Mauritians are generally self-conscious of their religious differences and are subjectively concerned to retain their religious distinctiveness. Religious ritual is widely attended, and there has been in this decade an upsurge in popular interest in cultural origins.

#### 3.9.2.1 Religion and politics

Party politics has been organised on largely ethnic and religious principles since the electoral reforms of 1948, after which time Mauritius has, in practice, been a parliamentary democracy. Important political parties in the brief history of independent Mauritius have been Labour (Parti Travailleiste), which is strongly associated with the Hindus, the Creole/Coloured/Franco-Mauritian Parti Mauricien (later Parti Mauricien Social Démocrate), and the Comité d'Action Musulman (Muslim). But in the late 1960s, there were attempts at breaking the ethnic logic of Mauritian politics, when the MMM (Mouvement Militant Mauricien) was formed by a group of young students and immediately became an important political force. The aim of the MMM was to become a truly national movement, and it did succeed in this for a few years (Oodiah 1989, Bowman 1991). However, since the latter half of the 1970s, the MMM has increasingly, in practice, become the political vehicle of the

non-Hindu populations of Mauritius. Nine months after the 1982 general elections, where the party won a devastating victory, the MMM split into two factions: the MMM “proper” and the new MSM (Mouvement Socialiste Mauricien), the latter being largely a Hindu based party. Recent developments in Mauritian politics have been marked by various more or less enduring inter-religious or inter-ethnic alliances.

### 3.9.2.2 Religion and marriage

Mauritians attach a lot of importance to the family, which exerts a considerable influence on their religious values and on their choice of a spouse. Although the marriage pattern is changing and individually based “love marriages” (as opposed to arranged marriages) are on the increase, parental authority remains strong among Hindus and Muslims (Eriksen, 1998). Religious groups do not encourage inter-religious marriages, and they tend to exert some pressure on children to marry within their own tradition. Religious rites and rituals are strictly adhered to during wedding ceremonies across the three major religions and worship is present at every step of the ceremony. Most marriages in Mauritius are religious weddings and the priests have been given special status from the authorities to perform civil marriages at the same time without having recourse to the Civil Status Office. This is a good example of the high importance given to religion in Mauritian society.

The above discussion on the role of religion in Mauritius has shown that religion has a strong influence on the lives of t

a life partner. Religion therefore influences the behaviour of the people and is an important component of Mauritian society. It is suggested that this influence could be extended to the purchasing behaviour of Mauritians.

### **3.10 Conclusion**

This chapter has highlighted some of the characteristics of small island economies and helped to put Mauritius into context as a prominent model of emerging small economies. It was shown that Mauritius has evolved from a colony with a mono-crop economy to a prosperous nation with a well-diversified economy. The chapter has also helped to contextualise the research setting in terms of its multi-cultural qualities. It was seen that the country has a truly pluri-cultural society with religion bearing a strong influence on its people. Although Mauritians often deny it, the religious membership of an individual provides him with crucial constraints and incentives as he goes on with his life; in situations relating to work, political activity and marriage. It is therefore expected that religious affiliation and religiosity will also have an influence on consumer behaviour in Mauritius.

The next chapter deals with the research design and methodology used in this study.

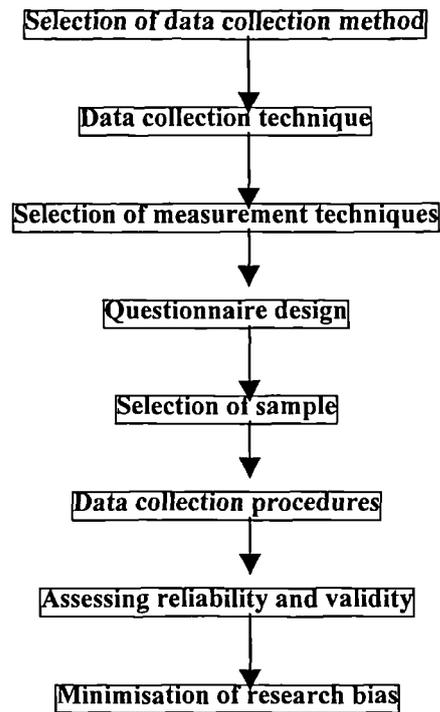
## **CHAPTER FOUR**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **4.1 Introduction**

This chapter contains an explanation of the research design and methodology used for the current study. The research design for this study included several steps. After having carried out a thorough literature review and developed hypotheses, the next steps in the research process are discussed. The data collection method is discussed first. This is followed by a presentation of how measurement techniques were chosen including questionnaire design and structure. The selection method for the sample is then explained. Finally the data collection procedures are discussed. The different stages in the research process are summarised in Figure 4.1.

**Figure 4.1 Summary of the research process**



#### **4.2 Selection of data collection method**

There are three basic widely accepted methods of collecting data. They are observation, survey and experimentation (Tull and Hawkins, 1994; Churchill, 1999).

Three criteria are usually considered in the choice of a data collection method (Tull and Hawkins, 1994):

1. Effectiveness in demonstrating causality
2. Avoidance of bias
3. The achievement of acceptable levels of response and/or coverage of the population at a reasonable cost.

#### 4.2.1 Effectiveness in demonstrating causality

This is the ability of the method to establish and measure causal relationships among variables under consideration. Causality is the potential influence or effect that one variable has on another. When variables are compared to one another, there are two possible results: either the two variables vary or “move” together, indicating they are significantly related to one another or they may be completely independent of one another, indicating there is no relationship between the variables. The objective of the current study is to establish and measure a causal relationship between religious influences and consumer behaviour.

#### 4.2.2 Avoidance of bias

This is the ability to provide data, which is free from potential bias resulting from the use of a particular method. Bias is the tendency for some extraneous factor to affect data in a systematic way so that results are either “pushed” or “pulled” in some specific direction. For example, in experimentation, one source of potential bias is selection error, when groups chosen for the experiment are initially unequal. In surveys, potential bias might be in the form of interviewer bias that can affect the data collected. These biases are discussed in more detail in Section 4.9.

#### 4.2.3 Achievement of acceptable levels of response at a reasonable cost

The third criterion is the ability of the method to obtain a satisfactory response rate at a cost affordable by the researcher while at the same time reaching the designated units in the sampling plan effectively. This ensures that the population's interest in the research does not vary.

In this study the survey method was adopted. The survey method was chosen because it satisfies all the above-mentioned criteria. Establishment and measurement of causality, as well as avoidance of bias, was satisfied through careful questionnaire construction. These important issues are discussed in Sections 4.5 and 4.9. Acceptable level of response was achieved through the use of chasers (discussed in Section 4.3). Coverage of the population at a reasonable cost was made possible through the choice of the right sampling technique (discussed in Section 4.7).

#### 4.3 Data collection technique

It was then necessary to choose the data collection technique among the following:

1. Personal interview
2. Telephone interview
3. Mail questionnaire

Several factors were taken into consideration to evaluate the type of survey to use for this research. These are:

- Speed of data collection

- Cost of data collection
- Amount and type of information to be obtained
- Accepted level of non-response in sample
- Representativeness of sample because of accessibility

(Tull and Hawkins 1994)

In terms of time and cost with which the survey could be carried out, it was clear that a mail survey would be faster and cheaper than personal interviews. This is because personal interviews require a number of stages to be carried out before the actual data collection can be made (Zigmund, 2000). These stages include recruitment, selection, training and monitoring of field staff. Given the large number of questionnaires to be administered and the dispersion of the sample over a broad geographical range, (see Section 4.7.2), the researcher would have needed to resort to field staff if personal interviews had to be carried out. The cost of carrying fieldwork would have been prohibitive. Therefore personal interviews were discarded. The use of telephone interviews was also written off as not all respondents had telephones.

A mail survey was therefore chosen because it satisfied most of the criteria regarding data collection requirements (Dillman, 1978). Firstly, mail questionnaires could reach a geographically dispersed sample simultaneously because interviewers were not required. Secondly, respondents in a mail survey work at their own pace at their domicile and therefore there is a better chance that they will take time to think about their replies. Thirdly, cost is at its lowest as compared to the other techniques. Fourthly, an accepted level of response was achieved through the use of chasers to reduce non-response rates and ensure that questionnaires were correctly filled in.

Fifthly, all respondents in the sample could be reached. Sixthly, respondents were not subjected to interviewer bias. Finally, the mail survey ensured anonymity among respondents regarding personal and sensitive questions.

#### **4.4 Selection of measurement techniques**

For the survey, the measuring instrument, the “tool containing instructions, questions or items, response alternatives, where appropriate, and specific means for recording responses”(Alreck and Settle, 1995, Churchill, 1999), was a structured questionnaire. The selection of the measurement techniques was based on previous research studies found in the consumer behaviour literature and the literature on religion. These studies were discussed in Chapter Two. The measurement techniques are discussed in Section 4.5.2

#### **4.5 Questionnaire design**

Design of the questionnaire involved several stages which have been grouped under two main headings:

1. Questionnaire structure
2. Operationalisation of variables.

##### **4.5.1 Questionnaire structure**

According to Tull and Hawkins (1994), three considerations should be given in the structure of a questionnaire:

- Specific objectives of the questionnaire
- Intended respondents of the questionnaire
- Method of administering the questionnaire

#### 4.5.1.1 Objectives of the questionnaire

In this study, the specific objectives of the questionnaire were to obtain information on the following characteristics of respondents to test the hypotheses presented in Section 2.13:

1. Purchasing behaviour of consumers for the purchase of a TV set, a brand of rice and a soft drink.
2. The shopping behaviour of consumers
3. Consumers' retail store preference
4. The amount of external information search consumers carry out before purchase
5. Consumers' lifestyle
6. Consumers' religiosity.
7. Consumers' religious affiliation

Section 4.5.2 provides a discussion on the selection of variables for this study. The broad objective of the questionnaire was to measure the purchasing behaviour of respondents by using a number of components of consumer behaviour. At the same time the religiosity of consumers was measured, in order to determine whether there is a causal relationship between religiosity and consumer behaviour.

#### 4.5.1.2 Intended respondents of the questionnaire

The intended respondents of the questionnaire were heads of households chosen from the Mauritian population. The head of household is defined, for the purpose of this study, as the individual who takes the major purchasing decisions. A household was defined as either

- A one person household, that is, a person who makes provision for his own food and other essentials for living and does not combine with any other person,

or

- A multi-person household, that is, a group of two or more persons living together and who make common provision for food and other essentials for living. The persons in the group may pool their incomes and have a common budget; they may be related or unrelated or a combination of both.

Households could occupy the whole or a part of the housing unit, or even more than one housing unit. The general criterion used in grouping members of a multi-person household was the existence of common housekeeping arrangements. This is because groups within a multi-person household who have no common housekeeping arrangements make separate purchasing decisions.

#### 4.5.1.3 Method of administering the questionnaire

The method of administering the questionnaire was through mail survey. The reasons for the choice of this method were discussed in Section 4.3. This method also influenced the design of the questionnaire. Given that the questionnaire was to be filled by respondents themselves at their domicile, it was necessary to have a covering letter explaining the objectives of the survey and confirming that all information would be treated confidentially (see Appendix 1). Questions about respondents' demographics were left until the end of the questionnaire because of the sensitive and personal nature of the questions. The main reason is that people are more likely to answer such questions at the end (Sudman and Bradburn, 1982). The questionnaire was also designed to guide the respondent in answering the questions.

The questionnaire was divided into five parts (see Appendix 2) to highlight changes in topics. It was designed to fulfil the requirement that the overall questionnaire should move from one topic to another in a logical manner making completion easier (Tull and Hawkins, 1994).

The first part dealt with the reasons for having purchased the specific products and general shopping behaviour questions. The second part contained questions pertaining to choice of a retail store. The third part contained 20 statements about the respondent's religious beliefs. The fourth part measured the lifestyle of respondents. Personal details about the respondents constituted the fifth and closing part of the questionnaire.

#### 4.5.2 Operationalisation of variables

It is acknowledged that the function of a questionnaire is to achieve the research objectives through the measurement of independent and dependent variables of interest (Churchill, 1999). However, in any research there are three types of variables: the *independent variables* whose effect upon some other variable is being measured; the *dependent variables* which relate to the outcome of the research and are the variables which are being potentially influenced, affected or determined by some other variable in a cause and effect relationship; and *extraneous variables*, which are variables that could influence the dependent variable without invoking the hypotheses (Cresswell, 1994). In this study, the *independent variables* were religious affiliation (the adherence of individuals to a particular religious group) and religiosity (the degree to which beliefs in specific religious values and ideals are held and practised by an individual) while the *dependent variables* were various aspects of respondents' purchase behaviour. Demographic variables and lifestyle were treated as *extraneous variables*.

##### 4.5.2.1 Independent variables

An independent variable is the variable which is viewed as influencing, affecting or determining the values of another variable when they are regarded as being in a potential cause and effect relationship (Alreck and Settle, 1995).

*(i) Religious Affiliation*

Based on the literature review, religious affiliation was measured by asking respondents the following question:

“With which religion or denomination do you identify yourself?”

Hindu

Muslim

Catholic

Other.....

Measuring religious affiliation in this way allows the individual to label himself/herself and to ensure that the individuals, who might have been “born into” a particular religious tradition and no longer feel any ties with it, are not judgementally labelled by the researcher. Respondents not falling within the first three religious categories were discarded from the analysis.

*(ii) Religiosity*

The second independent variable in this study is the religiosity construct, which was reviewed in Chapter Two. Religiosity has been used as an independent variable in several previous studies and has been found to correlate with a number of consumer variables.

These studies are illustrated in Table 4.1

**Table4.1 Studies using religiosity as an independent variable**

<b>Dependent variable</b>	<b>Author</b>	<b>Year</b>	<b>Subject/Purpose of study</b>
Personality	Bonney	1949	A study of friendship choices in college in relation to church affiliation, in-church preference, family size and length of enrolment in college
	Cowen	1954	The negative concept as a personality measure
	Dreger	1952	Some personality correlates of religious attitudes as determined by projective techniques
	Ranck	1961	Religious conservatism-liberalism and mental health
	Keene	1967	Religious behaviour and neuroticism, spontaneity and world-mindedness
	Patai	1977	The Jewish mind
	Hirschman	1981	American Jewish ethnicity: its relationship to some selected aspects of consumer behaviour
Store location	Thompson & Raine	1976	Religious denomination preference as a basis for store location
Store Patronage	Mac Daniel and Burnett	1990	Consumer religiosity and retail store evaluative criteria
Product Choice	Hawkins, Coney & Best	1980	Consumer behaviour: implications for marketing strategy
	Schiffman & Kanuk	1991	Consumer behaviour
Brand/store loyalty	Hirschman	1981	American Jewish ethnicity: its relationship to some selected aspects of consumer behaviour
Lifestyle	McClain	1979	Religious orientation, the key to psychodynamic differences between feminist and non-feminist
Lifestyle	Barton and Vaughn	1976	Church membership and personality
Lifestyle	Eysenck	1970	The structure of human personality
Lifestyle	Hamby	1973	Some personality correlates of religious orientation
Lifestyle	Wiebe & Fleck	1980	Personality correlates of intrinsic, extrinsic and non-religious orientations
Lifestyle	Wilkes, Burnett & Howell	1986	On the meaning and measurement of religiosity in consumer research
Family decision making	Delener & Schiffman	1986	Family decision-making: the impact of religious factors
Perceived risk	Delener	1990	The effects of religious factors on perceived risk in durable goods purchase decisions
Consumer related marital roles	Delener	1994	Religious contrasts in consumer decision behaviour patterns: their dimensions and marketing implications
Consumer behaviour	Sood & Nasu	1995	The effect of religiosity and nationality on consumer behaviour in Japan and the US

In the current study, religiosity was measured using the Religious Orientation Scale by Allport and Ross (1967). This scale was chosen because it has been used in more than 70 studies in the measurement of religiosity and has proved to be a reliable measure of religiosity (Donahue, 1985). Furthermore, as discussed in Chapter Two, the Religious Orientation Scale is a multi-dimensional scale and does not rely solely on church attendance as a measure of religiosity. This scale has therefore been chosen because it enabled the researcher to measure religiosity of the three religious groups used in this study on a multi-dimensional scale and achieve a higher degree of reliability.

This scale measures the degree of religiosity of each respondent in terms of two types of religiousness: *intrinsic* religiosity and *extrinsic* religiosity. The Religious Orientation Scale is composed of twenty statements, eleven expressing *extrinsic* involvement and nine expressing *intrinsic* involvement (see Table 4.2). Intrinsically religious persons are those for whom religion is a central focus in life and are reported to show a greater concern for moral standards, discipline and responsibility as compared to extrinsically religious people who are those for whom religion is expedient (Allport and Ross, 1967; Wiebe and Fleck, 1980).

Statements on the Religious Orientation Scale are scored on a scale of 1 to 5, with 4 and 5 indicating an *extrinsic* orientation, 1 and 2 indicating an *intrinsic* orientation and 3 expressing no opinion. The total score of the twenty items represents the degree of religiosity.

**Table 4.2 The Religious-Orientation Scale (I-E scale)**

STATEMENTS	SA	A	N OP	D	SD
1. (I) I enjoy reading about my religion	1	2	3	4	5
2. (E) I go to church because it helps me make friends.	5	4	3	2	1
3. (E) It does not matter what I believe so long as I am good.	5	4	3	2	1
4. (E) Sometimes I have to ignore my religious beliefs because of what people might think of me	5	4	3	2	1
5. (I) It is important for me to spend time in private thought and prayer.	1	2	3	4	5
6. (I) I would prefer to go to church					
a) A few times a year. 5					
b) Once every month or two. 4					
c) Two or three times a month. 3					
d) About once a week. 2					
e) More than once a week. 1					
7. (I) I have often had a strong sense of God presence.	1	2	3	4	5
8. (E) I pray mainly to get relief and protection	5	4	3	2	1
9. (I) I try hard to live all my life according to my religious beliefs.	1	2	3	4	5
10. (E) What religion offers me most is the comfort in times of trouble and sorrow.	5	4	3	2	1
11. (I) My religion is important because it answers many questions about the meaning of life	1	2	3	4	5
12. (I) I would rather join a Bible study group than a church social group	1	2	3	4	5
13. (E) Prayer is for peace and happiness.	5	4	3	2	1
14. (E) Although I am religious I don't let it affect my daily life.	5	4	3	2	1
15. (E) I go to church mostly to spend time with my friends.	5	4	3	2	1
16. (I) My whole approach to life is based on my religion.	1	2	3	4	5
17. (E) I enjoy going to church because I enjoy seeing people I know there.	5	4	3	2	1
18. (E) I pray chiefly because I have been taught to pray.	5	4	3	2	1
19. (I) Prayers I say when I am alone are as important to me as those I say in church.	1	2	3	4	5
20. (E) Although I believe in my religion, many other things are more important in life.	5	4	3	2	1

(SA= Strongly Agree, A= Agree, NOP= No opinion, D= Disagree, SD= Strongly Disagree)

(I=Intrinsic, E=Extrinsic)

Source: Allport and Ross, *Journal of Personality and Social Psychology*, 1967, 5, 4, (432-443)

However, the scoring procedure utilised by Allport and Ross (1967) does not allow for a fourth type of orientation: namely, anti-religious. Their three-category scoring procedure would be appropriate if respondents constituting the sample were unanimously well disposed towards religion. This is not the case for the sample used in this study because, having been chosen at random, it is likely that some respondents in the sample would be anti-religious. Therefore, it was necessary to develop a scoring procedure that would include a non-religious category. This is proposed by Hood (1971), as an improvement of the work of Allport and Ross (1967). Hood (1971) classifies individuals into four groups according to their

religiosity. These groups are termed extrinsically religious, intrinsically religious, pro-religious and anti-religious, on the basis of median splits of their scores on the Religious Orientation Scale (see Table 4.3).

**Table 4.3 Classification of religiosity scores**

Group I:	Subjects below the median on both scales are <u>pro-religious</u>
Group II:	Subjects above the extrinsic median but below the intrinsic median are <u>extrinsically religious</u>
Group III:	Subjects above the intrinsic median but below the extrinsic median are <u>intrinsically religious</u>
Group IV:	Subjects above the median on both scales are <u>anti-religious</u>

This procedure has been followed by the majority of researchers using this typology because, unlike Allport and Ross (1967), the samples chosen contained anti-religious respondents. However, a review of the literature has also shown that for the religious variables, *intrinsic* and *pro-religious* individuals are generally not distinguishable and both score lower than *extrinsic* and *anti-religious* individuals (Donahue, 1985; Hood, 1971; Wiebe and Fleck, 1980). Therefore, to examine the degree of religiosity in consumer choice, (i) *anti-religious* and (ii) *pro-religious* groups were the focus of this study. These two groups were referred to as (i) casually religious and (ii) devout respectively. Respondents scoring below the median on both scales were categorised as devout while those scoring above the median were categorised as casually religious.

#### 4.5.2.2 Dependent variables

A dependent variable is viewed as being potentially influenced, affected or determined by some other variable in a cause and effect relationship, based on the logic and the meaning of the things represented by the variables (Alreck and Settle, 1995). The selection of the variables, which serve as the dependent variables for this research, was adapted from previous studies on religiosity and consumer behaviour. Variables from these different studies have been pooled together and supplemented from the consumer behaviour literature in an attempt to construct the purchasing behaviour profiles of consumers.

One of the major problems with research into purchasing behaviour is whether the findings can be generalised across different products or are specific to particular areas of retailing (Samli, 1975). There is conflicting evidence as to whether consumers can be classified arbitrarily across situations and competitive environments. It is therefore necessary to establish whether the purchasing behaviour of consumers varies according to types of products or shopping environments. Therefore, information should be obtained about consumers' opinions concerning individual product categories and specific store preference.

In the current study, the dependent variables have been chosen to measure the purchasing behaviour of consumers across a range of products in a specific retailing environment. These variables, together with the relevant sources are summarised in Table 4.4

**Table 4.4 Sources of dependent variables**

<b>Dependent variable</b>	<b>Author</b>	<b>Year</b>	<b>Study</b>
Product choice	Hawkins, Coney and Best	1980	Consumer behaviour: Implications for marketing strategy
Product attributes	Hawkins, Coney and Best	1980	Consumer behaviour: Implications for marketing strategy
	Schiffman and Kanuk	1991	Consumer behaviour
	Hirschman	1981	American Jewish ethnicity: its relationship to some selected aspects of consumer behaviour
	Sood and Nasu	1995	The effect of religiosity and nationality on consumer behaviour
Retail Store Patronage/loyalty	Thompson and Raine	1976	Religious denomination preference as a basis for store location.
	McDaniel and Burnett	1990	Consumer religiosity and retail store evaluative criteria
	Clark	1993	Personal religiousness and retail store evaluative criteria
Shopping Behaviour	Sood and Nasu	1995	The effect of religiosity and nationality on consumer behaviour
Information search	Delener	1989	Religious differences in cognitions concerning external information search and media usage

As summarised in table 4.4, the dependent variables used in this study are: shopping behaviour, retail store preference and external information search. The shopping behaviour of respondents has been determined by measuring the decisions of individuals in their purchase of three specific products (a TV set, rice and a soft drink), discussed later in Section 4.5.2.2.2, and through a number of general shopping questions (Delener, 1989). Retail store preferences have been measured by asking respondents to evaluate the importance of a number of store attributes (Thompson and Raine, 1976; McDaniel and Burnett, 1990; Sood and Nasu, 1995). Respondents' external information search has been measured by a number of questions on whether they seek information prior to purchase (Delener 1989). These measurements are discussed in the next section.

## (1) Measurement of dependent variables

The dependent variables were measured by statements on two types of scales, namely semantic differential scale and Likert scale:

### (a) Semantic differential scale

The semantic differential scale is the most frequently used attitudes scaling device in marketing research (Osgood, Suci and Tannenbaum, 1957; Tull and Hawkins, 1994). It requires the respondents to rate the attitude object on a number of itemised rating scales, bounded at each end by one of two bipolar adjectives. The instructions indicate that the respondent needs to mark the number on the scale that best indicates how accurately one term describes or fits the attitude object. Semantic differential scales have also been used because the data they generate can be analysed in a number of ways. The versatility is increased by the widely accepted assumptions that the resulting data are interval in nature (Albaum, Best and Hawkins, 1977; Kerlinger, 1973).

### (b) Likert Scale

Likert scales, sometimes referred to as summated scales, are also widely used in marketing research to measure people's position on certain issues (Tull and Hawkins, 1994; Alreck and Settle, 1995). The scale requires a respondent to indicate the degree of agreement or disagreement with each of a series of statements related to the

attitude object. Each response category is assigned a numerical value and the scales can be analysed by summing the scores of each item.

The sets of scores from the semantic and Likert scales were subjected to analysis in order to derive consumer behaviour profiles. This is discussed in Chapter Five.

## (2) Operationalisation of dependent variables

This section deals with the operationalisation of the dependent variables used in this study: that is, how the dependent variables were measured in the research instrument. Each dependent variable and its measurement is discussed and reference is made to the appropriate questions in the questionnaire (see Appendix 2).

### (a) Shopping behaviour

#### (i) Choice of products

The choice of products to measure shopping behaviour was based on previous research (Hirschman, 1981; Delener, 1991; Sood and Nasu, 1995). Although these researchers used one product to measure consumer purchase decisions, they recommend, for future research, that a number of products with the above characteristics should be used simultaneously (Hirschman, 1981; Delener, 1991; Sood and Nasu, 1995). According to these researchers, the use of only one product was the main limitation of their study.

Furthermore, these researchers held that products chosen for studies on religion and consumer behaviour should not be bound to a particular culture and should be purchased by all individuals in the population. Hirshman (1981) used products such as apparel and home furnishings, Delener (1991) used an automobile and Sood and Nasu (1995) used a radio set. In this study, a mix of products - a TV set, rice and a soft drink - were selected since these products are consumed by all households in Mauritius irrespective of cultural and religious backgrounds (Central Statistical Office, Mauritius, 1995).

Other criteria which have been used in previous research in determining the choice of products are that the products require substantial financial outlay, have an extended period of ownership and are shared by several household members (Davis, 1976; Delener and Schiffman, 1986). One such product was included in this study: namely, a TV set.

A TV set is also a product that falls into the category of products that require high involvement in purchase decisions (Engel, Kollat and Blackwell, 1995; Loudon and Bitta, 1993). In this study, two additional products that require only limited involvement: that is, rice and soft drinks have also been included. These two products also satisfy two of the important selection criteria already mentioned above. Their consumption is not bound to any particular religion in Mauritius and all members of the household consume these products.

Respondents were asked when they last purchased a TV, rice and a soft drink (Appendix 2, questions A1, B1 and C1). The first objective was to determine

whether the purchase took place within the last year, which was used as a cut off point for recall of purchase. From the literature, it is generally recommended that consumers should be asked to use their power of recall for a short period of time or they would otherwise not be able to give a clear description of how the decision was taken (Alba *et al*, 1991). The second objective was to ensure that the subsequent questions would be based on past behaviour and experience (Dick *et al*, 1990). Respondents who had purchased a TV set more than one year ago were discarded from the analysis.

Respondents were asked to rate the importance they attached to a set of attributes for the TV set, a brand of rice and the soft drink, (Appendix 2, questions A2, B2, C2) which they purchased in the last year. These attributes refer to those that consumers look for before the purchase of a particular product (Cox, 1967; Olsen and Jacoby, 1972; Hunt, 1977).

#### (ii) Shopping questions

It has been suggested that both personal and social motives influence consumer shopping activities (Hirschman and Holbrook, 1982). These motives are a function of many variables, some of which are unrelated to the actual buying of products (Loudon and Bitta, 1993). The consumer behaviour literature suggests that shopper decision-making styles can be characterised using the topology approach (Sproles and Kendall, 1986). The consumer topology approach has been a popular measure of shopping behaviour because it groups consumers according to different shopper types based on their purchasing behaviour (Westbrook and Black, 1985). In their

study of the influence of religiosity on consumer behaviour, Sood and Nasu (1995) suggest that shopping orientations should be measured by asking respondents a series of questions on how they shop. Respondents in the current study were asked to rate their agreements to statements pertaining to their attitudes towards shopping - for example, whether they enjoy shopping, how they shop - and the importance they attach to product and store attributes (Appendix 2, questions A2, B2, C2, D1 and E1). Answers to these statements were then used to construct shopping profiles to group respondents according to different types of shopping behaviour.

#### (b) Retail Store Preference

Several studies have been carried out in an attempt to explain the possible inner features of dynamism around the shopping behaviour phenomenon in terms of store choice (Bellenger and Moschis, 1982; Darden, 1979; Laaksonen, 1987; Moller and Van den Heuvel, 1981; Sheth, 1983). Applied to a retail situation, research indicates that a consumer's attitude toward a retail store is a function of (a) the degree of importance attached by the consumer to various store attributes and (b) the consumer's perception of the degree to which a retail store possesses each attribute (Fishbein, 1966). Attitude of consumers towards a retail store is of importance to retailers because of the positive relationship that exists between attitude and patronage of that store (James, Durand and Dreeves, 1976; Korgaonkar, Lund and price, 1985). In the current study, respondents were therefore asked about the importance they attach to retail attributes as well as the characteristics that determine their choice of a particular store (Appendix 2, questions E1). The questions were in the form of statements and the answers were recorded on five-point Likert scales.

### (c) External information search

Consumers often actively seek and selectively acquire information that is potentially useful for achieving their consumption goals (Loudon and Bitta, 1993). The sources of information that are used during external information search can be classified in several types: marketer controlled (e.g. personal selling and advertising), reseller information, interpersonal sources (e.g. friends and acquaintances), and direct inspection (Olshavsky and Wymer, 1995). In the current study, respondents were asked whether they sought information from three of these sources - seeking their own information by direct inspection, from friends and from the media - before purchasing a TV set, rice and a soft drink (Appendix 2, questions A3, B3, C3). The objective was to determine the extent to which respondents went through an external information acquisition process before making a purchase.

#### 4.5.2.3 Extraneous variables

According to Stern (1979), extraneous variables are capable of explaining the findings of a study without invoking the hypothesis. Extraneous variables may provide alternative explanations to a set of observations and therefore the results may be either due to independent variables or partly due to extraneous variables. Statisticians and users of statistics refer to this type of accidental association as a *spurious relationship* (Rosenberg, 1968). *Spurious relationships* are normally due to extraneous variables that are associated with the independent and dependent variables focused on at the time. If there is evidence that a spurious relationship

exists and that extraneous variables are causing the problem, extraneous variables can be controlled in order to determine the “true” relationship between the independent and dependent variables. The statistical procedure used for controlling the extraneous variable is called *partial correlation*. *Partial correlation* yields a single coefficient that can be interpreted just like a Pearson’s correlation coefficient. The *partial correlation coefficient* indicates the strength and direction of the relationship between two variables when an extraneous variable is controlled (Rosenberg, 1968). The task of controlling three extraneous variables while examining the relationship between two focus variables can be accomplished with the procedure called *multiple regression*. This is discussed in more detail in Section 5.8.

In this study, the extraneous variables were demographics and lifestyle. Demographic characteristics - age, income, marital status, gender, occupation and family size (Appendix 2, questions H1 to H7) - were chosen since they are portrayed as influencing purchasing behaviour in the consumer behaviour literature (Engel *et al*, 1993). Lifestyle was chosen because a number of studies have shown that it has a strong influence on people’s purchasing behaviour (Kaynak and Kara, 1996; Lazer, 1963; Plummer, 1974; Tai and Tam, 1996; Wei, 1977; Wells, 1974; Wells and Tigert, 1977). It was therefore important to measure the lifestyle of respondents and to include it in the analysis of this study in order to determine whether religiosity and religious affiliation were strong predictors of consumer behaviour in the presence of lifestyle variables.

#### (a) Measurement of Lifestyle

Lifestyle has been said to be a unique pattern of living which influences and is reflected by one's consumption behaviour (Lazer, 1963). Many products today are lifestyle products; they portray a style of life sought by potential users (Anderson Jr and Golden, 1984). According to Chisnall (1996), lifestyle refers to the distinctive or characteristic ways of living in terms of the allocation of time, money and effort and therefore has considerable influence on purchasing behaviour. Lifestyle research is an attempt to give an insight into attitudes and behaviour of people in terms of their pattern of work, leisure, daily living habits, interests, perceptions and opinions (Loudon and Bitta, 1993). The major elements of lifestyle are identified by Plummer (1974) as *activities, interests, opinions* and demographics. In this study, lifestyle has been measured using the psychographic AIO model (Kelly, 1955; Wells; 1974; Reynolds and Darden, 1974). Respondents were asked about their involvement in a number of activities, their interests and opinions on a number of issues (Appendix 2, questions G1 to G4) and their demographic characteristics. The objective was to determine the different lifestyle of respondents and to examine whether these lifestyles, as extraneous variables, affected the influence of the independent variables in their prediction of purchasing behaviour.

## 4.6 Selection of the sample

Once the research design and data collection methods had been developed, the next step in the research process was to select those targets from which the information would be collected (Churchill, 1999). There are two ways in which this information can be collected, either by a complete census of the population or by taking a sample of elements from that population. In this study, the latter method has been used because, firstly, counts on population of even moderate size are very costly and time consuming, and secondly, the information is often obsolete by the time the census is completed and the information processed.

### 4.6.1 The population

Population, in this context, refers to the totality of elements that conform to the designated specifications. Sudman and Bradburn (1982) suggest that there are two basic steps in defining the population under study. The first step is to decide whether the population is made up of individuals, households, institutes, transactions or some other category. The second step is to decide the units to use. To do this, Sudman and Bradburn (1982) suggest the following criteria:

- Geography
- Age of individuals
- Other demographic variables
- Individual variables
- Household variables.

Based the on suggestions of Sudman and Bradburn (1982), the population under study was defined as all Mauritian heads of households who fulfil the five criteria:

1. Geography: The geographic definition of the population is the whole island of Mauritius.
2. Age of the individual: According to official figures from the Mauritian Central Statistical Office, the minimum age of heads of households is 18. Therefore, the minimum age of respondents was set at 18.
3. Other demographic variables: Sex, marital status and income are other variables used to define population.
4. Individual variables: The population of this study included individuals in housing units who are major decision-makers in household shopping because the objective of the study was to find out the purchasing behaviour of heads of households.
5. Household variables: The population of this study is housing units. In certain cases, more than one housing unit was found at the same domicile, in which case they were treated as separate households.

#### 4.6.2 The sampling frame

If a probability sample is to be taken from the population, a sampling frame is required. A sampling frame is a means of representing the elements of the population.

The sampling frame was obtained from the Housing Census of the Mauritian Central Statistical Office (1990). According to this governmental department, the country

was divided into 3,263 enumeration areas, made up of an average of 74 households per enumeration area. The total number of household units was 241,460. This constituted the sampling frame for this study because a list of these households according to geographical areas was obtained from the Mauritian Central Statistical Office and the list covered all households nationwide.

#### 4.6.3 Determination of sample size

Given the total number of household units in the population, it was necessary to derive a sample. This was due to time and resource constraints. There are two ways to determine sample size. The first is to set an arbitrary size within the constraint of a research budget and to measure the precision of the sample at the analysis stage if probability sampling is used (Churchill, 1999). The second is to calculate the optimal sample size, given a desired level of precision according to the standard error formula (Churchill, 1999). In this study, the second method was used to ensure representativeness of the sample and minimum sample error.

Three pieces of information are required to compute the sample size required (McDaniel and Gates, 1996). These are:

1. specification of the acceptable or allowable level of sampling error
2. specification of the acceptable level of confidence in standard errors
3. estimate of population standard deviation

The choice of the level of allowable sample error and level of confidence is a trade off between accuracy, time and cost. In other words, a higher level of accuracy and

confidence requires a larger sample size which increases the cost of collecting and time for input and analysis. For exploratory studies, acceptable levels of precision or sampling error range from  $\pm 0.1$  to  $\pm 0.05$  and confidence levels range from 95% to 99% (Churchill, 1999).

The estimation of the standard deviation of the population is usually based on one or a combination of the following (McDaniel and Gates, 1996):

1. by using results from a previous survey as an estimate of population's standard deviation
2. by using secondary data available
3. by conducting a pilot survey and using results to estimate population's standard deviation
4. by using one's own judgement with the advice of other practitioners in the field

In the current study, it was not possible to obtain prior information about the population's standard deviation as this was not available. Results from the pilot survey were therefore used to estimate the standard deviation of the population. The mean of one demographic characteristic, income, from the pilot survey was used to calculate standard deviation. This standard deviation was used as the population's standard deviation for this study as this was the best estimate available.

The sample was therefore calculated using the following formula:

$$n = \frac{Z^2 \sigma^2}{E^2}$$

Where  $n$  = sample size

$Z$  = level of confidence expressed in standard errors = 95%

$\sigma$  = population standard deviation = 1.22

$E$  = acceptable amount of sampling error = 10%

$$\text{Sample size} = \frac{2^2 \times (1.22)^2}{(0.10)^2} \cong 600$$

The sample size for the study was calculated at 600 respondents.

#### 4.6.4 Specification of sampling plan

A critically important decision in any research project involving a sample is how the sample units are to be selected. This decision requires the selection of a sampling method: that is, the sampling method is the way by which sample units are to be selected (Tull and Hawkins, 1994). The validity of statistical inference rests on the assumption that the samples are genuinely representative of the populations (Roscoe, 1969). To meet this assumption probability samples are recommended (Hair *et al.*, 1998).

##### (a) Probability versus non-probability

Sampling techniques can be divided into two broad categories of probability and non-probability samples (Tull and Hawkins, 1984; Alreck and Settle, 1995; Churchill, 1999). In a probability sample each member of the population has a known, non-zero chance of being included in the sample. In a non-probability sample, on the other hand, there is no way of ensuring that the sample is

representative of the population. The choice between probability and non-probability samples is based on the cost versus value principle. The objective is to have a sample, which yields the greatest margin of value over cost. Generally speaking, the need for projectable totals, low allowable errors, high population heterogeneity, small non-sampling errors and high expected costs of errors favour the use of probability sampling. For the purpose of this study simple random probability sampling has been used. A random sample of 1000 households was derived from the list of 241,460 households (the sample frame) using the table of random numbers. A sample of 1000 households was chosen because the optimal sample size was estimated at 600 (Section 4.6.3) and the percentage response rate expected from the survey was 60%. This was based on a previous consumer survey carried out in Mauritius (Essoo and Chellum, 1999).

The selected sample was therefore made up of a random sample of 1000 households comprising the three major religions in Mauritius.

#### **4.7 Data collection procedures**

##### **4.7.1 Pilot survey**

Before the whole sample was surveyed, a pilot survey was carried out. A pilot survey is a small-scale version of the main survey and its main purpose is to uncover possible problem areas (Churchill, 1999). A random sample of 30 respondents from each religious group was chosen and the questionnaire was mailed to them. This was done on purpose to test the responses of each religious category in identifying

problem areas in the questionnaire. The pilot study was also used in order to assess the reliability of the survey instrument. As will be discussed in Section 4.8.1, the pilot survey can be used as a test-retest reliability measure. One key condition to using the pilot survey as a test-retest reliability assessment is that a sufficiently long time (a minimum of two weeks) must elapse between the pilot and the main survey (Mitchell, 1996). This minimises the probability of error in accepting the instrument as being reliable when, in fact, the respondent is remembering his responses to the first survey (Peter, 1979). A second condition is that the minimum sample size of the pilot study must be at least 30. In the current study, the sample size for the pilot study was 90 and the main survey was conducted one month after the pilot. Sixty usable questionnaires were obtained from the pilot survey, which represented around sixty-six percent response, well above the minimum requirement for test-retest reliability. The pilot survey revealed no major problem areas.

#### 4.7.2 Data collection process

In order to obtain the minimum sample size of 600, given an estimated response rate of 60%, the questionnaire was mailed to 1000 heads of households by registered post to ensure reception. A number of strategies were employed to enhance the response rate (Tull and Hawkins, 1994; Churchill, 1999). A covering letter (see Appendix 1) accompanied the questionnaire, explaining the purpose of the survey and highlighting that any information provided by the respondent would remain confidential. A self-addressed stamped envelope was also included for returning the questionnaire. Respondents were given one week to send back the questionnaire so that they had sufficient time to reply to the questionnaire. Respondents who did not

return the questionnaire after one week were visited by “chasers”, university students who collected the questionnaires. 600 usable questionnaires were received, which accounted for a 60 percent response rate.

#### 4.7.3 Sample representativeness

The purpose of conducting a survey is to make inferences about the population (Churchill, 1999) and therefore it is important to confirm from the questionnaire data obtained whether the sample is representative of the population. This is done by taking the demographic characteristics of the sample and comparing them with those of the population. The demographic characteristics available from the Mauritius Statistical office census 1990 were income and age of heads of households. The *chi-square goodness-of-fit test* was used to determine whether the observed pattern of frequencies corresponded to the expected patterns as predicted by the population distribution (McDaniel and Gates, 1996). The null hypothesis is that there is no significant difference between the expected and observed frequencies. In the current study, two demographic characteristics have been used to test the hypothesis, income and age. The percentages of the population for each category for these two demographic characteristics were obtained from the Mauritius Statistical Office census (1990). The results are shown in Table 4.5

*Chi- square goodness-of-fit test*

Using the two categories, the test statistic was calculated,  $\chi^2$ , thus:

$$\chi^2 = \sum \frac{(E - O)^2}{E}$$

Where

**E** = Expected number of observations

**O** = Observed number of observations

**Table 4.5 Comparison of sample to population categories**

	O	E	(E - O) <sup>2</sup> /E	$\chi^2$
<b>Age</b>				
18-35	128	132	0.12	
36-45	194	170	3.30	
46-55	123	121	0.03	
55-64	155	177	2.50	
				5.95 (p=.114)
<b>Income</b>				
< 6000	193	197	0.08	
6001 - 8000	107	108	0.01	
8001 - 10000	83	89	0.40	
10001 - 12000	62	56	0.64	
12001-14000	39	37	0.10	
Above 14000	116	113	0.08	
				1.31 (p=.934)

The *chi-square* test revealed that the null hypothesis was upheld for all categories as none of the test statistics were significant at  $p < .05$ . These results therefore suggest that any differences between sample and population observations could be attributed

to chance or sampling error (McDaniel and Gates, 1996). The sample can therefore be considered as representing the population.

#### **4.8 Reliability and validity**

Reliability and validity are important concepts in survey-based research. The main issue when attempting to measure psychological concepts, for example aspects of consumer behaviour or religiosity, is that it involves not only the true measure of the concept, but also random and systematic error (Mitchell, 1996). Reliability and validity aim to assess the degree of these errors in the researcher's measurement. Validity and reliability are closely related concepts. A measure can be reliable, but not necessarily valid. However, a necessary (but not sufficient) condition for validity of instruments is that they should be reliable (Peter, 1979). Since both reliability and validity are necessary for accurate measurement in a research study, this section provides a discussion of these two concepts.

##### **4.8.1 Reliability**

Reliability estimates the precision of the measurement by quantifying the degree of random error in the scores and represents the extent to which the same measurements on the same person would be repeatable in different settings (Shavelson, Webb and Rowley, 1989). Therefore reliability represents the consistency of the researcher's measurement: that is the repeatability of the instrument in measuring the same phenomenon over time. It is not possible to calculate reliability exactly and several different assessment approaches have to be used simultaneously (Brooker, 1979;

Parameswaran *et al*, 1979). There are three forms of reliability assessment generally discussed in the literature, namely test-retest, internal consistency and alternative form (Mitchell, 1996).

*Test-retest reliability* is estimated when the same instrument is administered to the same sample on two different occasions. Therefore, the reliability estimates are obtained by repeating the measurement using the same instrument under similar conditions (Parameswaran *et al*, 1979). The scores from the two surveys are correlated and the resulting index can be used to assess the stability of the measure over time (Peter, 1979). In addition to this method, the pilot survey can be used as a test-retest reliability measure. One key condition to using the pilot survey as a test-retest reliability assessment is that a sufficiently long time (a minimum of two weeks) has to be given between the pilot and main surveys (Mitchell, 1996). This will minimise the probability of error in accepting the instrument as being reliable when, in fact, the respondent is remembering his responses to the first survey (Peter, 1979). A second condition is that the minimum sample size of the pilot study must be at least 30.

In the current study, it has not been possible to administer the questionnaire to the whole sample at two different periods due to budgetary constraints. As a result, the pilot study has been used in order to assess the reliability of the survey instrument. The sample size for the pilot study was 90 and the main survey was conducted one month after the pilot. The responses from the pilot were analysed and were found to be quite similar to those obtained afterwards from the main study. Kerlinger (1973) proposed a set of guidelines in order to improve the reliability of the research

instrument. They include (1) providing clear instructions for answering questions in the survey instrument and (2) providing unambiguous questions. These guidelines have been respected in the current study. Therefore, careful questionnaire design and the pilot study helped in ensuring high reliability of the survey instrument.

According to Bohrnstedt (1970), test-retest reliability should not be used as the sole measure of reliability, but as a supplement to internal consistency estimates. *Internal consistency reliability* is referred to as the homogeneity aspect of reliability. It is concerned with assessing how well the various items in a measure appear to reflect the construct one is trying to measure (Trochim, 2000). In *internal consistency reliability* estimation, the measurement instrument is administered on only one occasion. Reliability is estimated by the inter-correlation among the scores of items on a multiple-item scale. The basic form of this method is split-halves, where all items that measure the same construct are randomly divided into two sets. The total score for each randomly divided half is calculated. The split half reliability estimate is the correlation between these two total scores (Mitchell, 1996). The main problem with this method is that the results depend on how the items are divided. One way of overcoming this problem is to use the Cronbach (1951) coefficient alpha. The latter calculates the reliability coefficient for all possible ways of splitting a set of items by taking the mean of all possible split-half coefficients (Vigderhous, 1974).

$$\alpha = \frac{n}{n-1} \left[ 1 - \frac{\sum V_i}{Vt} \right]$$

Where  $V_i$  is the variance of item scores after weighting,

$V_t$  is the variance of test scores,

$n$  is the number of subtests (when applied to the battery of tests)

The alpha coefficient can range from 0 to 1 and values of less than 0.6 are usually viewed as unsatisfactory (Nunnally, 1967). An important condition for the internal consistency reliability estimate through Cronbach alpha is that the items in the scale must be designed to measure the same construct (Gerbing and Anderson, 1988).

In the current study, the alpha coefficient has been used in order to assess the reliability of the different summated scales (shopper profiles, retail store preferences, religiosity and lifestyle). The alpha coefficient in all cases were higher than 0.6 (see Chapter Six), indicating high degree of internal consistency of the scales.

The third form of reliability estimate is the *alternative form*. The first step is to create two parallel forms of the same instrument by creating a large set of questions that address the same construct and randomly dividing the questions into two sets (Trochim, 2000). The two “equivalent” forms of the instrument are administered to the same sample. The correlation between the two parallel forms is the estimate of reliability. The major problems with assessing parallel forms reliability are related to (1) the difficulty in obtaining equivalent measures of the same construct, and (2) time and budgetary constraints. According to Mitchell (1996), these problems have led to the reduced use of this reliability test. Therefore, given these problems, parallel forms reliability has not been assessed in this study.

Therefore, the reliability tests conducted in this study are (1) careful design of the survey instrument, (2) pilot survey as a test-retest reliability application and (3) internal consistency reliability using Cronbach alpha coefficients.

#### 4.8.2 Validity

Validity is the ability of a measurement instrument to measure the theoretical concept under consideration (Nelson, 1982). Cook and Campbell (1979) define validity as the “best available approximation of the truth or falsity of a given inference, proposition or conclusion”. Green *et al* (1988) identified three different types of validity to be used in testing the validity of a research instrument. These are content validity, construct validity and criterion validity.

*Content validity* refers to whether the survey instrument adequately represents the characteristic being measured (Carmines and Zeller, 1994). In content validity, the researcher essentially checks the operationalisation against the relevant content domain for the construct. This approach assumes that detailed description of the content domain is available (Trochim, 2000). In the current study, in order to ensure content validity of the survey instrument, a thorough review of the literature was carried out before the design of the questionnaire (see Chapter Two). Furthermore, comments on the questionnaire were requested from academics in the area. The pilot study also provided feedback, which was helpful in ensuring content validity. Therefore, the adoption of the procedures mentioned above in the current study suggests that the survey instrument has high content validity since there is no other explicit test that can be carried out. The content validity of the summated scales used

in the context of the current study has been assessed firstly by asking expert individuals (academics and practitioners) to comment on the representativeness of the included items (Mitchell, 1996). Secondly, a review of the literature has provided guidance as to whether the items in each summated scale were appropriate.

*Construct validity* refers to the degree to which inferences can legitimately be made from the operationalisations in the study to the theoretical constructs on which those operationalisations were based (Peter, 1981). Construct validity, therefore, refers to the extent to which the measurement instrument relates to other measures as predicted by theory (Green *et al*, 1988). This is one of the most complex forms of validity, since it requires knowledge of the theoretical factors which underlie the obtained measure and how they relate to other concepts (Tull and Hawkins, 1990). In the current study, construct validity relates to how well the different aspects of consumer behaviour work in practice. According to Peter (1981) “if a construct were hypothesised to have three dimensions, a factor analysis of a purported measure of the construct which produces three meaningful factors could be interpreted as supportive evidence of construct validity”. Since factor analysis is usually used to check the construct validity of research instruments (Churchill *et al*, 1974; Peter, 1981, Mitchell, 1996), this approach has been adopted in the current study. Factor analysis has been performed for different aspects of consumer behaviour such as shopper profiles and retail store preferences. The *KMO index* and *Bartlett’s test of sphericity* (see Section 5.5.1 for a discussion of these statistics) have been used to identify whether there is a construct behind the different consumer behaviour measurements. The *KMO index* for each construct and the significance of the

Bartlett's test are given in Section 5.5.1 and indicate that there is construct validity in the instrument design.

*Criterion validity* is a concern as to whether the measure of the construct is related to other measures which may be regarded as criteria (Nunnally, 1967). This type of validity is important when the researcher is primarily interested in some outcome, or criterion, that the item measured is thought to predict. The size of the correlation between the predictor variable and the criterion variable is an indication of the level of criterion validity. In the current study, the different variables for shopping behaviour, external information search and retail store preferences were correlated to those for religious affiliation and religiosity. An examination of the correlations showed that they correlated significantly to the religious affiliation variable and the religiosity variable, indicating high criterion validity of the study (see Chapter Six).

#### **4.9 Research biases**

Despite great efforts to ensure the quality of research studies, there are inherent biases that affect the quality of a research project (Churchill, 1999). Bias is the tendency for some extraneous factor to affect data in a systematic way so that results are either "pushed" or "pulled" in some specific direction. The current study is no exception to the rule and it is important for the researcher to draw attention to these biases and provide explanations as to how they have been minimised (McDaniel and Gates, 1996). Biases fall into two broad categories: *sample design errors* and *measurement design errors*.

#### 4.9.1 Sample design errors

Sample design errors occur in the form of *frame error*, *population specification error* and *selection error*.

*Frame error* results from using an inaccurate and incomplete sampling frame. The main problem with frame error is that since the sample is drawn from the sampling frame, the sample might not represent a true cross-section of the population. The error can be minimised by ensuring the sampling frame used is up to date and complete. In this study, since the sampling frame was obtained from the Mauritius Statistical Office, an organisation renowned for providing accurate and timely data, frame error has been kept to a minimum.

*Population specification error* occurs as a result of an incorrect definition of the universe or population from which the sample is to be selected. For example if all the units or elements under study have not been included in the population, this may result in an incomplete population. This type of error might arise when dealing with populations consisting of households as the definition of a household may vary. In this study, in order to ensure the completeness of the population, households were defined as housing units comprising of both single and multi-persons housing units and households could occupy the whole or a part of the housing unit. The population specification error was thus minimised.

*Selection error* results from the use of incomplete or improper sampling procedures. In order to reduce this type of error in this study, a probability sampling procedure was used to ensure randomness of the sample.

#### 4.9.2 Measurement error

Measurement errors are those that result from a variation between the information sought and that actually obtained by the measurement process. They occur in the form of *interviewer error*, *measuring instrument bias*, *non-response bias* and *response bias*.

*Interviewer error* usually occurs because of interactions between field interviewers and respondents. This error was not likely in this research and was minimised by the use of a mail survey.

*Measuring instrument bias*, also called questionnaire bias, occurs because of problems in questionnaire design and structure. The presence of leading and ambiguous questions usually leads to this type of error (Churchill, 1999). In this study, efforts have been made to minimise questionnaire error by spending considerable time on questionnaire design, by circulating the questionnaire among academics and practitioners for their advice and by carrying out a pilot study.

*Non-response bias* occurs from the fact that people chosen to be within the sample who respond to the questions may be systematically different to those that have not responded. Non-response in mail surveys is a major problem, as the researcher has

no control over the respondent's decision to answer or not. However, there are a number of strategies which the researcher can adopt to increase the response and therefore minimise non-response error (Dillman, 1978). These have been used in the current study. Respondents were sent a covering letter with the questionnaire which explained the purpose of the survey and appealed to the goodwill of the respondents in sparing some time to complete the questionnaire. Self-addressed and stamped envelopes were included. Bids for sympathy were made by sending chasers to bring back the questionnaire from respondents. These strategies had an impact on reducing the non-response rate as the survey obtained a response rate of 60%, considered to be rather high for a mail survey (McDaniel and Gates, 1996).

*Response bias* occurs when respondents have a tendency to answer a particular question in a certain way. Respondents do so either because they want to falsify the answer deliberately or because they are unconscious that they may be giving an inaccurate answer. This type of error may be minimised by ensuring good question formatting and by ensuring that the questions are well understood by respondents (Tull and Hawkins, 1994). In this study, the pilot survey was used to detect response bias and efforts have been made to correct ambiguous questions prior to the main survey.

#### **4.10 Conclusion**

In this chapter the methodological issues pertaining to the current study have been defined and the various steps followed in collecting data have been explained. First, the criteria considered in the selection of a data collection method were discussed.

Three criteria were seen to influence the data collection method: effectiveness in demonstrating causality, avoidance of bias and acceptable levels of response at reasonable cost. Then the choice of the collection technique was discussed. The mail survey was thought to be the most appropriate technique for collecting data for this study. This was followed by a discussion on the questionnaire design and structure. The method of administering the questionnaire and the operationalisation of the independent and dependent variables used in this study were highlighted. The use of extraneous variables, demographic characteristics and lifestyles were discussed. Issues pertaining to the reliability and validity of the data collected were discussed. This was followed by an explanation of the sample selection process and how sample size was determined. Probability sampling was used to select the sample and sample size was calculated at 600 respondents. The importance of the pilot survey and the data collecting procedures were then discussed. The representativeness of the sample was estimated and the sample was found to be representative of the population. The response rate was discussed and was found to be rather high (60%) for a mail survey. Finally, possible research biases that could have influenced this study were investigated and the efforts used to minimise these biases were discussed.

The next chapter deals with the methodology used in the analysis of the data. Before the data could be analysed, it was important to select the appropriate statistical techniques and discuss the assumptions and requirements of each technique. Chapter Five therefore deals with the analytical methodology.

## **CHAPTER FIVE**

### **ANALYTICAL METHODOLOGY**

#### **5.1 Introduction**

The choice of statistical techniques for data analysis is a crucial part of the research process. The statistical techniques used in the analysis of the data collected through the survey are discussed in this chapter. The techniques have been categorised under univariate, bivariate and multivariate. The procedures and assumptions pertaining to each technique have also been discussed.

#### **5.2 Factors influencing choice of a statistical technique**

In the choice of the appropriate technique for the analysis of data, a number of factors need to be taken into consideration (Diamantopoulos and Schlegelmelch, 1997). These are:

- Analysis objectives
- Focus of the analysis
- Sample type and size
- Measurement of variables

### 5.2.1 Analysis objectives

The first step in selecting an analytical technique is to set clear analysis objectives in order to:

- direct and guide the analysis process
- help ensure that relevant analysis is undertaken
- provide a check on the comprehensiveness of the analysis
- avoid redundancy in the analysis.

The analysis objective should contribute towards the achievement of the research objectives. In the current study, the research objective is to determine whether religious affiliation and religiosity are good predictors of consumer behaviour. The objective of the analysis is therefore to select appropriate statistical techniques to find out this causal relationship.

### 5.2.2 Focus of the analysis

The focus of the analysis usually takes three basic forms:

- description,
- estimation
- hypothesis testing.

A descriptive focus is to paint a summary picture of the sample in terms of the variables of interest, while an estimation focus is to use the information in the sample to estimate the situation for the population as a whole. A hypothesis testing focus is to test specific propositions concerning the variables of interest and use the evidence to draw conclusions for the population as a whole. In this study, all three forms of foci have been used.

Descriptive statistics have been used to illustrate the sample findings and the *chi-square goodness-of-fit* test has been used to estimate sample representativeness as discussed in Section 4.8.2. Hypothesis testing has been used to find out the influence of religiosity and religious affiliation on some aspects of consumer behaviour and to draw conclusions. This is discussed in Chapter Six.

### 5.2.3 Sample type and size

The characteristics of the sample in terms of type and size also affect the choice of the analytical technique. Unless the sample has been drawn probabilistically, the use of inferential statistics is not legitimate since the latter makes use of the concept of sampling error, which cannot be assessed where non-probability sampling methods are employed. In terms of sample size, statistical procedures do not work well, unless there is a “sufficiently large” sample. In practice, for simple analyses using non-parametric statistics, a sample size of at least thirty is recommended (Diamantopoulos and Schlegelmelch, 1997). However, for parametric statistics, which are used for estimation and hypothesis testing a minimum sample of 100 is required (Diamantopoulos and Schlegelmelch, 1997; Hair *et al*, 1995, Churchill,

1999). In this study, a probability sample size of 600 has been used for the analysis, which satisfies the above requirements. Another characteristic that needs to be taken into consideration is the number of sub samples that are used in a particular analysis. This is particularly relevant to this study as comparisons are undertaken between subgroups within the sample. Different statistical procedures apply when two groups are compared as opposed to when three or more groups enter the comparison and this has been taken into consideration in the choice of analytical techniques.

#### 5.2.4 Measurement of variables

The level of measurement of the data collected determines the level of sophistication of analysis that can be applied to the data. The higher the level of measurement the more sophisticated the analysis (McDaniel and Gates, 1996). Parametric procedures can only be applied to metric data (interval and ratio), while non-parametric procedures can be applied to both metric and non-metric (nominal) data (Diamantopoulos and Schlegelmelch, 1997; Hair *et al*, 1995). In this study, both parametric procedures and non-parametric procedures have been used, as the data collected was both metric and non-metric in nature.

The number of variables to be analysed simultaneously and the extent to which they differ in terms of their level of measurement should also be considered. When a single variable is to be analysed at a time, univariate analysis is used (Walsh, 1990). When two variables are to be measured simultaneously, bivariate analysis is used (Healey, 1993). Multivariate analysis is used when three or more variables need to be

analysed simultaneously (Kerlinger, 1986). In this study, all three types of analysis have been used and are discussed in the next section.

### **5.3 Univariate analysis**

Univariate statistics refer to data analyses in which there is only one variable being studied (Walsh, 1990). The univariate analyses carried out in this study are the *chi-square* goodness of fit test (as discussed in Section 4.8.3) and descriptive statistics. The latter was used (1) to provide preliminary insights as to the nature of the responses obtained for each variable, and (2) to provide summary measures of average responses as well as the extent of variation in responses for a given variable. This provided the opportunity to check whether distributional assumptions (for example normality) of subsequent statistical tests would be satisfied.

### **5.4 Bivariate statistics**

Bivariate statistics refer to the analysis of two variables in order to study the relationship between the variables (Healey, 1993). During the investigation of this study, cross-tabulation and analysis of variance (ANOVA) were bivariate analyses performed using the Statistical Package for the Social Sciences (SPSS 10.0). These are discussed in the next section.

#### 5.4.1 Cross-tabulation

Cross-tabulation is a combination of two (or more) frequency tables arranged such that each cell in the resulting table represents a unique combination of specific values of cross-tabulated variables. Thus, cross-tabulation allows examination of frequencies of observations that belong to specific categories on more than one variable. By examining these frequencies, one can identify relations between cross-tabulated variables. The Pearson *chi-square* is the most common test for significance of the relationship between two cross-tabulated variables (Weiss and Hassett, 1991). This measure is based on the fact that we can compute the *expected* frequencies in a two-way table (i.e., frequencies that we would *expect* if there were no relationship between the variables). The *chi-square* test becomes increasingly significant as the numbers deviate further from this expected frequency. The value of the *chi-square* and its significance level depends on the overall number of observations and the number of cells in the table. The only assumption underlying the use of the *chi-square* (other than random selection of the sample) is that the expected frequencies are not very small. The reason for this is that the *chi-square* inherently tests the underlying *probabilities* in each cell; and when the expected cell frequencies fall, for example, below 5, those probabilities cannot be estimated with sufficient precision (Everitt, 1977; Hays, 1988, Weiss and Hassett, 1991).

As there was a need to determine if two or more sample groups (Hindus, Muslims and Catholics) differ in the way they are distributed into a number of discrete categories (consumer behaviour variables), cross-tabulations and the *chi-square* test were used.

## 5.4.2 ANOVA

In general, the purpose of analysis of variance (ANOVA) is to test for significant differences between two or more means (Weiss and Hassett, 1991). If we are only comparing two means, then ANOVA will give the same results as the t-test for independent samples (if we are comparing two different groups of cases or observations). ANOVA does this by examining the ratio of variability between two conditions and variability within each condition. The key statistic in ANOVA is the F-test of difference of group means, testing if the means of the groups formed by values of the independent variable (or combinations of values for multiple independent variables) are different enough not to have occurred by chance. If the group means do not differ significantly then it is inferred that the independent variable(s) did not have an effect on the dependent variable. The main objective of ANOVA is to determine whether the difference in sample means is enough to conclude that the real means do in fact differ among two or more groups. The ANOVA F-test is a function of the variance of the set of group means, the overall mean of all observations, and the variances of the observations in each group weighted for group sample size. One-way ANOVA tests differences in a single interval dependent variable (for example, shopper profiles) among two, three, or more groups (for example, religious groups) formed by the categories of a single categorical independent variable (for example, religiosity). Also known as univariate ANOVA, simple ANOVA, single classification ANOVA, or one-factor ANOVA, this design deals with one independent variable and one dependent variable. It tests whether the groups formed by the categories of the independent variable seem

similar (specifically that they have the same pattern of dispersion as measured by comparing estimates of group variances). If the groups seem different, then it is concluded that the independent variable has an effect on the dependent (Cohen, (1977).

Two assumptions must be met before running a one-way-ANOVA:

1. Each of the groups must be a random sample from a normal population
2. The variance of the groups must be equal

However, even if the normality assumption does not quite hold, the one-way-ANOVA test still gives reasonably good results. Moreover, if the sample sizes of the groups are relatively similar, the test is also quite robust against violations of the equal variances assumption (Gudmund and Norpoth, 1987; Diamantopoulos and Schlegelmelch, 1997). In this study one-way-ANOVA was used to test whether significant differences exist between and within three religious groups according to their purchasing behaviour.

#### 5.4.3 ANOVA post hoc tests

The one-way-ANOVA test was used to determine whether a significant difference existed among three religious groups for each dependent variable. Unfortunately, when the analysis of variance is significant and the null hypothesis is rejected, the only valid inference that can be made is that at least one group mean is different from at least one other group mean. The analysis of variance does not reveal which group

means differs from which others. Consequently, further analysis needs to be conducted after a significant analysis of variance. The main problem with carrying out further tests is that they may increase the chance that at least one of them will produce a Type I error (Weiss and Hassett, 1991). However, in this study it was important to find out which pairs of religious groups differed for each dependent variable. The *Tukey honestly significant difference (HSD)* test is the most commonly used method to evaluate the differences in means between two groups (Lane, 2000). The *Tukey* method is preferred when the number of groups is large as it is a very conservative pairwise comparison test, and researchers prefer to be conservative when the large number of groups threatens to inflate Type I errors. That is, *Tukey HSD* test is the most conservative of the post-hoc tests in that it is the most likely to accept the null hypothesis of no group differences. It is recommended only when all pairwise comparisons are being tested and is more powerful than the other post hoc tests (Lane, 1993). The *Tukey HSD test* is based on the *q-statistic* (the Studentized range distribution) and is limited to pairwise comparisons. This test assumes that the variables are normally distributed within each group and the variances of the two groups are not different. The *p*-level reported with a t-test represents the probability of error involved in accepting the research hypothesis about the existence of a difference.

In this study, post hoc *Tukey HSD* tests were carried out to determine whether a significant difference in means existed between pairs of religious groups (for example, Hindus and Muslims, Hindus and Catholics and Muslims and Catholics) for a number of consumer behaviour characteristics. The results from these tests served

as a basis for further investigation into the causal relationships between religious groups and consumer behaviour as discussed in the next section.

### **5.5 Multivariate statistics**

Multivariate statistics provide the ability to analyse complex sets of data where there are many independent and one or more dependent variables which are correlated to each other to varying degrees. Multivariate techniques enable the researcher to perform a single analysis instead of a number of univariate and bivariate analyses (Tabachnick and Fidell, 1996). In this study, three multivariate techniques - factor analysis, multivariate analysis of variance and multiple regression analysis - have been used. These techniques and their appropriateness to the current study are discussed in the next sections.

### **5.6 Factor Analysis**

In the development, interpretation and validation of analytical tests, researchers often have to explain or predict behaviour in terms of constructs that are not directly observable. Such constructs are referred to as hypothetical or latent constructs (Ferguson and Cox, 1993). The most common approach to identifying and measuring such constructs has been the application of factor analysis to behavioural data (Cattell, 1978; Comrey, 1978). This is because the purpose of factor analysis is data simplification (Green, Tull and Albaum, 1988). The objective is to summarise the information contained in a large number of metric measures (e.g. rating scales) into a smaller number of summary measures, called *factors*.

Factor analysis comprises two major techniques, exploratory factor analysis and confirmatory factor analysis (Bryant and Yarnold, 1995). The purpose of exploratory factor analysis is to identify the factor structure or model for a set of variables. This often involves determining how many factors exist, as well as the pattern of the factor loadings. Exploratory factor analysis is generally considered to be more of a theory-generating than a theory-testing procedure (Stevens, 1986). In contrast, confirmatory factor analysis allows the researcher to impose a particular factor model on the data and then see how well that model explains responses to the set of measures (Ferguson and Cox, 1993). Confirmatory factor analysis (CFA) is generally based on a strong theoretical and/or empirical foundation that allows the researcher to specify an exact factor model in advance. This model usually specifies which variables will load on which factors, as well as which factors are correlated. It is more of a theory-testing procedure than is exploratory factor analysis (Stevens, 1986). In the current study, there was no exact factor model available to the researcher. Therefore, exploratory factor analysis has been used to extract the factor model from the data.

There are two main types of exploratory factor analysis techniques, namely *Principal Components Analysis* and *Principal Factor Analysis* (Kim and Mueller, 1978a). The defining characteristic that distinguishes between the two factor analytic models is that, in *Principal Components Analysis*, it is assumed that *all* variability in an item should be used in the analysis. In *Principal Factor Analysis*, one uses the variability in an item that it has in common with the other items (Harman, 1976). In most cases, these two methods usually yield very similar results. However, *Principal*

*Components Analysis* is often preferred as a method for data reduction, while *Principal Factor Analysis* is preferred when the goal of the analysis is to detect structure (Jackson, 1991). In the current study, the purpose of factor analysis is for data reduction and all variability on an item was used to extract the factors. Therefore *Principal Components Analysis* has been used. Factor analyses were carried out to extract factors representing shopping behaviour variables, retail store preference variables and lifestyle variables.

Factor analysis usually comprises five major steps (Ferguson and Cox, 1983):

1. Pre-analysis checks
2. Examination of the correlation matrix
3. Factor Extraction
4. Factor rotation
5. Choice of data reduction method

Each stage is discussed in the next sections. However some other decisions involved in factor analysis such as choice of factor loadings and the naming of factors are also discussed.

#### 5.6.1 Pre-analysis checks

The purpose of the pre-analysis checks is to ensure that: (a) a stable population factor structure can emerge from the sample; (b) items are properly scaled and free from

biases and (c) the data set is appropriate for the application of Exploratory Factor Analysis.

(i) Stable factor structure

It has been argued that four heuristics need to be satisfied for ensuring a stable factor structure (Guadagnoli and Velicer, 1988). Each heuristic is shown in Table 5.1 and their advocates are highlighted.

**Table 5.1 Conditions for stable factor structure**

Condition	Range	Advocate
A. Minimum sample size (N)	100-200	Kline (1986); Comrey (1978)
B. Respondents-to-variables ratio (N/p)	between 2:1 and 10:1	Kline (1986), Gorsuch(1983); Nunally (1978)
C. Respondents-to-expected factors	between 2:1 and 6:1	Catell (1978)
D. Variables-to-expected factors	between 2:1 and 6:1	Catell (1978)

However, Guadagnoli and Velicer (1988) conclude that sample size is the most important heuristic. These authors add that the mean factor loadings for a factor is also an important consideration, in that, if four or more items load on a factor, then sample size is less relevant. In other words, the importance of sample size increases

when both the factor saturation and the ratio of variables to expected factors are low. In these cases a sample of at least 300 is required (Guadagnoli and Velicer, 1988).

In this study, the sample size was 600, therefore satisfying the above requirement.

(ii) Item scaling and bias

Although either true interval or ratio scales are ideal for factor analysis, Likert scales (e.g. five point scales) are deemed adequate (Comrey, 1978). However, Kim and Mueller (1978) note that ordinal data may be used if it is thought that the assignment of ordinal categories to the data does not seriously distort the underlying metric scaling. Likewise, these authors allow use of dichotomous data if the underlying metric correlations between the variables are thought to be moderate (0.7) or lower. The result of using ordinal data is that the factors may be that much harder to interpret. It should be noted that categorical variables with similar splits will necessarily tend to correlate with each other, regardless of their content (Gorsuch, 1983). The correlation will reflect similarity of “difficulty” for items in a testing context; hence such correlated variables are called “difficulty factors”. The researcher should examine the factor loadings of categorical variables with care to assess whether common loading reflects a difficulty factor or substantive correlation.

In the current study five point Likert scales have been used and therefore fit the requirements for item scaling and bias.

(iii) Data set

*Exploratory factor analysis* techniques require that the variables used demonstrate univariate normality: that is, it is assumed that each variable should be normally distributed (Ferguson and Cox, 1993). The coefficients of skewness and kurtosis are used to determine univariate normality. Muthen and Kaplan (1985) have argued that some degree of univariate skewness and kurtosis is acceptable if neither exceed  $\pm 2.0$ . However, these authors suggest that, if there are at least 60% of low correlations ( $<0.2$ ) among variables in the initial correlation matrix, then greater skewness is acceptable (Muthen and Kaplan, 1985).

In the current study the variables used for factor analysis of shopping behaviour, retail store preferences and lifestyles showed low correlations in terms of skewness for at least 60% of the variables in each of the correlation matrices. The data set was therefore deemed fit for factor analysis.

### 5.6.2 Examining the correlation matrix

The first step in factor analysis, after the preliminary checks, is to create a correlation matrix (Walsh, 1990). The main requirement that should be met by the correlation matrix is that it should show that there is some systematic covariation among the variables selected (Cyr and Atkinson, 1986; Dziuban and Shirkey, 1974; Gorsuch, 1983). Two statistics are used to measure whether variables fit this requirement, the *Kaiser-Meyer-Olkin (KMO) test* of sample adequacy and the *Bartlett test of sphericity (BS)* (Dziuban and Shirkey, 1974).

Measured by the *Kaiser-Meyer-Olkin (KMO)* statistics, sampling adequacy predicts if data are likely to factor well, based on correlation and partial correlation and whether the associations between the variables in the correlation matrix can be accounted for by a smaller set of factors. A KMO statistic is calculated for each individual variable, and their sum is the KMO overall statistic. KMO varies from 0 to 1.0 and KMO overall should be .60 or higher to proceed with factor analysis (Stewart, 1981). If it is not, the indicator variables with the lowest individual KMO statistic values need to be dropped, until KMO overall rises above .60. The concept is that the partial correlations should not be very large if one is to expect distinct factors to emerge from factor analysis (Kaiser, 1974).

The *Bartlett test of sphericity* tests the null hypothesis that no relationships exist between any of the variables, that is, in the correlation matrix, all diagonal values are 1 and all off-diagonal values are 0. A rejection of the null hypothesis indicates that there are relationships in the data (Dziuban and Shirkey, 1974) and therefore factor analysis can be applied.

In this study, the value of the overall *KMO statistic* was measured using SPSS 10.0 and was found to be 0.72 for the shopping behaviour variables correlation matrix, 0.64 for retail store preference variables matrix and 0.74 for the lifestyle variables matrix (see Section 6.3). These statistics were well above the minimum requirement and the variables were also checked for their independence. In the process some variables had to be dropped. It was then possible to proceed with the extraction of factors with confidence that the data was appropriate for factor analysis.

### 5.6.3 Factor Extraction

The purpose of extraction is to identify and retain those factors which are necessary to reproduce adequately the initial correlation matrix. There are three general strategies in common use by social scientists:

1. Use the first  $n$  factors that explain 60% of the variance (Suen and Ary, 1989). This rule of thumb is a compromise between the two below.
2. Use only the factors whose eigenvalues are at or above the mean eigenvalue (the Kaiser rule) (Dunteman, 1989). This is the strictest rule of the three and may result in use of too few factors. The eigenvalue for a given factor measures the variance in all the variables which is accounted for by that factor. That is, eigenvalues measure the amount of variation in the total sample accounted for by each factor. A factor's eigenvalue may be computed as the sum of its squared factor loadings for all the variables. The ratio of eigenvalues is the ratio of explanatory importance of the factors with respect to the variables. If a factor has a low eigenvalue, then it is contributing little to the explanation of variances in the variables and may be ignored as redundant with more important factors. As a general rule of thumb, factors with eigenvalues  $>1$  are extracted (Zwick and Velicer, 1986).
3. Create a scree plot (a plot or bar chart in which the x axis is the factors arranged by descending eigenvalue, and the y axis is the value of the eigenvalues). This plot will show a sharp drop leveling off to a flat tail as each successive component's eigenvalue explains less and less of the variances. The Cattell rule is

to pick all factors prior to where the plot levels off (Dunteman, 1989). Before dropping a factor below one's cut-off, however, the researcher should check its correlation with the dependent variable. A very small factor can have a large correlation with the dependent variable, in which case it should not be dropped.

The two main methods of determining the number of factors to be extracted described above, eigenvalues  $>1$  criterion and the Scree test, although popularly used by social scientists, do not always give the same results (Jobson, 1992). This is because the scree plot may sometimes level off more than once and therefore suggests extraction of a smaller number of factors (Hackett and Foxall, 1994). Because of this, Stewart (1981) and Hair *et al* (1998) suggest that some judgement also needs to be applied in extracting factors. These authors consider that over factoring by one or two factors has less severe consequences than does taking two few factors.

In the current study, factors with eigenvalues  $>1$  and accounting for 60% or more of the variance have been extracted. Factor analysis was carried out for each of the consumer behaviour constructs being studied in order to arrive at a set of factors representing shopping behaviour variables, retail store preference variables and lifestyle variables. The factors together with their respective eigenvalues and associated variance are discussed in Chapter Six.

#### 5.6.4 Factor rotation

Rotation serves to make the output more understandable and is usually necessary to facilitate the interpretation of factors (Kim and Mueller, 1978b). The sum of

eigenvalues is not affected by rotation, but rotation will alter the eigenvalues of particular factors. Extracted factors are rotated to simple structure, defined as each variable having a high loading on one of the factors and zero or small loadings on the others (Gorsuch, 1983). For solutions with two or more factors, prior to rotation the first axis will lie in between the clusters of variables and in general the variables will not sort well on the factors. Rotation of the axes causes the factor loadings of each variable to be more clearly differentiated by factor. The original, unrotated principal components solution maximises the sum of squared factor loadings, efficiently creating a set of factors which explain as much of the variance in the original variables as possible. The amount explained is reflected in the sum of the eigenvalues of all factors. However, unrotated solutions are hard to interpret because variables tend to load on multiple factors (Gorsuch, 1983).

Rotation can be either *orthogonal* or *oblique* (Ferguson and Cox, 1993). *Orthogonal rotation* assumes independence among the factors where as oblique rotation allows for a degree of correlation among the factors. *Oblique rotation* is rare in social science research because, although it makes linkage of the variables with the factors clearer, it makes the distinction between factors more difficult (Ferguson and Cox, 1983). Since identifying the meaning of the different factors is one of the main challenges of factor analysis, *oblique rotation* tends to make matters worse in most cases. However, occasionally an *oblique rotation* will still result in a set of factors whose intercorrelations approach zero. This, indeed, is the test of whether the underlying factor structure of a set of variables is orthogonal. *Orthogonal rotation* mathematically assures resulting factors will be uncorrelated and because of this cannot be used to test if underlying factor structure is orthogonal (Ferguson and Cox,

1983). In *exploratory factor analysis* (EFA), the researcher does not have a theoretical basis for knowing how many factors there are or what they are, much less whether they are correlated. Researchers conducting EFA usually assume the measured variables are indicators of two or more different factors, a measurement model which implies orthogonal rotation. Hair *et al* (1998) suggest that, if the purpose of factor analysis is to reduce a large number of variables into a smaller set to be used in regression or other prediction technique, then *orthogonal rotation* should be used.

Of the various orthogonal procedures, *varimax* is the one most commonly used and found on the SPSS package (Hair *et al*, 1998). *Varimax rotation* is an orthogonal rotation of the factor axes to maximize the variance of the squared loadings of a factor (column) on all the variables (rows) in a factor matrix, which has the effect of differentiating the original variables by extracted factor. That is, it minimizes the number of variables which have high loadings on any given factor. Each factor will tend to have either large or small loadings of particular variables on it. A *varimax* solution yields results which make it as easy as possible to identify each variable with a single factor (Comrey, 1978).

*Othogonal varimax rotation* has been used in the current analysis since the researcher did not have a theoretical basis for knowing how many factors there are or what they are, much less whether they are correlated. This method has also been used because it made it easier to identify each variable with a single factor thus allowing for each factor to be represented by different variables. In this study, the purpose of factor analysis was to reduce a large number of variables into a smaller set to be used

in regression analysis at a later stage, therefore as suggested by Hair *et al* (1998), *orthogonal rotation* has been used. It is also argued (Gorsuch, 1983; Acito *et al*, 1980) that it is not uncommon for *orthogonal* and *oblique* rotation procedures to give rise to similar structures and it is left to the researcher to decide on the most appropriate rotation method.

#### 5.6.4.1 Choosing among factor loadings

The factor loadings are the correlation coefficients between the variables (rows) and factors (columns). Similar to Pearson's  $r$ , the squared factor loading is the percent of variance in that variable explained by the factor. Having completed the desired rotation, the factor pattern matrix is inspected to determine what magnitude of loading is acceptable for variables to define factors. Choosing among factor loadings is purely arbitrary, but common social science practice uses a minimum cut-off of 0.3 or 0.35 (Norman and Streiner, 1994; Velicer *et al*, 1982). The rule-of-thumb terms loadings as "weak" if less than 0.4, "strong" if more than 0.6, and 0.5 as "moderate." These rules are arbitrary and the meaning of the factor loading magnitudes varies by research context (Ferguson and Cox, 1983). For instance, loadings of 0.45 might be considered "high" for dichotomous items but for Likert scales a 0.6 might be required to be considered "high."

In the current study, variables with factor loadings of 0.5 have been chosen as they are considered as moderate with the use of Likert scales and acceptable for social science research (Hair *et al*, 1998).

#### 5.6.4.2 Factor naming

The naming or labelling of factors is intuitively developed by the researcher based on its appropriateness for representing the underlying dimensions of a particular factor (Hair *et al*, 1998). Variables with higher loadings are considered more important and influence the name or label of a factor. The positive and negative signs of loadings can also be used in the naming of the factor. A minus sign means that the variable is negatively related to the factor and a positive sign means that the variable is positively related. Given that in orthogonal solutions the factors are independent of one another, the signs of loadings relate only to one factor on which they appear. Therefore, it is possible to identify a trend in the variables loaded on a factor and allocate a name to it.

In the current study, the above guidelines have been taken into consideration in naming factors for each of the factor analyses. Furthermore, reference has been made to previous similar studies in the field of consumer behaviour in naming the factors (Sood and Nasu, 1995; Delener, 1994, McDaniel and Burnett, 1990; Wei, 1997).

#### 5.6.5 Choice of data reduction method

If the objective of the researcher was to identify factors that represent a set of variables and to interpret these factors as means of explaining a construct, the researcher would stop at the factor interpretation stage in the previous section. However, if the objective is to use these factors for further analysis, then some form

of data reduction must be made. There are three ways to reduce the data (Hair *et al*, 1998):

1. Selecting surrogate variables
2. Computing factor scores
3. Creating summated scales

#### 5.6.5.1 Selecting surrogate variables

This method involves selecting the variable with the highest factor loading on each factor and using it as a surrogate variable to represent that factor. This method is usually used when one variable loads very highly on a factor as compared to other variables loading on that factor. However, this is not always the case because other variables may have the same or very close loadings as the surrogate variable. It therefore becomes difficult to choose one particular variable to represent the factor. Furthermore, there is the risk that one variable may not be explaining a complex construct and therefore defeats the whole purpose of factor analysis and may mislead the researcher.

#### 5.6.5.2 Computing factor scores

The second method used to reduce the set of data into a smaller set is by computing factor scores. Factor scores are the scores of each case (row) on each factor (column), which are generated from the statistical programmes as an option when carrying factor analysis. To compute the factor score for a given case for a given

factor, one takes the case's standardized score on each variable, multiplies by the corresponding factor loading of the variable for the given factor, and sums these products. Conceptually, the factor score represents the degree to which each individual scores high on the group of items that have high loadings on a factor (Hair *et al*, 1998). Therefore, higher values on the variables with high loadings on a factor have higher factor scores. However, the factor score is computed based on factor loadings of all variables on the factor irrespective of whether they are high or low and therefore all factor loadings influence the calculation of the score. This method therefore tends to defeat the purpose of deriving the factor with the highest loading as all other loadings are used in the calculation (Hair *et al*, 1998).

#### 5.6.5.3 Creating summated scales

The third method used for data reduction is the creation of summated scales which is formed by combining several individual variables into a single composite measure. This is done by combining all variables loading highly on the factor and averaging their scores, which is then used as a replacement variable. Two major benefits can be derived from the use of summated scales. Firstly, because the summated scale uses multiple variables to calculate the replacement variable, it reduces reliance on a single response. The measurement error that might occur in a single question is therefore reduced (Hair *et al*, 1998). Secondly, the summated scale combines multiple variables into a single measure which is held in common across the set of measures. However, as is the case in the construction of scales, the researcher has to ensure reliability of the summated scale (Churchill, 1999) as discussed in the previous chapter.

In this study, summated scales were created and used as replacement variables for each factor. This method was chosen because it is a compromise between the surrogate variable and the factor scoring method. The summated scale has the advantage of being a composite measure, thus reducing measurement error, and takes into consideration those variables with high loadings on each factor instead of including those with lower loadings as discussed above. According to Hair *et al* (1998), if the summated scales are well constructed, and reliable, they are a best alternative. In the current study, the reliability of the scales have been assessed before they were used for subsequent analysis. Reliability has been assessed using inter-item correlations to measure internal consistency and Cronbach's alpha to measure the consistency of the entire scales. These were found not to exceed 0.30 in the case of inter-items correlations and not to be below 0.60 in the case of Cronbach's alpha, which are both regarded as acceptable levels (Hair *et al*, 1998; Churchill, 1999).

### **5.7 Mutivariate analysis of variance**

Multivariate Analysis of Variance (MANOVA), which is an extension of the one way ANOVA, also allows the examination of the effects of independent variables in much the same way as the one way ANOVA. However, MANOVA also allows for examination of the main effects and interaction effects (Grimm, 1993) on a number of dependent variables by two or more independent variables. In other words, MANOVA is a technique that is used for situations in which there is more than one dependent variable that are correlated to one another. The interaction effect measures

whether an interaction between the independent variables, as a new variable, has an effect on the dependent variables. It is therefore necessary to determine whether the effects on the dependent variables are significant because of the dependent variables or because of interaction effects (Hair *et al*, 1998). In the present study, there are multiple dependent variables in measuring consumer behaviour and two independent variables, religious affiliation and religiosity. MANOVA has therefore been used in this study. Application of MANOVA techniques in the current study is also based on the discussion and illustration of this technique by several researchers in consumer behaviour (Darden and Perreault, 1975; Darden and Rao, 1979; Delener, 1990; Schaninger, 1981). These researchers have used MANOVA in determining whether significant differences existed between two or more independent variables and a number of dependent variables (consumer behaviour constructs). They suggest that MANOVA is a robust test in determining overall significance of the relationship described above.

#### 5.7.1 Assumptions

The assumptions that apply to MANOVA are the same as for ANOVA discussed in Section 5.4.2 except that in the case of MANOVA all variables should be multivariate normal as compared to being univariate normal in ANOVA. This means that the joint effect of two variables is normally distributed (Stevens 1986). Since there is no direct test for multivariate normality, univariate normality is usually tested for each variable (Hair *et al*, 1998). However, violation of this assumption is considered to have little impact with larger sample sizes (Stevens, 1986) and therefore MANOVA is considered to be a robust procedure despite this violation. In

this study, given the relatively large sample size ( $n = 600$ ), univariate normality of the variables has been tested and ensured before MANOVA was performed.

### 5.7.2 Procedure

While ANOVA compares the differences among two or more means on a single continuous variable, MANOVA compares sets of means along a number of continuous variables (Weinfurt, 1994). The sets of means are called *vectors* and the test being carried out is the difference between vectors of means. MANOVA therefore produces an F statistic that will be compared with a critical value to obtain a significance level. If the probability is below the predetermined criterion for significance ( $p < .05$ ), then the null hypothesis is rejected. The value of the F-statistic gives an indication of the strength of the relationship. In the current study the interaction of religiosity and religious affiliation has been tested on (1) seven shopping profiles and (2) five retail store preferences to determine multivariate differences between religious groups and consumer behaviour.

A number of statistics are used to assess multivariate differences among groups. The four most popular are Roy's gcr, Wilks' lambda, Hotelling's trace and Pillai's criterion. In choosing a statistic, Hair *et al* (1998) recommend that it should be one which is most immune to violations of the assumptions of MANOVA and yet maintains the greatest power. Pillai's criterion and Wilk's lambda best meet these conditions and are therefore recommended (Hair *et al*, 1998).

In this study, MANOVA has been calculated using SPSS 10.0 package and this statistical package provides all four statistics discussed above. However, Pillai's criterion and Wilk's lambda have been used to hold or reject the null hypothesis.

### 5.7.3 Follow-up analyses

If a significant multivariate effect has been identified from MANOVA, a number of procedures are available for further analysis of the differences among the groups under study. The most popular way of proceeding from a significant effect in MANOVA is to perform univariate ANOVAs for each of the dependent variables (Bray and Maxwell, 1982). The logic supporting this procedure is that MANOVAs are most often done with the intention of keeping the Type I error rate at the nominal level (Hurberty and Morris, 1989; Hummel and Sligo, 1971). The Type I error ( $\alpha$ ) is the probability of rejecting the null hypothesis when it is true, or in other words, it is the probability of detecting a significant effect when there is no real effect in nature (Kleinbaum, Kupper and Muller, 1988). Therefore if MANOVA has shown significance, it is considered acceptable to carry out multiple ANOVAs without undue inflation of Type I error (Hair *et al*, 1998).

In the current study a series of univariate ANOVAs have been carried out to follow up on the MANOVA test.

## 5.8 Multiple regression analysis

Multiple regression analysis is a multivariate statistical technique that can be used to analyse the relationship between a single dependent variable and several independent variables (Cohen and Cohen, 1983; Fox, 1997). Multiple regression analysis, using the Ordinary Least Squares (OLS) method, has been widely used in marketing research (Malhotra *et al*, 1999). The applications of multiple regression analysis fall into two broad categories of research problems, prediction and explanation (Hair *et al*, 1998).

One of the main purposes of multiple regression analysis is the prediction of the dependent variable with a set of independent variables in order to fulfil one of two objectives. The first objective is to maximise the overall predictive power of the combination of independent variables as represented in the model. The second objective is to compare two or more sets of independent variables to determine the predictive power of each variable.

The second purpose of multiple regression analysis is to objectively assess the degree and direction of the relationship between dependent and independent variables by modelling them in the variate of independent variables (Mosteller and Tukey, 1977). The variate of independent variables is the linear combination of the independent variables that best predicts the regression variate. The latter helps to determine the relative importance of each independent variable in the prediction of the dependent variable. Regression analysis provides a means of assessing the magnitude and

direction (positive or negative) of each independent variable's relationship with the dependent variable (Weisberg, 1985).

The multiple regression equation takes the following form:

$$Y = a + b_1X_1 + b_2X_2 + \dots + b_nX_n + u_i$$

where **Y** is the dependent variable

**X<sub>1</sub>- X<sub>n</sub>** are the independent variables

**b<sub>1</sub>- b<sub>n</sub>** are the regression coefficients, representing the amount the dependent variable **Y** changes when the independent variable changes by 1 unit

**a** is the constant term, representing the value of the dependent variable **Y**, when all independent variables are 0

**u<sub>i</sub>** is the error term (Hair *et al*, 1998).

In the current study, the objective of the researcher was to determine whether religious affiliation and religiosity have an influence on different aspects of consumer behaviour. The univariate and bivariate tests of association discussed in the previous sections indicated whether there were significant differences in consumer behaviour among respondents belonging to different religious groups and having different degrees of religiosity. However, these tests could not predict the direction and the magnitude of the relationship between the different consumer behaviour variables (dependent variables) and the religiosity and religious affiliation variables (independent variables). Multiple regression analysis has been used in the current study because its application helped to identify the direction and magnitude of the relationship between aspects of consumer behaviour and religiosity and religious affiliation respectively. Furthermore, since it is possible that other variables are influencing the different aspects of consumer behaviour, extraneous variables

(demographic characteristics and lifestyle) have been used in the variate of independent variables. The objective of including those extraneous variables is to assess whether in the presence of other variables, religiosity and religious affiliation still influence consumer behaviour (Hair *et al*, 1998).

#### 5.8.1 Measurement of variables

An important issue in multiple regression analysis is whether the measurement of the dependent and independent variables is appropriate for this type of analysis. Multiple regression analysis requires that the dependent variable should be measured on an interval or continuous scale. In practice, an ordinal (ranking or rating) scale is usually good enough if the number of levels is small (Bryman and Cramer, 1990). The independent variables should be measured on interval scales. However, if the independent variables are non-metric (not interval), they can be converted into dummy variables (Churchill, 1999). A dummy variable is a dichotomous variable that represents one category of a non-metric independent variable. Any non-metric variable with  $k$  categories can be converted to  $k-1$  dummy variables (Hair *et al*, 1998). For example, if gender is coded 1 for Male and 2 for female, the conversion of the variable into a dummy variable will be 1 for male and zero for female. However, not all dummy variables derived from a single categorical independent variable can be included in a regression analysis. This is because multi-collinearity would occur. To prevent this, one of the categories from the variable must be eliminated. For example, in the above case for gender, either the male category or the female category must be eliminated, leaving only one dummy variable for the analysis. The rule-of-thumb for eliminating a category is that this category should not be the one

with the smallest number of cases as this will not lead to stable reference comparison. Hence, it is recommended that the category with the median number of cases should be left out (Hardy, 1993).

In the current study, all the dependent variables (consumer behaviour constructs) were continuous. However, not all independent and extraneous variables were continuous or measured on interval scales. Non-metric independent variables (religious affiliation) and non-metric extraneous variables (marital status and gender) were converted to dummy variables.

#### 5.8.2 Stages in multiple regression analysis

Multiple regression analysis operates in four main stages (Fox, 1997). First, the data must be examined in univariate and bivariate ways to make sure that the most basic assumptions underlying OLS regression are being observed. Second, a model must be selected, fitted, and the parameters and goodness of fit assessed. Third, before we take the results seriously, additional diagnostics should be performed on the residuals in order to check whether the model satisfies the assumptions of OLS multiple regression analysis. In the last stage, after checking the assumptions of the model, the variate can be interpreted.

### 5.8.2.1 Examination of the data

The examination of the data operates in two steps: univariate tests of normality and bivariate tests of correlation.

#### Univariate tests of normality

The first step in multiple regression analysis, as in all multivariate analysis techniques, is to check for the normality of the data (Green *et al*, 1988). Regression analysis can provide robust results even when the normality assumption is violated (Hair *et al*, 1998). However, it is important to check for normality of the data in order to identify any transformation of variables that needs to be carried out. Tests for the normality of the variables are univariate tests. In the current study, normality tests have been conducted by deriving the normal probability plots for all the variables used in the regression analysis and skewness and kurtosis statistics have been estimated for each of the variables (Cohen and Cohen, 1983). An examination of both the normality plots and the statistics has shown that the variables are normally distributed (Appendix 3).

#### Examination of relationships between variables

The second step is to carry out bivariate tests in order to examine relationships among the variables. It is useful to assess the magnitude of the bivariate relations by examining the correlation matrix (Bryman and Cramer, 1990). If correlations of

independent with dependent variables are very weak, or weaker than associations among the independent variables, one might question the specification of the model (Hair *et al*, 1998). In the current study, the correlation matrix of the dependent and independent variables was analysed in order to determine the relationships (1) between the dependent variables and the independent variables, and (2) among the independent variables (Appendix 4).

#### 5.8.2.2 Estimating the model

Once the above requirements have been fulfilled, the regression model can be estimated and the overall model fit can be assessed (Neter *et al*, 1996). In this stage, there are three basic steps involved: (1) selecting a method for specifying the model to be estimated, (2) assessing the statistical significance of the predictive power of the overall model, and (3) determining the influence of the independent variables on the dependent variable (Hair *et al*, 1998).

The first step relates to the choice of the independent variables to be included in the model. There are a number of techniques that can be used to help the researcher to find the regression model that best fits the data (Bryman and Cramer, 1990). The first one is confirmatory specification, where the researcher specifies the set of independent variables to be used in the estimation. The main problem with this model is that it requires the researcher to have perfect knowledge of which independent variables will achieve maximum prediction of the dependent variable

(Hair *et al*, 1998). However, this is very difficult to determine in practice and there is the danger that the researcher might leave out important variables.

The second set of techniques that can be used are sequential methods. These methods estimate the regression model with a set of variables and then selectively add or delete variables until the researcher obtains a model that he considers fits the data best (Neter *et al*, 1996). The most popular sequential approach to variable selection is stepwise estimation (Hair *et al*, 1998). This approach considers each independent variable for inclusion prior to developing the main equation. The main advantage of this approach is that it enables the addition or deletion of variables at each step (Bryman and Cramer, 1990). Variables are added according to their degree of correlation with the dependent variable.

In the current study, the stepwise method in SPSS 10.0 has been used to estimate the regression equations for each dependent variable. Since this approach involves carrying out multiple significance tests in the estimation process in order to select variables, a conservative significance level of 0.05 has been adopted in adding or deleting variables. This ensures that the overall error rate across all significance tests is minimised (Hair *et al*, 1998).

The second step in the estimation procedure is that, once the model has been estimated, the statistical significance of the model must be determined. The

coefficient of determination  $R^2$  is used to estimate the predictive power of the regression (Bryman and Cramer, 1990).

$$R^2 = \frac{\text{Sum of squares regression}}{\text{Total sum of squares}}$$

The Sum of Squares Regression (SSR) is the sum of the squared difference between the predicted values of the dependent variable and the mean predicted value of the dependent variable. It measures the prediction success of the model (Neter *et al*, 1996). The total sum of squares (TSS) is the sum of the squared difference between the observed values of the dependent variables and the mean observed value. The difference between the TSS and the SSR is the Sum of Squared Error (SSE). The latter is a measure of the prediction errors and it is measured by the sum of the squared difference between the observed values of the dependent variable and its predicted values (Cohen and Cohen, 1983).

Since the  $R^2$  is the ratio of the SSR to the TSS, it is a measure of the prediction success of the regression model. It is to be noted that the predictive power of the regression is sensitive to the sample size (Hair *et al*, 1998). Cohen and Cohen (1983) proposed that, the higher the sample size, the lower the  $R^2$ , for a given number of independent variables at a given significance and power levels. For example, Hair *et al* (1998) estimated that a regression equation based on 500 observations with five independent variables requires an  $R^2$  of at least 3 percent for the relationship to be deemed statistically significant with a power of 0.80 if the significance level is at

0.10. If the same regression was estimated under the same conditions, but with 1000 observations, the minimum  $R^2$  would have to be 2%.

In the current study, the  $R^2$  and the adjusted  $R^2$  have been used to assess the prediction power of the different regression coefficients. The adjusted  $R^2$  is a modified measure of the  $R^2$  that takes into account the number of predictor variables included in the equation (Bryman and Cramer, 1990). Although the  $R^2$  will always increase with the addition of predictor variables to the model, the adjusted  $R^2$  can fall if the additional predictor variables have little explanatory power. Therefore, the adjusted  $R^2$  is useful in comparing equations with different numbers of predictor variables (Fox, 1997). Since the sample size was 600, a minimum  $R^2$  of 2% has been deemed statistically significant if the significance level is set 0.05.  $R^2$  values are further discussed in Section 6.9.3.

In order to test whether the overall regression is significant ( $R^2$  is significant from zero), the F ratio is used. The F statistic is defined as:

$$F \text{ ratio} = \frac{\frac{\text{Sum of squared error}_{\text{regression}}}{\text{Degrees of freedom}_{\text{regression}}}}{\frac{\text{Sum of squared error}_{\text{total}}}{\text{Degrees of freedom}_{\text{residual}}}}$$

where

Degrees of freedom<sub>regression</sub> = Number of estimated coefficients (including the constant) – 1

Degrees of freedom<sub>residual</sub> = sample size – the number of estimated coefficients (including the constant)

In the current study, the F statistic was used as a measure of the overall significance of each regression coefficient and the significance level was 0.05. A significant F statistic implies that the overall regression is significant, that the linear combination of the independent variables and the extraneous variables are explaining the variation in the dependent variable (Cohen and Cohen, 1983).

### 5.8.2.3 Assumptions of regression analysis

After having estimated the model, the researcher must assess whether the variate meets the assumptions underlying regression analysis. In the first stage, the assumptions for the individual variables were discussed. The assumptions for multiple regression analysis must be checked for the whole model in the third stage (Weisberg, 1985). Therefore, the model must meet the assumptions of linearity, constant variance, independence and normality. Furthermore, the outliers in the model must be identified. Outliers in the model refer to extreme values in the data set that can have a disproportionate effect on the regression results (Stevens, 1984). The principal measure used to assess whether the regression model meets all the assumptions is the residual, that is the difference between the observed value of the dependent variable and its predicted value (Cohen and Cohen, 1983). Two measures of the residual are used to test whether the assumptions of multiple regression are met, studentised residual and standardised residual (Hair *et al*, 1998). The studentised residual is the residual divided by an estimate of its standard deviation

that varies from case to case, depending on the distance of each case's values on the independent variables from the means of the independent variables. The standardised residual is the residual divided by an estimate of its standard error. Standardised residuals have a mean of 0 and a standard deviation of 1.

The first assumption is that of linearity of the relationship between the dependent and the predictor variables in the model. It is defined as the degree to which the regression coefficients of the model are constant across the range of values for the independent variables. Linearity can be examined by looking at the residual plots of the studentised residuals against the predicted values of the dependent variable (Hair *et al*, 1998). In the current study, the assumption of linearity held for all the regression equations estimated since the residual plots did not show any non-linear pattern (Appendix 5).

The second assumption is that of homoscedasticity, which relates to the constancy of the residuals across values of the predictor variables (Cohen and Cohen, 1983). Homoscedasticity is an important assumption since if the error term (residual) is not constant across the sample, the estimates will not be efficient and they would therefore invalidate significance tests. The test that is usually used to determine whether the residuals in the models are homoscedastic is the examination of the plots of the studentised residuals against the predicted value of the dependent variable, in order to assess whether they show a pattern of increasing or decreasing residuals. In the current study, this test has been used. Analysis of the residual plots showed a

random pattern (Appendix 5), therefore indicating homoscedasticity (Cohen and Cohen, 1983).

The third assumption that needs to be met is the independence of the residuals or error terms (Cohen and Cohen, 1983). Therefore, it is assumed in regression analysis that each predicted value is independent: that is, it is not related to any other prediction. This assumption can be checked by the examination of the studentised residual plots in order to check whether the pattern of residuals is random (Bryman and Cramer, 1990). If the residuals show a constant pattern - for example, if they show an increasing or decreasing trend - then the assumption of independence will be violated. In the current study, the residual plots for each regression equation exhibited a random pattern, showing that the error terms were independent (Appendix 5).

The fourth assumption is that of normality of the error terms. Multiple regression analysis assumes that the error terms from the regression equation are normally distributed (Daniel and Wood, 1980). Normality of error terms can be tested by determining whether the distribution of the standardised residuals is close to the normal curve. In the current study, this approach has been used and the error terms for the regression equations were found to be normally distributed (Appendix 5).

## Outliers

After checking whether the model meets the assumptions of multiple regression analysis, it is important to check for the presence of outliers in the data set. If outliers are present, the researcher should decide whether they should be excluded from the analysis. An examination of the residual plots can indicate the presence of outliers since the latter will have high residual values. Outliers with large residual values will not be well predicted by the model and therefore affect interpretation of the results (Barnett and Lewis, 1984). In the current study, the residuals plot indicated that outliers were not a problem (Appendix 5).

## Multicollinearity

Multicollinearity arises when an independent variable is correlated to other independent variables in the model (Bryman and Cramer, 1990). Although multicollinearity is more of a data problem than a model specification issue, it can have a serious impact on the results of the regression. High multicollinearity would artificially increase the shared variance caused by all the independent variables, therefore increasing the  $R^2$  (Weisberg, 1985). Furthermore, it gives rise to low levels of individual variance caused by each independent variable, therefore indicating that certain independent variables are not significant, when actually they are significant predictors of the dependent variable (Cohen and Cohen, 1983). Another consequence of multicollinearity might be that regression coefficients may have the wrong signs (negative or positive) as compared to what is predicted by theory (Hair *et al*, 1998).

Given the substantial impacts that multicollinearity can have on the regression model, it is important to detect its presence. There are three tests that can be performed to assess the degree of multicollinearity in regression models (Bryman and Cramer, 1990). The first one is to examine the correlation matrix for the independent variables. According to Hair *et al* (1998), high correlations of 0.90 and above can indicate serious multicollinearity. However, the correlation matrix is not a robust test for multicollinearity since it measures only bivariate collinearity and not multivariate collinearity. Two other measures have to be used. They are (1) tolerance value and (2) the variance inflation factor, VIF (Churchill, 1999).

The tolerance value is  $1-R^2$  for the regression of one independent variable on all other independent variables, ignoring the dependent (Weisberg, 1985). This process is carried out for all the independent variables. The higher the degree of multicollinearity, the lower the tolerance value (Weisberg, 1985). The VIF is the reciprocal of the tolerance value, and therefore high VIF values imply high multicollinearity. As a rule of thumb, a tolerance value of 0.10 and a VIF of 10 are taken to indicate high multicollinearity (Hair *et al*, 1998).

However, these two tests do not provide an indication as to **which** variables are intercorrelated. Belsley *et al* (1980) have developed a procedure which enables intercorrelated variables to be identified. The procedure is carried out in two steps. Firstly, the condition index which represents the collinearity of combinations of

variables in the data set is computed. Secondly, the regression coefficient variance-decomposition matrix is computed and it indicates the proportion of variance for each regression coefficient attributable to each condition index (Belsley *et al*, 1980). In the first step, all condition indices above a threshold value are identified (usually between 15 and 30, 30 being most commonly used) (Hair *et al*, 1998). Then for all condition indices above the chosen threshold, that is  $>30$ , variables with variance proportions above 0.50 are chosen. Collinearity is present if a condition index identified in step 1 accounts for a considerable proportion of the variance (0.90 and above) for two or more coefficients.

SPSS version 10.0 provided the diagnostic tests for detection of multicollinearity. Therefore, in the current study, tolerance value, VIF, condition index and variance-decomposition matrix were used in order to check for the presence of multicollinearity.

The results of the multicollinearity tests are discussed in Chapters Six and Seven for each regression equation.

#### 5.8.2.4 Interpretation of the variate

After the model has been estimated and the diagnostic tests for the assumptions have been carried out, the regression equation can then be interpreted so that conclusions can be drawn for the relationship between the dependent and independent variables (Weisberg, 1985). The regression coefficient of one independent variable shows the average amount by which the dependent variable changes when the independent

variable changes by one unit, with other independent variables remaining constant (Cohen and Cohen, 1983). In the case of multiple regression analysis, the regression coefficients are called partial regression coefficients since each one of them is measuring the relationship between the dependent variable and one independent variable while all other independent variables are being held constant.

In the case of dummy variables, the regression coefficient is relative to the reference category, which is the category coded 0 (Weisberg, 1985). For example, in the case of a dummy variable for gender, assume that female is the reference category (coded 0) and male is coded 1 and the dependent variable is external information search, a regression coefficient of  $-1.5$  implies that information search of male respondents is 1.5 times less than that for female respondents.

In the current study, the main purpose of carrying out regression analysis was to assess whether religious affiliation and religiosity are good predictors of consumer behaviour, in the presence of extraneous variables that may be related to consumer behaviour. The partial regression coefficients (b-coefficients) have been used to determine the direction of the relationship between (1) religious affiliation and consumer behaviour and (2) religiosity and consumer behaviour.

Furthermore, in the current study, the researcher was also interested in the relative strength of the relationship between (1) religious affiliation and (2) religiosity and consumer behaviour. The relative strength is of interest since the researcher wants to

determine whether religious affiliation and religiosity are more helpful than other predictor variables in explaining consumer behaviour. The regression coefficients (b-coefficients) mentioned above cannot determine which independent variable is a more important predictor of the dependent variable (Hair *et al*, 1998). This is because these regression coefficients are unstandardised: that is they are based on different measurement units (Bryman and Cramer, 1990). In such a case, it is important to use the standardised coefficients, which are called *beta coefficients*. A *beta coefficient* is the average change in the dependent variable when one independent variable changes by one standard deviation, with all other independent variables remaining constant (Fox, 1997). The *beta coefficients* are called standardised because for each observation on each variable, the mean of the variable is subtracted and the result divided by the standard deviation. The result is that all variables have a mean 0 and a standard deviation 1 (Hair *et al*, 1998). This enables comparisons of variables of different magnitude and dispersions. It is to be noted that when the data is transformed in this manner, the intercept term in the regression equation assumes a value 0 (Bryman and Cramer, 1990). In the current study, *beta coefficients* have been used to determine the relative importance of religious affiliation and religiosity as predictors of consumer behaviour.

## **5.9 Conclusion**

This chapter has reviewed the statistical techniques employed in the research for analysing the survey data. Given the large number of statistical techniques available for data analysis, it was important to identify the most suitable. The first part of the chapter looked at the factors influencing the choice of statistical techniques with a

view to determining the appropriate techniques for this study. Four factors were discussed, the analysis objectives, the focus of the analysis, the sample size and type and the measurement of variables. The second part of the chapter involved a discussion of univariate and bivariate techniques used in this study. Firstly, univariate techniques were discussed and the techniques used in this study were the (1) *chi-square goodness-of-fit* test employed to test sample representativeness and (2) descriptive statistics to summarise and present the data in a form which is understandable and interpretable. Secondly bivariate techniques; cross-tabulation and ANOVA were discussed. These techniques allowed the researcher to carry out preliminary checks to determine significant differences among the independent and dependent variables. In the final part of the chapter, multivariate techniques were discussed which included the use of factor analysis, MANOVA and multiple regression analysis in the research. The analysis of the data for this research relied considerably on these multivariate techniques and therefore they were discussed in more detail.

The results of the analysis of data for this research using the above techniques are presented in Chapters Six and Seven.

## **CHAPTER SIX**

### **DATA ANALYSIS AND RESEARCH FINDINGS (1)**

#### **6.1 Introduction**

In this chapter and Chapter Seven, attention is directed toward the data analysis and research findings. The two chapters present the findings in a form designed to enable the research hypotheses and related analyses to be undertaken. The influence of religiosity and religious affiliation on shopping behaviour is discussed in this chapter. The influence of religiosity and religious affiliation on retail store preference and external information search is discussed in Chapter Seven. The implications of the findings as well as a summary, conclusions, and suggestions for future research will be considered in Chapter Eight.

#### **6.2 Flow of analysis**

The analysis made use of a number of analytical techniques to test the relationships between independent variables (religiosity and religious affiliation) and dependent variables (shopping behaviour, retail store preference and external information search). These techniques have been discussed in Chapter Five. The actual analysis consisted of a number of steps. The steps followed for each dependent variable are shown in Table 6.1.

**TABLE 6.1 Flow of Analysis**

**Shopping behaviour (Chapter Six)**

1. Factor analysis of shopping behaviour variables to extract factors representing shopper profiles.
2. Cross-tabulations using *chi-square* statistic to test significant differences between independent variables and shopper profiles
3. Multivariate analysis of variance to determine overall significant differences between the independent variables and shopping behaviour
4. Univariate analysis of variances to determine significant differences between religious groups and shopping behaviour
5. Factor analysis of lifestyle variables to extract factors representing lifestyle profiles
6. Multiple regression analysis to determine whether independent variables were predictors of consumer behaviour

**Retail store preference (Chapter Seven)**

7. Factor analysis of retail store preference variables to extract factors representing retail store preferences
8. Cross-tabulations using *chi-square* statistic to test significant differences between independent variables and retail store preferences
9. Multivariate analysis of variance to determine overall significant differences between the independent variables and retail store preferences
10. Univariate analysis of variances to determine significant differences between religious groups and retail store preference
11. Multiple regression analysis to determine whether independent variables were predictors of retail store preference

**External information search (Chapter Seven)**

12. Cross-tabulations using *chi-square* statistic to test significant differences between independent variables and external information search
13. Univariate analysis of variances to determine significant differences between religious groups and external information search
14. Multiple regression analysis to determine whether independent variables were predictors of external information search

As Table 6.1 illustrates, the primary analytical technique employed in arriving at different shopping patterns and retail store preferences of the religious groups was factor analysis. The theoretical assumptions underlying factor analysis (as discussed in Chapter Five) render it quite appropriate for reducing a large number of variables into a smaller set of factors, such as those undertaken in the current research (Acito, Anderson, and Engledow 1980; Kim and Mueller 1978).

The next step in the analysis was to cross-tabulate the variables measuring aspects of consumer behaviour with (1) religious affiliation and (2) religiosity to determine whether significant differences existed between the three religious groups. The *chi-square* statistic was used as a test of significance. The conditions that apply to a *chi-square* as discussed in Section 5.4.1 were fulfilled given that the sample was randomly selected and the expected cell frequencies were greater than five (Hays, 1988).

In order to determine whether the religious groups differed with respect to (1) shopping behaviour and (2) retail store preferences, multivariate analysis of variance (MANOVA) was initially used. Multivariate analysis of variance is a useful technique where there are multiple-interval scaled criterion variables and more than one categorical predictor variable (Green 1988). In principle, MANOVA is similar to univariate analysis of variance, and is concerned with the differences among the population (group) centroids. Application of MANOVA technique in consumer behaviour has been discussed in Chapter Five and illustrated by several researchers (Darden and Perreault, 1975 and Darden and Rao, 1979) in identifying significant differences among groups of consumers. In this study, since there were two

independent variables, religiosity and religious affiliation, and several consumer behaviour constructs as dependent variables, use of MANOVA was appropriate.

MANOVA was then followed by univariate ANOVAs in order to find out whether significant differences existed within and between the three religious groups in terms of their shopping behaviour, retail store preferences and external information search. Post-hoc tests were also carried out to determine which *pairs* of religious groups differed for the same consumer behaviour variables.

Finally, multiple regression analysis was carried out to analyse the relationship between the dependent variables (shopping patterns, retail store preferences and external information search) and the independent variables (religious affiliation, religiosity). The objective was to determine whether religiosity and religious affiliation were strong predictors of consumer behaviour. Demographic and lifestyle variables were used as extraneous variables in the regression models.

The hypotheses relevant to shopping behaviour are listed in this next section. These hypotheses are then tested to determine whether shopping behaviour differs significantly among the three religious groups - Hindus, Muslims and Catholics - and between casually religious and devout consumers.

### 6.3 Hypotheses

The hypotheses tested in this chapter are listed below:

**H1<sub>0</sub>: Shopping behaviour does not differ significantly among Hindus, Muslims and Catholics.**

**H1<sub>1</sub>: Shopping behaviour differs significantly among Hindus, Muslims and Catholics.**

**H2<sub>0</sub>: There is no significant difference between the shopping behaviour of highly religious consumers and that of non-religious consumers.**

**H2<sub>1</sub>: There is a significant difference between the shopping behaviour of highly religious consumers and that of non-religious consumers**

### 6.4 Factor analysis of shopping behaviour variables

In order to determine their shopping behaviour, respondents were asked a series of questions. These questions pertained to how respondents shop, what influences them to do so, whether they enjoy shopping and the importance they attach to product and store attributes (Section 4.5.2.2). Respondents' answers were recorded on five-point Likert scales. The objective of these statements was to categorize respondents into a set of different shopper profiles. The profiles have been measured based on

characteristics attributed to a particular type of shopper in terms of the importance the shopper attaches to price, service quality, product/service attributes, promotion and store attributes. Each shopper type represents a type of shopping behaviour or shopping orientation (Sood and Nasu, 1990; Stone, 1952). The variables were checked for normality, as discussed in Section 5.6.1, by estimating the coefficients of skewness and kurtosis for each variable. Eighteen variables were found to be normally distributed. More than 60% of the eighteen variables showed a low correlation ( $<.02$ ), which allowed the data to be factor analysed (Muthen and Kaplan, 1985).

Factor analysis was performed to reduce dimensionality of the eighteen statements in order to summarize the information in a smaller set of variables. As discussed in section 5.6.2, the next step was to check the correlation matrix to find out whether there was systematic covariation among the variables. The *Kaiser-Meyer-Olkin* (KMO) test of sample adequacy and the *Bartlett test of sphericity* were performed on the data and it was found that the *KMO* measure was 0.72 and the *Bartlett test of sphericity* was significant at  $p<.05$ . The data was deemed fit for factor analysis. Seven factors with eigenvalues greater than one emerged from the analysis. All seven factors were extracted as the cumulative percentage of variance for the seven factors was 61.6% which satisfied the percentage of variance criterion for social science research (Hair *et al.*, 1998) as discussed in Section 5.6.3. The factors were subjected to *varimax* rotation to provide a simpler column structure for interpretation. Items with factor loading of 0.5 and above were chosen. Because the factor loading is the correlation of the variable and the factor, the squared loading is the amount of the variable's total variance accounted for by the factor. Thus, a loading of 0.5 denotes

that 25 percent of the variance is accounted for by the factor. Given the number of variables (18) and the large sample size (600) used in this study and the number of factors extracted (7), factor loadings greater or equal to 0.5, accounting for 25 percent of variance in each factor, were chosen (see table 6.2). These satisfied the requirements for factor analysis as discussed in Section 5.6.2

The seven factors extracted were used to develop shopper profiles since each factor represented a shopping orientation defined by the items that loaded on that factor. Based on the loadings on each factor, the shopper profiles were characterized as *demanding, practical, trendy, traditional, economic, thoughtful and innovative* (Stone, 1954; Sood and Nasu, 1995; Wells, 1974). The seven factors and their loadings are illustrated in Table 6.2 and discussed in Section 6.4.1.

#### 6.4.1 Shopper profiles

Factor 1 explains 10.1 percent of the variance and was named the *demanding shopper*. This shopper type attaches importance to quality and value of products as well as quality of service in retail stores. Factor 2 explained 9.9 percent of the variance and was termed *practical shopper*. This shopper type attaches importance to price deals, in-store promotions and to availability of store credit facilities. Factor 3 explained 9.8 percent of the variance and has been termed *trendy shopper*. This shopper type attaches importance to brand names, availability of well-known brands in retail stores and always buys up-market brands. Factor 4 explained 8.6 percent of the variance and has been labelled *traditional shopper*. This shopper type searches the media for bargains and believes that advertising is truthful. Factor 5 explained 8.1

percent of the variance and has been termed *economic shopper*. This shopper type attaches importance to the price of products and to the level of prices in retail stores. Factor 6 accounted for 7.6 percent of the variance and has been labelled *thoughtful shopper*. This shopper type waits for bargains to buy products and seeks other people's opinions before buying products. Factor 7 explains 7.4 percent of the variance and has been termed *innovative shopper*. This shopper type tries any new product once and does not favour a particular brand.

**Table 6.2 Factor extraction (shopper profiles)**

Factor	Variables	Factor loading	Eigenvalue value	Alpha value	Cumulative percent
1. Demanding shopper	Importance of product quality	.872	15.7	.62	10.1
	Importance of nutritional value	.849			
	Importance of quality of service	.550			
2. Practical Shopper	Importance of in-store price deals	.767	10.6	.67	20.0
	Importance of in-store promotion	.647			
	Importance of in-store credit availability	.674			
3. Trendy Shopper	Importance of brand name	.760	9.8	.71	29.8
	Importance of up-market brands	.539			
	Importance of availability of up-market brands in-store	.705			
4. Traditional Shopper	Importance of media search	.716	7.9	.52	38.4
	Importance of truthfulness of advertising	.722			
5. Economic Shopper	Importance of product prices	.627	6.4	.53	46.5
	Importance of in-store prices	.688			
6. Thoughtful Shopper	Importance of bargains	.826	5.7	.61	54.2
	Importance of friends' opinions	.685			
7. Innovative Shopper	Try any product once	.598	5.2	.75	61.6
	Stick to certain brands	-.792			
	Wait for others to try product	-.627			

As described in Section 5.6.5, if the objective of the researcher was only to identify

factors that represent a set of variables and to interpret these factors as means of explaining a construct, the researcher would stop at the factor interpretation stage. However, in the present study, the objective was to use these factors for further analysis, and therefore some form of data reduction was necessary. For each shopper type, a summated scale was constructed using the relevant variables having high loadings on each factor (see Section 5.6.5.3) in order to convert the variables into a single composite measure. For example, the variables with high loadings on Factor 1 (*demanding shopper*) were (1) importance of product quality (2) importance of nutritional value and (3) importance of quality of service in retail stores. The sum of the scores of each respondent for the three variables were averaged out and converted into a single variable. Given that the variable scores had been obtained from five-point Likert scales, and in the case of the *demanding* shopper three variables had loaded on the factor, the scores on the scale ranged from 1 to 5. Those respondents scoring above the median on the scale were characterized as “very demanding” while those scoring below the median were characterized as “less demanding” and those with the median score were characterized as “demanding”. The same procedure was applied to all seven factors. The construction of summated scales for each factor allowed variables on each factor to be converted into single composite measures and each factor could therefore be subjected to further analysis.

The shopper types (seven factors) were then cross-tabulated with (1) religious affiliation and (2) religiosity to determine whether significant differences existed between the three religious groups and shopping behaviour. The *chi-square* statistic was used as a test of significance. The conditions that apply to a *chi-square* as

discussed in Section 5.4.1 were fulfilled given that the sample was randomly selected and the expected cell frequencies were greater than five (Hays, 1988). The results discussed in Sections 6.4.2 and 6.4.3 are those where significant differences have been identified using the *chi-square* ( $p < 0.05$ ).

## 6.5 Differences in shopping behaviour between casually religious and devout respondents

### 6.5.1 Religiosity differences among shopper types

**Table 6.3 Religiosity differences among shopper types**

	Casually religious respondents	Devout respondents
<b>Demanding Shopper<sup>1</sup></b>		
Very Demanding	85.4%	73.9%
Demanding	12.0%	16.2%
Less demanding	2.6%	9.9%
<b>Practical Shopper<sup>2</sup></b>		
Very practical	72.8%	62.7%
Practical	25.3%	31.0%
Less practical	1.9%	6.3%
<b>Trendy Shopper<sup>3</sup></b>		
Very trendy	59.5%	43.0%
Trendy	35.4%	50.7%
Less trendy	5.1%	6.3%
<b>Innovative Shopper<sup>4</sup></b>		
Very innovative	31.6%	23.9%
Innovative	63.9%	68.3%
Less innovative	4.5%	7.8%

Note: Significance (p): 1=0.003, 2=0.025, 3=0.037, 4=0.000

The results in Table 6.3 suggest that there are significant differences in shopping behaviour between the devout and casually religious respondents. A larger percentage of casually religious respondents (85.4%) were found to be *very demanding* in their shopping behaviour as compared to 73.9% of devout respondents.

72.8% of casually religious respondents were found to be *very practical* as compared to 62.7% of devout respondents. A larger percentage of casually religious respondents (59.5%) were found to be *very trendy* as compared to 43% of devout respondents. 31.6% of casually religious respondents were found to be *very innovative* as compared to 23.9% of devout respondents.

Casually religious respondents were therefore found to be significantly more *demanding, practical, trendier* and more *innovative* in their shopping behaviour than their devout counterparts. Given that shopper types were characterised by the variables that loaded on this factor, it can be stated that casually religious consumers were more concerned with quality and nutritional value of rice compared to devout consumers. Casually religious consumers looked out for store price deals, promotions and the availability of credit and were therefore more practical in their shopping behaviour. Casually religious consumers were also *trendier* than their devout counterparts as they attached a lot of importance to brand names and bought up-market brands. They were also more *innovative* as they were willing to try any product once and not to favour one brand.

6.5.2 Differences in shopping behaviour between casually religious and devout Hindus

**Table 6.4 Differences in shopping behaviour between casually religious and devout Hindus**

	Casually religious Hindus	Devout Hindus
<b>Thoughtful Shopper<sup>1</sup></b>		
Very thoughtful	20.0%	1.6%
Thoughtful	28.6%	36.9%
Less thoughtful	51.4%	61.5%
<b>Demanding shopper<sup>2</sup></b>		
Very demanding	85.7%	67.7%
Demanding	11.4%	16.9%
Less demanding	2.9%	15.4%
<b>Innovative shopper<sup>3</sup></b>		
Very innovative	25.7%	21.5%
Innovative	71.4%	73.8%
Less innovative	2.9%	4.7%

Note: Significance (p): 1=0.000, 2=0.005, 3=0.000

Table 6.4 illustrates that when respondents are divided into their respective religious groups, casually religious Hindus differed significantly from devout Hindus in their shopping behaviour. A larger percentage (20%) of casually religious Hindus were *very thoughtful* in their shopping behaviour compared to 1.5% of devout Hindus. 85.7% of casually religious Hindus were *very demanding* in their shopping behaviour compared to 67.7% of devout Hindus. 25.7% of casually religious Hindus were *very innovative* in their shopping behaviour compared to 21.5% of devout Hindus. It can therefore be stated that devout Hindus attached less importance to quality of products, nutritional value of foodstuffs and quality of service in retail stores. They

were also less *thoughtful* in their shopping behaviour and did not look for bargains to purchase products nor did they seek other people's opinions before making a purchase. Casually religious Hindus would try any new product once and would not favour certain brands unlike their more religious counterparts.

### 6.5.3 Differences in shopping behaviour between casually religious and devout Muslims

**Table 6.5 Differences in shopping behaviour between casually religious and devout Muslims**

	Casually religious Muslims	Devout Muslims
<b>Trendy shopper</b>		
Very trendy	65.7%	46.2%
Trendy	28.6%	38.5%
Less trendy	5.7%	15.3%

Note: Significance level  $p=0.005$

Casually religious Muslims differed in their shopping behaviour from devout Muslims in that they were *trendier* than their devout counterparts (Table 6.5). 65.7% of casually religious Muslims were *very trendy* as compared to 46.2% of devout Muslims. It can be stated that casually religious Muslims attached more importance to brand names, to retail stores which stock known brands and to up-market brands as compared to devout Muslims.

#### 6.5.4 Differences in shopping behaviour between casually religious and devout Catholics

**Table 6.6 Differences in shopping behaviour between casually religious and devout Catholics**

	<b>Casually Religious Catholics</b>	<b>Devout Catholics</b>
<b>Demanding shopper<sup>1</sup></b>		
Very demanding	86.0%	80.4%
Demanding	10.0%	13.7%
Less demanding	4.0%	5.9%
<b>Practical shopper<sup>2</sup></b>		
Very practical	76.0%	66.7%
Practical	22.0%	29.4%
Less practical	2.0%	3.9%
<b>Trendy shopper<sup>3</sup></b>		
Very trendy	68.0%	41.2%
Trendy	28.0%	54.9%
Less trendy	4.0%	3.9%

Note: Significance (p): 1=0.001, 2=0.005, 3=0.000

As shown in Table 6.6, a larger percentage (86%) of casually religious Catholics were *very demanding* in their shopping behaviour as compared to 80.4% of devout Catholics. A larger percentage (76%) of casually religious Catholics were *very practical* compared to 66.7% of devout Catholics. A larger percentage (68%) of casually religious Catholics were *very trendy* as compared to 41.2% of devout Catholics. The findings suggest that significant differences existed between devout Catholic consumers as compared to casually religious Catholics ones. Casually religious Catholic respondents were more *demanding*, *practical* and *trendy* in their

shopping behaviour compared to their devout counterparts (Table 6.6). They attached more importance to quality, would look for stores where price deals and credit were available and attached more importance to up-market brands compared to devout Catholics.

## 6.6 Differences in shopping behaviour among religious groups

**Table 6.7 Differences in shopping behaviour among religious groups**

	RELIGION		
	Hindus	Muslims	Catholics
<b>Demanding shopper<sup>1</sup></b>			
Very demanding	74.0%	82.8%	83.2%
Demanding	15.0%	15.2%	11.8%
Less demanding	11.0%	2.0%	5.0%
<b>Practical shopper<sup>2</sup></b>			
Very practical	56.0%	76.8%	71.3%
Practical	38.0%	20.2%	25.7%
Less practical	6.0%	3.0%	3.0%
<b>Traditional Shopper<sup>3</sup></b>			
Very traditional	32.0%	26.7%	41.4%
Traditional	61.0%	65.3%	54.5%
Less traditional	7.0%	8.0%	4.1%
<b>Thoughtful Shopper<sup>4</sup></b>			
Very thoughtful	8.0%	7.0%	13.9%
Thoughtful	34.0%	26.3%	28.7%
Less thoughtful	58.0%	66.7%	57.4%
<b>Innovative shopper<sup>5</sup></b>			
Very innovative	23.0%	33.3%	27.7%
Innovative	73.0%	65.7%	59.4%
Less innovative	4.0%	1.0%	12.9%

Notes : Significance levels (p): 1=0.002, 2=0.000, 3=0.010, 4=0.015, 5=0.006

Table 6.7 illustrates significant differences among the three religious groups for five shopper types (*demanding, practical, traditional, thoughtful* and *innovative*). For the *economic* and *trendy shopper* types, no significant difference was found among the three religious groups.

A larger percentage (83.8%) of Catholics were *very demanding* in their shopping behaviour compared to 82.2% of Muslims and 74% of Hindus. Catholics attached

more importance to quality of products, nutritional value of products and quality of service in retail stores compared to Hindus and Muslims.

76.8% of Muslims were *very practical* in their shopping behaviour compared to 71.3% of Catholics and 56% of Hindus. Muslims were found to be more *practical* in their shopping behaviour than Catholics and Hindus in that they attach more importance to price deals, promotions and store credit facilities than Catholic and Hindu shoppers.

41.4% of Catholics were *very traditional* in their shopping behaviour compared to 32.0% of Hindus and 26.7% of Muslims. Catholic shoppers were more *traditional* in their shopping behaviour in that they believed that advertising is truthful and they always searched the media for bargains as compared to Hindus and Muslims.

A larger percentage of Catholics (13.9%) were *very thoughtful* in their shopping behaviour compared to 8% of Hindus and 7.0% of Muslims. Catholics were more *thoughtful* in their shopping behaviour than Hindus and Muslims in that they sought other people's advice before making a purchase and they took advantage of bargains.

33.3% of Muslims were *very innovative* in their shopping behaviour compared to 27.7% of Catholics and 23% of Hindus. Muslim shoppers were more *innovative* in their shopping behaviour in that they would try any new product once, did not favour any specific brand and would not wait for other consumers to try a product before they did.

It can be stated that Hindus, Muslims and Catholics differ significantly in their shopping behaviour.

The results (Sections 6.4.2 and 6.4.3) tend to suggest that shopping behaviour differs significantly among the three religious groups, Hindus, Muslims and Roman Catholics, and between casually religious and devout respondents.

In this study, the *chi-square* tests have been carried out in the preliminary stages to identify significant differences between the religious groups and shopping behaviour. In order to ascertain whether significant relationships exist between the independent variables (religiosity and religious affiliation) and aspects of consumer behaviour, a number of additional tests have been carried out as discussed in the next sections.

### **6.7 Multivariate analysis of variance (MANOVA)**

The above results suggest that each shopper profile, tested individually, differs significantly between highly religious and non-religious consumers and among Hindus, Muslims and Catholics. The next step in the analysis was to find out whether overall, or taken together, these shopper profiles may provide stronger evidence of reliable differences between highly religious and non-religious consumers and among Hindus, Muslims and Catholics. Similar to ANOVA, MANOVA is a test to determine differences between two or more means but unlike ANOVA it tests the differences in means for more than one dependent variable. The conditions for conducting MANOVA have been discussed in Chapter Five and the requirements were fulfilled prior to the analysis.

In this study, MANOVA was used to determine whether significant differences existed in the means of the independent variables (religiosity and religious affiliation) across a number of dependent variables (shopper profiles). The tests were carried out using the SPSS 10.0 package. The results are illustrated in Table 6.8

**Table 6.8 MANOVA (shopper profiles)**

	Value	F	Hypothesis df	Error df	Sig.
<b>RELIGIOSITY</b>					
Pillai's Trace	.071	6.485	7.000	588	.000
Wilks' Lambda	.229	6.485	7.000	588	.000

	Value	F	Hypothesis df	Error df	Sig.
<b>RELIGION</b>					
Pillai's Trace	.115	5.176	14.000	1178	.000
Wilks' Lambda	.487	5.204	14.000	1176	.000

<b>RELIGION *</b>	Value	F	Hypothesis df	Error df	Sig.
<b>RELIGIOSITY</b>					
Pillai's Trace	0.223	1.339	14.000	1178	0.302
Wilks' Lambda	0.777	1.339	14.000	1176	.0302

The Wilks' Lambda and Pillai's criterion statistics (discussed in Section 5.6) were used to measure the relationship between shopper profiles and religiosity and religious affiliation. Both statistics were significant at  $p < .05$  with the lambda value

close to zero at .229 for religiosity and .487 for religion. The results confirm that religiosity and religious affiliation have a significant effect on shopping behaviour. Significant differences were found between highly religious and non-religious consumers and among Hindus, Muslims and Catholics for all shopper types, significant at  $p < .05$ . However, it is to be noted that the F statistic for religiosity is higher than that for religion, suggesting that there was a greater difference between devout and casually religious respondents with regard to shopping behaviour than between Hindus, Muslims and Catholics. This suggests that religiosity is the stronger independent variable. The two independent variables were also tested for interaction (see Section 5.7) and the interaction variable was found not to be significant and was therefore not included in further analysis.

MANOVA, as discussed in Section 5.7 is often used with the intention of keeping the Type I error rate at the nominal level (Hurberty and Morris, 1989). The Type I error ( $\alpha$ ) is the probability of rejecting the null hypothesis when it is true, or in other words, it is the probability of detecting a significant effect when there is no real effect in nature (Kleinbaum, Kupper and Muller, 1988). The follow up test recommended after detecting a significant effect in MANOVA is to perform univariate ANOVAs for each of the dependent variables (Bray and Maxwell, 1982). The use of separate univariate ANOVAs can increase the Type I error if all dependent variables are uncorrelated. Therefore, if MANOVA has shown significance (by controlling for Type I error and by showing some degree of intercorrelation among dependent variables), it is considered acceptable to carry out multiple univariate ANOVAs without undue inflation of Type I error (Hair *et al*, 1998).

## 6.8 One-way-ANOVA

The next step in the analysis was to carry out one-way ANOVAs for each dependent variable (shopper profile) to confirm that significant differences existed between the different religious groups and their shopping behaviour. The requirements for conducting ANOVAs were discussed in Section 5.4.2 and these were fulfilled prior to the tests. The results of the one-way-ANOVAs are shown in Table 6.9.

**TABLE 6.9 one-way-ANOVA of shopper profiles**

### Religiosity

Shopper profiles	F-statistic	Significance
Demanding shopper	17.406	.000*
Practical shopper	10.340	.001*
Trendy shopper	4.745	.000*
Traditional shopper	.189	.445
Economic shopper	1.483	.010*
Thoughtful shopper	1.969	.035*
Innovative shopper	1.816	.013*

Significance: \* p<0.05

## Religion

Shopper profiles	F-statistic	Significance
Demanding shopper	6.006	.003*
Practical shopper	10.234	.000*
Trendy shopper	1.138	.321
Traditional shopper	5.581	.004*
Economic shopper	2.056	.129
Thoughtful shopper	2.947	.053**
Innovative shopper	5.778	.003*

Significance: \* p<0.05, \*\* p>0.01

As summarised in Table 6.9, the results from the one-way-ANOVAs suggest that there were significant differences between casually religious and devout respondents for six shopper types. No significant difference was seen to exist between casually religious and devout respondents for the *traditional shopper* type. The results also suggest that significant differences existed between Hindus, Muslims and Catholics for only five shopper types.

The one-way ANOVAs identified whether significant differences in means existed across the three religious groups for each shopper. However, although for some shopper types no significant difference was found to exist across all groups, there was still the possibility that significant differences existed between pairs of religious groups as was shown by the cross-tabulations and the *chi-square* tests. It was necessary at this stage of the analysis to carry out further tests to confirm whether significant differences existed between pairs of religious groups. The Tukey post hoc tests (discussed in Section 5.4.3) were therefore performed to investigate this possibility.

### 6.8.1 Post hoc tests

Based on the ANOVA results, the next step was to determine whether significant differences existed in terms of religious affiliation for each shopper profile between (1) Hindus and Muslims, (2) Hindus and Catholics, and (3) Catholics and Muslims. This was also tested for religiosity within each religious group, between (1) casually religious Hindus and devout Hindus, (2) casually religious Muslims and devout Muslims and (3) casually religious Catholics and devout Catholics. Tukey post hoc tests were carried out to test the difference in means between casually religious and devout respondents among religious groups across each shopper type. The difference in means between Hindus, Muslims and Catholics was also tested across each shopper type. The results are shown in Table 6.10.

**Table 6.10 ANOVA Tukey's post hoc tests for shopper profiles**

	Devout Hindu V/s Casually religious Hindu	Devout Muslim V/s Casually religious Muslim	Devout Catholic V/s Casually religious Catholic	Hindu V/s Muslim	Hindu V/s Catholic	Muslim V/s Catholic
<b>Demanding Shopper</b>	.000*	.571	.006*	.012*	.013*	.712
<b>Practical Shopper</b>	.096**	.782	.000*	.014*	.000*	.019*
<b>Trendy Shopper</b>	.157	.017*	.000*	.020*	.105	.000*
<b>Traditional Shopper</b>	.270	.256	.430	.000*	.008*	.000*
<b>Economic Shopper</b>	.108	.954	.782	.037*	.591	.095**
<b>Thoughtful Shopper</b>	.032*	.665	.144	.028*	.900	.030*
<b>Innovative Shopper</b>	.003*	.640	.089**	.000*	.529	.000*

Notes: \* p < 0.05, \*\* p < 0.1

The results show that there were significant differences between the means of the religious groups for all shopper types. The results can be summarised as follows:

For the *demanding shopper type* (Factor 1), significant differences were found between casually religious and devout Hindus, casually religious and devout Catholics, between Hindus and Muslims and between Hindus and Catholics. For the *practical shopper type*, (Factor 2), significant differences were found between

casually religious and devout Hindus, between casually religious and devout Catholics, between Hindus and Muslims, between Hindus and Catholics and between Muslims and Catholics. Regarding the *trendy shopper type* (Factor 3), significant differences were found between casually religious and devout Catholics, between Hindus and Muslims and between Muslims and Catholics. For the *traditional shopper* (Factor 4), significant differences were found between Hindus and Muslims, between Hindus and Catholics and between Muslims and Catholics. For the *economic shopper type* (Factor 5), significant differences were found only between Hindus and Muslims and between Muslims and Catholics. For the *thoughtful shopper type* (Factor 6), significant differences were found between casually religious and devout Hindus, and between Hindus and Muslims. For the *innovative shopper type* (Factor 7), significant differences were found between casually religious and devout Hindus, between Hindus and Muslims and between Muslims and Catholics.

It is to be noted that significant differences ( $p < .05$ ) were found between Hindus and Muslims for all shopper types suggesting strongly that differences existed between the shopping behaviour of Hindus and Muslims. It is also to be noted that significant differences were found between the shopping behaviour of casually religious groups and devout groups for a number of shopper types. These results confirm the differences identified earlier using the *chi-square* test and cross-tabulations in Section 6.4.2 and 6.4.3.

## 6.9 Multiple regression analysis

The above results suggest that significant differences exist between (1) casually religious and devout shoppers and their shopping behaviour and (2) the three religious groups and their shopping behaviour. The next step in the analysis was to determine the strength of these relationships and whether religious affiliation and religiosity are good predictors of shopping behaviour. The statistical technique used was multiple regression analysis. This is because, as discussed in Section 5.8, this technique allows the researcher to (1) predict the dependent variable with a set of independent variables and (2) determine the best linear combination of independent variables that can predict the dependent variable. In this study, the independent variables (religiosity and religious affiliation) were regressed against each of the seven dependent variables (shopper profiles). The objective of using multiple regression analysis in this case was to determine the direction and magnitude of the relationship between religiosity, religious affiliation and shopping behaviour. A number of scenarios were tested using the stepwise method so that the model explaining maximum variation of the dependent variables could be obtained. This method was used to regress each of the shopper profiles in order to identify the independent variables which explained maximum variation in the dependent variables.

Extraneous variables (as discussed in Section 4.5.2.3) were introduced in the regression model in order to assess whether religiosity and religious affiliation are strong predictors of shopping behaviour in the presence of other variables that might influence shopping behaviour. The methodological issues and the assumptions for

the use of multiple regression analysis were discussed in Chapter Five. The results of the multiple regression analysis are discussed in Sections 6.4.5.3 to 6.4.5.9. The next section looks at the two sets of extraneous variables used in the regression models.

#### 6.9.1 Extraneous variables used in the regression models

The two sets of extraneous variables used in the regression models were (1) demographic characteristics of respondents and (2) lifestyle. Demographic characteristics chosen were age, income, marital status, gender, occupation and family size. Lifestyle was also chosen because, as discussed in Section 4.5.2.3, a number of studies have shown that it has a strong influence on people's purchasing behaviour.

##### 6.9.1.1 Lifestyle profiles

Lifestyle has been said to be a unique pattern of living which influences and is reflected by individuals' consumption behaviour (Lazer, 1963). Many products today are lifestyle products; they portray a style of life sought by potential users (Anderson Jr and Golden, 1984). Lifestyle profiles of respondents were measured by asking a series of fifteen questions on their activities, interests and opinions as discussed in Section 4.5.2.3. Factor analysis was performed to reduce the answers to the lifestyle questions to a smaller set of lifestyle variables (profiles). A lifestyle profile has been defined for the purpose of this study as the combination of activities, opinions and interests that an individual has and which influences his daily life (Kelly, 1955; Reynolds and Darden, 1974). The fifteen variables were checked for normality, as

discussed in Section 5.6.1, by estimating the coefficients of skewness and kurtosis for each variable. More than 60% of the variables showed a low correlation ( $<.02$ ), which allowed the data to be factor analysed (Muthen and Kaplan, 1985).

As discussed in Section 5.6.2, the next step was to check the correlation matrix to find out whether there was systematic covariation among the lifestyle variables. The *Kaiser-Meyer-Olkin* (KMO) test of sample adequacy and the *Bartlett test of sphericity* were performed on the data and it was found that the KMO measure was 0.74 and the *Bartlett test of sphericity* was significant at  $p<.05$ . The data was deemed fit for factor analysis. Six factors with eigenvalues greater than one emerged from the analysis. All six factors were extracted as the cumulative percentage of variance for the six factors was 69.9% which satisfied the percentage of variance criterion ( $>60\%$ , see Section 5.6.3) for social science research (Hair *et al*, 1998). The factors were subjected to *varimax* rotation to provide a simpler column structure for interpretation. Items with factor loading of 0.5 and above were chosen (Table 6.11) The factors were labelled *leadership*, *community conscious*, *hedonic*, *knowledge-seeker*, *current affairs* and *optimist* (Kucukemiroglu, 1999; Tai and Tam, 1996; Wei, 1997).

Factor 1 accounted for 13.2% of the total variance and was termed *leadership*. Variables, which loaded highly on Factor 1, were (1) job satisfaction is more important than money, (2) more independent than other people and (3) have more self-confidence. Factor 2 accounted for 11.8% of the total variance and was called *community conscious*. Variables, which loaded highly on Factor 2, were (1) attended social events, (2) involved in community work, and (3) members of social club.

**Table 6.11 Factor extraction (lifestyle profiles)**

Factor	Variables	Factor loading	Eigenvalue value	Alpha value	Cumulative percent
1. Leadership	Job satisfaction more important than more money	.632	3.7	0.82	13.2
	More independent than other people	.819			
	Have more confidence	.802			
2. Community Conscious	Attend social events	.548	1.8	0.75	25.0
	Involved in community work	.815			
	Member of social club	.812			
3. Hedonic	Enjoy cinema	.652	1.4	0.83	36.4
	Enjoy beach	.793			
	Enjoy eating out	.703			
4. Knowledge Seeker	Enjoy reading books	.880	1.3	0.61	47.8
	Enjoy reading newspaper	.825			
5. Current Affairs	Every citizen should understand the economy	.878	1.09	0.63	59.1
	Be aware of international affairs	.827			
6. Optimist	More money to spend next year than now	.868	1.04	0.59	69.9
	Income will be higher in five years time	.755			

Factor 3 explained 11.4% of the total variance and was termed *hedonic*. Variables which loaded highly on Factor 3 were (1) enjoy eating out, (2) enjoy cinemas, and

(3) enjoy beach. Factor 4 accounted for 11.3% of the total variance and was labelled *knowledge-seeker*. Variables which loaded highly on Factor 4 were (1) enjoy reading books, and (2) enjoy reading newspapers. Factor 5 accounted for 11.2 % of the total variance and has been termed *current affairs*. Variables which loaded highly on Factor 5 were (1) every citizen should understand the economy and (2) be aware of international affairs. Factor 6 was termed *optimist* and explained 10.7% of the total variance. Variables which loaded highly on Factor 6 were (1) would have more money to spend next year than now and (2) income would be higher in five years time.

For each lifestyle profile, a summated scale was constructed using the relevant variables having high loadings on each factor as in the case of shopper profiles (see Section 6.4.1.1). For example, the variables with high loadings on Factor 1 (*leadership*) were (1) job satisfaction more important (2) more independent than other people and (3) have more confidence. The sum of the scores of each respondent for the three variables was averaged out and converted into a single variable. Given that the variable scores had been obtained from five-point Likert scales, and in the case of *leadership* lifestyle profile, three variables had loaded on the factor, the scores on the scale ranged from 1 to 5. Those respondents scoring above the median on the scale were characterized as “high” while those scoring below the median were characterized as “low” and those with the median score were characterized as “average”. The same procedure was applied to all six factors.

The six lifestyle profiles were used as extraneous variables in multiple regression

analysis. However, before multiple regression analysis could be carried out, a number of assumptions had to be met as discussed in Section 5.8.2.1. In Section 6.4.5.2, these assumptions are tested.

#### 6.9.2 Testing assumptions for multiple regression analysis

The data from this study was examined in order to assess whether the basic assumptions underlying the use of ordinary least square (OLS) regression analysis were observed (see Section 5.8.2.3). First, normality tests were conducted for the dependent (shopper profiles) and predictor variables (religious affiliation, religiosity and the extraneous variables). The normal probability plots for all the variables were examined and skewness and kurtosis statistics were estimated. The normality plots showed that the variables were normally distributed. The skewness and kurtosis statistics for all the variables were in the range  $\pm 2$  and  $\pm 3$  respectively (see appendix 3). According to Muthen and Kaplan (1985) such values indicate that the variables approximate a normal distribution and therefore could be used in multiple regression analysis.

Secondly, the relationships among the variables were considered. The correlation matrix was used to determine whether (1) the independent variables were highly correlated among themselves and (2) the independent variables were highly correlated with the dependent variables. It is important to examine the correlations since they indicate whether the model was properly specified (see Section 5.8.2.2). In the current study, the correlation matrix showed that the correlations among the independent variables were weaker than the correlations between the dependent and

independent variables (see Appendix 4). Therefore, it can be concluded that the model was correctly specified (Bryman and Cramer, 1990).

Thirdly, as discussed in Section 5.8.1, in multiple regression, all variables concerned should be continuous. When an independent variable consists of just two categories, e.g. male versus female, the variable can be included directly in the regression analysis. When there are three or more categories in an independent variable, however, it would clearly be a serious error just to include such a variable in a regression analysis directly (Hair *et al*, 1998). This is because one of the main objectives of regression analysis is to predict the direction of the relationship between independents and dependent variable. If the variable were non-continuous, the interpretation of that variable would be misleading. Therefore, dummy variables have to be created (see Section 5.8.1).

In this study, religious affiliation and marital status were two categorical variables and have been converted into dummy variables. *Religion 1* and *Religion 2* were created for religion. *Marital status 1*, *Marital status 2* and *Marital status 3* represent marital status. Religious affiliation, which consisted of three categories, Hindus, Muslims and Catholics, has been reduced to two dummy variables with Catholics as the control category because the latter represented the median category (see Section 5.8.1). *Religion 1* was coded as Hindus 1, Muslims 0, Catholics 0 and *Religion 2* was coded as Hindus 0, Muslims 1 and Catholics 0. In the case of marital status, the four categories, single, married, divorced and widowed have been reduced to three dummy variables with “married” (the median category) as the control category. *Marstat 1* was coded as single 1, married 0, divorced 0, widowed 0. *Marstat 2* was

coded as single 0, married 0, divorced 1, widowed 0. *Marstat 3* was coded as single 0, married 0, divorced 0, widowed 1. These codes are shown in Table 6.12

**Table 6.12 Coding of dummy variables**

Religion	Religion 1	Religion 2
Hindu	1	0
Muslim	0	1
Catholics	0	0

Marital status	Marital status	Marital status	Marital status
1	2	3	
Single	1	0	0
Divorced	0	1	0
Widowed	0	0	1
Married	0	0	0

After having ensured that all the assumptions for conducting multiple regression analysis were met and that dummy variables were constructed for the relevant variables, the regression equations were estimated. The six lifestyle profiles, together with demographic characteristics were used as extraneous variables in the regression analysis, with religiosity and religious affiliation as independent variables to predict shopping behaviour. The results are shown in Table 6.13.

**Table 6.13 Regression coefficients for shopper profiles**

Independent Variables	Shopper profiles (Dependent variables)						
	(1) Demanding shopper	(2) Practical shopper	(3) Trendy Shopper	(4) Traditional shopper	(5) Economic shopper	(6) Thoughtful shopper	(7) Innovativ shopper
Age				.094**	-.054**	5.07*	-.108**
Income	.239***	-.252**	.377***		-.072**		
Occupation	-.095**						
Marital status 1			1.416***				
Marital Status 3							1.180**
Family size		.165*					
Sex			.616***		.214**		
Religion 1	-.537*	-.964***					
Religion 2	-.565**	.613***	-.355*	.298*		-.439**	.623***
Religiosity	-1.220***	-.453***	-.713***			-.409**	-.323**
Leadership		-.194**	.196***				-.073*
Community conscious		.281**		.209***	.138***	.110*	.155*
Hedonic		-.169*		.141***			
Knowledge Seeker					-.098***		
Current Affairs		.238**			.160***	-.188*	
R <sup>2</sup>	.115	.149	.178	.102	.097	.096	.091
Adjusted R <sup>2</sup>	.107	.126	.169	.096	.094	.088	.081
F value	15.419***	11.451***	20.075***	16.925***	12.753***	4.418**	9.236**

\* p ≤ 0.05, \*\* p ≤ 0.01, \*\*\* p ≤ 0.001

### 6.9.3 Coefficients of determination ( $R^2$ values)

A first observation that can be made is that the  $R^2$  values for some of the equations seem to be low. As defined in Section 5.8.2.2, the  $R^2$  is a measure of the explained variance relative to the total variance in the dependent variable and it is a measure of the predictive power of the model (Bryman and Cramer, 1990). The  $R^2$  is often used as a measure of the goodness of fit of the model. It is difficult to determine when the  $R^2$  is high or low. Theil (1971) noted that “the evaluation of the numerical value of a multiple correlation coefficient is a matter of comparing this value with other coefficients obtained for similar regressions”. In the current study, it has not been possible to compare the  $R^2$  values obtained with those from other similar studies since none of the studies reviewed made use of regression analysis.

According to Naert and Leeflang (1978), validation of a model on the basis of the  $R^2$  should be done with caution. A high  $R^2$  does not necessarily imply high predictive power since the high value of  $R^2$  may be the result from data problems (multicollinearity or correlation among the error terms).

The relatively low values of  $R^2$  obtained need not necessarily imply that the predictive power of the models is low. Hair *et al* (1998) stress that the predictive power of the regression is sensitive to the sample size. Cohen and Cohen (1983) proposed that, the higher the sample size, the lower the  $R^2$ , for a given number of independent variables at given significance and power levels. Power in multiple

regression analysis refers to the probability of detecting a statistically significant  $R^2$  at a specified level of significance for a specific sample size (Hair *et al.*, 1998).

Table 6.14 shows the minimum  $R^2$  that can be found statistically significant with a power of 0.80 for varying numbers of independent variables and sample sizes.

**Table 6.14 Detection of minimum  $R^2$**

Sample size	Significance Level ( $\alpha = 0.01$ )				Significance Level ( $\alpha = 0.05$ )			
	No. of independent variables				No. of independent variables			
	2	5	10	20	2	5	10	20
20	45	56	71	NA	39	48	64	NA
50	23	29	36	49	19	23	29	42
100	13	16	20	26	10	12	15	21
250	5	7	8	11	4	5	6	8
500	3	3	4	6	3	4	5	9
1,000	1	2	2	3	1	1	2	2

Source: Hair, J.F., Anderson, R.E. and Tatham, R.L. (1998), *Multivariate Data Analysis*, Prentice Hall.

From Table 6.14, it can be observed that a regression equation based on 500 observations with five independent variables requires an  $R^2$  of at least 3 percent for the relationship to be deemed statistically significant with a power of 0.80 if the significance level is at 0.01. If the same regression were estimated under the same conditions, but with 1000 observations, the minimum  $R^2$  would have to be 2 percent.

In the current study, since the sample size was 600, a minimum  $R^2$  of 2 percent has been deemed statistically significant at a power level of 0.80 if the significance level is set 0.05. All the  $R^2$  values exceeded the 2 percent level, therefore implying that the predictive power of the equations were statistically significant (Cohen and Cohen, 1983).

According to Cook and Campbell (1979), three statistical decisions about covariation in sample data are important:

1. Is the study sensitive enough to permit reasonable statements about covariation? This question relates to the statistical power of the relationship detected.
2. If the study is sensitive enough, is there any reasonable evidence from which to infer that the presumed cause and effect covary? This question is usually addressed by using statistical tests of significance.
3. If there is evidence that the presumed cause and effect covary, how strongly do the two variables covary? This question relates to the effect size, which describes the magnitude or strength of a relationship among two or more variables in the sample (Sawyer and Ball, 1981).

In the current study, following Cohen and Cohen (1983) and Hair *et al* (1998), the statistical power has been set at 0.80. The minimum  $R^2$  that would be statistically significant at a power level of 0.80 and significance level of 0.05 is 2 percent.

Therefore, since the  $R^2$  values obtained, considerably exceed the minimum level of 2 percent, the equations can be assumed to be sensitive enough to permit reasonable statements about covariation (Sawyer and Ball, 1981). The F-statistics, which measures the overall significance of the regression and the significance of the  $R^2$ , is significant at the 0.01 level for all the equations. Therefore, there is reasonable evidence to infer that the dependent variables and independent variables covary. The third question relating to effect size can be addressed in the following way. According to Cohen (1977) and Friedman (1968), effect size can be explained in terms of proportion of explained variance. For regression analysis, the proportion of explained variance is measured by the  $R^2$ . According to Cohen (1977), values of  $R^2$  of 0.01, 0.09 and 0.138 can be categorised as having weak, medium and large effect sizes respectively. In the current study, the minimum  $R^2$  value is above 0.09. Therefore, it can be inferred that all the equations have medium to large effect sizes, implying that the relationships portrayed in the equations can be classified as medium or strong.

It is not uncommon in marketing studies to obtain low  $R^2$  values when using multiple regression analysis (Reisinger, 1997). This author carried out a meta-analysis of 105 regression models using OLS estimation from 44 empirical marketing studies, published in the *Journal of Marketing Research* (volumes 1992-1994), the *International Journal of Research in Marketing* (volumes 1989-1994) and *Marketing Letters* (volumes 1989-1994), in order to try to identify various influences on the coefficient of determination  $R^2$ . The influences investigated related to the research design process. The data type (whether time-series, cross-sectional or pooled), data

collection method (primary or secondary) and the sample size were among the influences investigated. Based on the meta-analysis, Reisinger (1997) arrived at the following conclusions:

1. Values of  $R^2$  are relatively lower in cross-sectional analyses than in time-series analyses. Naert and Leeftang (1978) and Theil (1971) also support this finding. The main reason provided for this difference is that compared to time series data where only one object of variation is studied over a given time period, in cross-sectional analyses, a number of heterogeneous objects are investigated at one point in time. Therefore, the proportion of variance that cannot be explained in cross sectional analysis is usually higher than in time-series analyses (Reisinger, 1997). Furthermore, in marketing research, time-series data are usually measured at an aggregate level (population) while cross-sectional data usually involves data at a lower level (households). Aggregated data in time-series analyses imply that some variation that cannot be explained is averaged out resulting in higher  $R^2$  (Naert and Leeftang, 1978; Reisinger, 1997; Theil, 1971). In the current study, the analysis was based on non-aggregated (households) cross sectional data. Therefore, the cross-sectional nature of the data, coupled with non-aggregation, might have led to the relatively low  $R^2$  values.
2. Values of  $R^2$  from analyses using primary data are lower than those from studies using secondary data. This finding can be related to the level of aggregation since secondary data are often measured at higher aggregation levels. In the current study, primary data was used which might have resulted in the relatively low  $R^2$  values.

3.  $R^2$  values are lower in studies with large sample sizes than in those with small sample sizes. The fact that the current study used a sample of 600 respondents can also provide an explanation for the low  $R^2$ .

Therefore, according to Reisinger (1997), low  $R^2$  values in marketing studies can be explained by a number of factors. A number of studies in the marketing literature were reviewed and were found to have obtained low  $R^2$  when using regression analysis. Wildt and McCann (1980) used regression analysis for modelling market segmentation. They obtained  $R^2$  values ranging from 0.138 to 0.142, when regressing purchase units on demographic characteristics. They considered such  $R^2$  values as adequate.

In a study of a process model of service quality, Boulding *et al* (1993) obtained  $R^2$  values ranging from 0.214 to 0.286, which they considered to be adequate for making inferences from the models. Ganesan (1993) reported  $R^2$  values of 0.05, 0.104 and 0.195 in an estimation of the influence of different negotiation strategies on channel relationships. When the models were re-estimated using mediating variables, the  $R^2$  values increased slightly to 0.117, 0.217 and 0.224. Ganesan (1993) concluded that the results indicate significant power for the detection of significant relationships.

In a study of how consumers allocate their time when searching for information, Hauser *et al* (1993) obtained an  $R^2$  value of 0.18, which they considered satisfactory for making inferences about relationships between each type of information search

and allocation of time. Dacin and Smith (1994) have also reported low  $R^2$  values. They studied the influence of brand portfolio characteristics on consumer evaluations of brand extensions and obtained  $R^2$  values of 0.18, 0.26 and 0.35 across different model specifications. Holbrook and Schindler (1994) studied the effect of age, sex and attitude toward the past on consumers' tastes for cultural products. Using regression analysis, they obtained  $R^2$  values ranging from 0.24 to 0.26 for different model specifications. They did not consider the  $R^2$  values to be too low and therefore made recommendations based on the findings from these models.

Stone *et al* (1997), in a study of perceived product quality, tested for the relationship between actual product quality perceptions and several variables measuring manipulation of quality attributes. They obtained  $R^2$  values ranging from 0.13 and 0.25. Eastlick and Feinberg (1999) studied the shopping motives for mail catalogue shopping. They reported  $R^2$  values of 0.035 and 0.065 for the regression equations estimated. They based their recommendations on the regression equations estimated. In a study of planned advertising versus sales promotion from a brand management perspective, Low and Morh (2000) used regression analysis in order to estimate the relationship between planned advertising versus sales promotion budget ratio and several market and organizational variables. They obtained a relatively low  $R^2$  value of 0.15. They based their analysis and recommendations on the regression analysis.

From the above discussion, several points are to be noted in relation to the current study:

1. In the current study, although the  $R^2$  values seem to be relatively low, they are statistically significant as indicated by the F-statistics. Therefore, the overall regression equations are all significant.
2. Since the  $R^2$  values are all above 0.09, the regression equations can be classified as having medium explanatory power, using the effect size criteria of Cohen (1977).
3. Low  $R^2$  values are not uncommon in the marketing literature and arise due to a number of factors which are common to the characteristics of the current study (Reisinger, 1997). The sample size (600) was large, primary data was used and the analysis was cross-sectional.
4. Several studies in marketing, using regression analysis, have reported low  $R^2$  values and have based their recommendations on the findings from these analyses.

The objective of carrying out regression analysis in the current study was to assess the degree and direction (negative or positive) of the relationship between aspects of consumer behaviour and (1) religiosity and (2) religious affiliation. Therefore, the researcher's interest was more to find out how religiosity and religious affiliation influence aspects of consumer behaviour in the presence of extraneous variables than to make predictions about values of selected aspects of consumer behaviour. The  $R^2$  value, which measures the predictive power of the independent variables, is more important when the objective of regression analysis is prediction rather than explanation of relationships. The degree and direction of individual relationships

among dependent (aspects of consumer behaviour) and independent variables (religiosity and religious affiliation) are determined by the significance of the individual coefficients and the strength of the beta coefficients (Section 5.8.2.4). Therefore, in the current study, since the F statistics were significant for all the equations, implying overall significance, the significance and strength of the coefficients have been used to determine the degree and direction of the relationship between aspects of consumer behaviour and (1) religiosity and (2) religious affiliation. The equations for each shopper profiles are discussed in Sections 6.4.5.4 to 6.4.5.9.

#### 6.9.4 Demanding shopper (Equation 1)

$\text{Demanding shopper} = 0.239 \text{ Income} - 0.095 \text{ Occupation} - 0.537 \text{ Religion1} - 0.565 \text{ Religion2} - 1.220 \text{ Religiosity}$
--

Equation 1, in Table 6.13, shows the relationship between the *demanding shopper type* and the predictor variables. The equation, estimated through the stepwise method, showed that the *demanding shopper type* was related to income, occupation, religion (as measured by two dummy variables *religion1* and *religion 2*) and religiosity. The R<sup>2</sup> was 0.115 and the adjusted R<sup>2</sup> was 0.107. As explained in Section 5.8.2.2, the R<sup>2</sup> is the coefficient of determination and it measures the predictive power of the model. The F value of 15.419 is highly significant (p ≤ 0.001), implying that the overall regression is significant. Therefore, it can be concluded that the combination of predictor variables (income, occupation, religion and religiosity) is explaining some of the variation in the *demanding shopper type*. Before examining

the coefficients in the equation, the diagnostic tests for the assumptions of regression analysis based on the residuals of the model are presented below.

The first three assumptions tested were those of linearity, homoscedasticity and independence of the residuals. Linearity refers to the degree to which the regression coefficients of the model are constant across the range of values for the independent variables. Linearity implies that the residuals should not show a non-linear pattern (Hair *et al.*, 1998). Homoscedasticity relates to the constancy of the residuals across values of the predictor variables (Cohen and Cohen, 1983). Independence relates to the fact that, in regression analysis, each predicted value should be independent, that is, it should not be related to any other prediction. Analysis of the residual plot (studentised residuals plotted against the predicted value of the *demanding shopper type*) showed that the residuals (error terms) showed a random pattern, therefore indicating linearity, homoscedasticity and independence of residuals (Appendix 5). An explanation of linearity, homoscedasticity and independence were given in Section 5.8.2.3

The fourth assumption tested was that of normality of the residuals. An examination of the normal probability plot of the standardised residuals showed that the residuals were normally distributed (Appendix 5). The same tests for linearity, homoscedasticity, independence and normality of error terms have been conducted for all shopper types.

The model was also tested for multicollinearity. Multicollinearity arises when an independent variable is correlated to other independent variables in the model

(Bryman and Cramer, 1990). The results of the variance inflation factor (VIF) and condition index tests (see Section 5.8.2.3) are presented in Table 6.15.

**Table 6.15 Multicollinearity diagnostics (demanding shopper type)**

Independent variables	Dependent variable (demanding shopper type)	
	VIF	Condition Index
Income	1.512	1.000
Occupation	1.539	2.071
Religion 1	1.356	3.708
Religion 2	1.391	4.233
Religiosity	1.134	6.940

Multicollinearity diagnostics, summarised in Table 6.15, demonstrate that the maximum values of the VIF do not reach more than 1.6. Therefore, the values were well below the threshold value of 10, which is used to indicate the presence of multicollinearity (Hair *et al*, 1998). Also, none of the condition indices exceeded 15, which would be associated with two or more variance proportions exceeding 0.90. Therefore, it can be concluded that the low values of the VIF and the condition index confirm that there is no evidence of multicollinearity.

The above discussion summarises the tests for potential violations in ordinary least squares (OLS) assumptions. The residuals showed that the assumptions of linearity, homoscedasticity, independence and normality of residuals were met in the estimation. Furthermore, there was no evidence of multicollinearity. Therefore this implies that the model could be interpreted.

The results in Table 6.13 show that (1) income and religiosity were significant at the

0.001 level and (2) occupation and the two religious affiliation dummy variables were significant at the 0.01 level. The *demanding shopper type* was positively related to income (0.239), implying that higher income earners tend to be more *demanding* shoppers than lower income earners. Respondents at higher occupational levels tend to be more *demanding* shoppers than those at lower levels, as indicated by the negative coefficient on occupation (-0.095). It is to be noted that the coefficient is negative because occupational levels were coded from 1 to 11, with 1 representing the highest occupational level and 11 representing the lowest occupational level.

Both religiosity and religious affiliation influenced the *demanding shopper type*, despite the presence of extraneous variables like income and occupation. Religiosity was negatively related to the *demanding shopper type* (-1.220), implying that individuals who are more religious tend to be less *demanding* than those who are less religious. This confirms previous findings from the *chi-square* tests that casually religious respondents were more *demanding* than devout respondents. The religious affiliation dummy variables were both negatively related to the *demanding shopper type*. The negative relationship between the first religious affiliation dummy (*Religion 1*) and *demanding shopper type* implies that Catholic tend to be more *demanding* than Hindus. In the case of the second religious affiliation dummy, the negative relationship between religious affiliation and *demanding shopper type* suggests that Catholics tend to be more *demanding* than Muslims. The relationship between religious affiliation and *demanding shopper type* confirms the earlier findings that differences exist among the three religious groups for the *demanding shopper type*. The negative relationship between the two religious affiliation dummy variables and the *demanding shopper type* also confirms the results of the cross-

tabulations presented earlier in the chapter.

Having established that religiosity and religious affiliation have an influence on whether shoppers are more *demanding* or less *demanding*, the relative importance of each of the two variables needs to be confirmed. The main reason is to determine whether they are strong predictors of the *demanding shopper type* relative to the extraneous variables. The equation below shows the *standardised beta coefficients*, estimated by regression analysis. These coefficients help to measure the relative importance of the predictor variables in the modelling of the *demanding shopper type*. The beta coefficient on one predictor variable can be interpreted as measuring the strength of the relationship between that predictor variable and the dependent variable, by holding all other independent variables constant. Therefore, in this case the beta coefficient on (1) religiosity and (2) each religious affiliation dummy variables measures the strength of the relationship between each of these independent variables and the dependent variable by controlling for the extraneous variables (since the latter are kept constant).

$$\text{Demanding shopper} = 0.145 \text{ Income} - 0.114 \text{ Occupation} - 0.103 \text{ Religion1} - 0.108 \text{ Religion2} \\ - 0.247 \text{ Religiosity}$$

In the above equation, the absolute value of the beta coefficient for religiosity is highest

(-0.247). This shows that religiosity is a stronger predictor of the *demanding shopper type* relative to the other variables in the equation. The relative importance of the religious affiliation variables (Religion1 and Religion2) is comparatively lower. Income and occupation were stronger predictors than religious affiliation (Religion1 and Religion2) but weaker than religiosity.

Therefore, it can be concluded that (1) both religiosity and religious affiliation have an influence on the *demanding shopper type*, despite the presence of the extraneous variables (occupation and income) as shown in Table 6.13; (2) religiosity is a stronger predictor of this shopper type relative to religious affiliation and the extraneous variables, income and occupation; and (3) income and occupation are stronger predictors of this shopper type than religious affiliation (*Religion 1 and Religion 2*).

#### 6.9.5 Practical shopper (Equation 2)

$\begin{aligned} \text{Practical shopper} = & -0.252 \text{ Income} - 0.165 \text{ Family size} - 0.964 \text{ Religion1} + 0.613 \text{ Religion2} \\ & -0.453 \text{ Religiosity} - 0.194 \text{ Leadership} + 0.281 \text{ Community Conscious} - 0.169 \text{ Hedonic} \\ & + 0.238 \text{ Current Affairs} \end{aligned}$
--

Equation 2, in Table 6.13, shows the relationship between the *practical shopper type* and the predictor variables. The equation showed that the *practical shopper type* was related to income, family size, religion (as measured by two dummy variables *Religion1* and *Religion 2*), religiosity and four lifestyle profiles (*leadership*,

*community conscious, hedonic and current affairs*). The  $R^2$  was 0.149 and the adjusted  $R^2$  was 0.126. The F value of 11.451 is highly significant ( $p \leq 0.001$ ), implying that the overall regression is significant.

Therefore, it can be concluded that the combination of predictor variables (income, family size, religion, religiosity and lifestyle profiles) is explaining some of the variation in the *practical shopper type*. Before examining the coefficients in the equation, the diagnostic tests for the assumptions of regression analysis based on the residuals of the model are presented below.

The tests for linearity, homoscedasticity and independence were conducted by examining the studentised residuals plot (Cohen and Cohen, 1983; Hair *et al*, 1998). The tests showed that the residuals were linear, homoscedastic and independent. An examination of the normal probability plot of the standardised residuals showed that the residuals were normally distributed (Appendix 5).

The model was also tested for multicollinearity. The results of the variance inflation factor (VIF) and condition index tests are presented below (Table 6.16).

**Table 6.16 Multicollinearity diagnostics (practical shopper type)**

Independent variables	Dependent variable (practical shopper type)	
	VIF	Condition Index
Income	1.214	1.000
Religion 1	1.428	2.682
Religion 2	1.491	4.600
Religiosity	1.265	6.891
Leadership	1.119	8.194
Community conscious	1.175	11.868
Hedonic	1.307	15.281
Current affairs	1.322	17.458

Multicollinearity diagnostics, summarised in Table 6.16, demonstrate that the maximum values of the VIF do not reach more than 1.5. Therefore, the values were well below the threshold value of 10, which is used to indicate the presence of multicollinearity (Hair *et al*, 1998). Although two of the condition indices exceeded 15 (*Hedonic* and *Current affairs*), none of them is associated with high variance proportions above 0.90. Therefore, it can be concluded that multicollinearity was not a problem in the model.

The above discussion summarises the tests for potential violations in ordinary least squares (OLS) assumptions. The residuals showed that the assumptions of linearity, homoscedasticity, independence and normality of residuals were met in the estimation. Furthermore, there was no evidence of multicollinearity. Therefore this implies that the model could be interpreted to determine the direction of the relationships between the independent variables and dependent variable.

The results in Table 6.13 show that (1) religiosity and the two religious affiliation dummy variables were significant at the 0.001 level, (2) income and three lifestyle profiles (*leadership, community conscious and current affairs*) were significant at the

0.01 level and (3) family size and hedonic lifestyle profile were significant at the 0.05 level. The *practical shopper type* was negatively related to income (-0.252), implying that lower income earners tend to be more practical in their shopping behaviour than lower income earners. The positive coefficient on family size (0.165) indicated that respondents with larger family size tend to be more practical than respondents with smaller family size.

The coefficients on the lifestyle profiles can be interpreted as follows: Respondents who rank higher on the leadership scale tend to be less practical, because of the negative coefficient on leadership (-0.194). Respondents who are more community conscious are more practical in their shopping behaviour than those who are less community conscious (0.281). The negative coefficient on the *hedonic* lifestyle variable (-0.169) implied that individuals who have a more hedonic lifestyle are less practical. Respondents who are more interested in current affairs tend to be more practical than those who are less interested in current affairs as indicated by the positive coefficient on the *current affairs* lifestyle variable (0.238).

Both religiosity and religious affiliation significantly influenced the *practical shopper type*, despite the presence of extraneous variables like income and lifestyle profiles. Religiosity was negatively related to the *practical shopper type* (-0.453), implying that individuals who are more religious tend to be less practical in their shopping behaviour than those who are less religious. This confirms previous findings from the ANOVA tests that casually religious respondents were more practical in their shopping behaviour than devout respondents. The negative relationship between the first religious affiliation dummy (*Religion 1*) and *practical*

*shopper type* implies that Catholics tend to be more practical in their shopping behaviour than Hindus. In the case of the second religious affiliation dummy, the positive relationship between religious affiliation and *practical shopper type* suggests that Catholics tend to be less practical in their shopping behaviour than Muslims. The relationship between religious affiliation and practical shopper type confirms the earlier findings that differences exist among the three religious groups for the *practical shopper type*. The negative relationship between the first religious affiliation dummy variable (*Religion1*) and the *practical shopper profile* also confirms the results of the cross-tabulations presented earlier in the chapter. The cross-tabulations had also shown that Catholics were less practical in their shopping behaviour than Muslim shoppers and this was confirmed by the positive relationship between the second religious affiliation dummy variable (*Religion 2*) and the *practical shopper type*.

Having established that religiosity and religious affiliation determine, to some extent, whether shoppers are more practical or less practical in their shopping behaviour, the beta coefficients were estimated in order to determine the relative strength of the relationships. The equation below shows the standardised beta coefficients, estimated by regression analysis.

$$\begin{aligned} \text{Practical shopper} = & -0.128 \text{ Income} -0.093 \text{ Family size} -0.204 \text{ Religion1} + 0.137 \text{ Religion2} \\ & -0.191 \text{ Religiosity} -0.093 \text{ Leadership} + 0.133 \text{ Community conscious} \\ & - 0.108 \text{ Hedonic} + 0.121 \text{ Current affairs} \end{aligned}$$

In the above equation, the absolute value of the beta coefficient for the religious

affiliation dummy variable *Religion 1* is highest (-0.204). The beta coefficient on religiosity has the second highest value (-0.191). The third variable with a high beta coefficient is the second religious affiliation dummy variable *Religion 2* (0.137). The extraneous variables *community conscious* lifestyle profile (0.133), income (0.128), *current affairs* lifestyle profile (0.121), *hedonic* lifestyle profile (0.108), family size (0.093) and *leadership* lifestyle profile (0.093) were weaker predictors than the religiosity and religious affiliation variables.

Therefore, it can be concluded that, (1) both religiosity and religious affiliation are determinants of the *practical shopper type*, despite the presence of the extraneous variables (lifestyle and income) as shown in Table 6.13, and (2) religiosity and religious affiliation are stronger predictors of this shopper type relative to the extraneous variables, income, family size and lifestyle.

#### 6.9.6 Trendy shopper (Equation 3)

$\text{Trendy shopper} = 0.377 \text{ Income} + 1.416 \text{ Marital Status1} + 0.616 \text{ Sex} - 0.355 \text{ Religion2} \\ - 0.713 \text{ Religiosity} + 0.196 \text{ Leadership}$
--

Equation 3, in Table 6.13, shows the relationship between the *trendy shopper type* and the predictor variables. The equation showed that the *trendy shopper type* was related to income, marital status (*Marital status 1*), religion (as measured by *Religion 2*), religiosity and leadership lifestyle profile. The R<sup>2</sup> was 0.178 and the adjusted R<sup>2</sup> was 0.169. The F value of 20.075 is highly significant (p ≤ 0.001), implying that the

overall regression is significant. Therefore, it can be concluded that the combination of predictor variables (income, marital status, religion, religiosity and lifestyle profile) is explaining some of the variation in the *trendy shopper type*. Before examining the coefficients in the equation, the diagnostic tests for the assumptions of regression analysis based on the residuals of the model are presented below.

The tests for linearity, homoscedasticity and independence were conducted by examining the studentised residuals plot (Cohen and Cohen, 1983; Hair *et al*, 1998). The tests showed that the residuals were linear, homoscedastic and independent. An examination of the normal probability plot of the standardised residuals showed that the residuals were normally distributed (Appendix 5).

The model was also tested for multicollinearity. The results of the variance inflation factor (VIF) and condition index tests are presented below (Table 6.17).

**Table 6.17 Multicollinearity diagnostics (trendy shopper type)**

Independent variables	Dependent variable (trendy shopper type)	
	VIF	Condition Index
Income	1.058	1.000
Marstat1	1.020	2.266
Sex	1.018	2.701
Religion 2	1.145	4.601
Religiosity	1.168	5.824
Leadership	1.100	7.459

Multicollinearity diagnostics, summarised in Table 6.17, demonstrate that the maximum values of the VIF do not reach more than 1.2. Therefore, the values were well below the threshold value of 10, which is used to indicate the presence of

multicollinearity (Hair *et al*, 1998). Furthermore, there is no condition index exceeding 15, which would be associated with high variance proportions above 0.90. Therefore, it can be concluded that there is no evidence of multicollinearity in the model.

The above discussion summarises the tests for potential violations in ordinary least squares (OLS) assumptions. The residuals showed that the assumptions of linearity, homoscedasticity, independence and normality of residuals were met in the estimation. Furthermore, there was no evidence of multicollinearity. Therefore this implies that the model could be interpreted.

The results in Table 6.13 show that (1) income, marital status dummy variable1, sex, religiosity and the *leadership* lifestyle variable were significant at the 0.001 level, and (2) the religious affiliation dummy variable 2 was significant at the 0.05 level. The *trendy shopper type* was positively related to income (+0.377), implying that higher income earners tend to be trendier in their shopping behaviour than lower income earners. The positive coefficient on the marital status dummy 1 (0.165) indicated that respondents who are single tend to be trendier in their shopping behaviour than respondents who are married. Furthermore, the results suggest that female respondents tend to be trendier in their shopping behaviour than male respondents, since the coefficient on sex is positive (0.616). The coefficient on the *leadership* lifestyle profile is positive indicating that, respondents who rank higher on the leadership scale tend to be trendier in their shopping behaviour than those who rank lower on the leadership scale.

Both religiosity and religious affiliation influenced the *trendy shopper type*, despite the presence of extraneous variables like income, marital status, sex and lifestyle profile. Religiosity was negatively related to the *trendy shopper type* (-0.713), implying that individuals who are more religious tend to be less trendy in their shopping behaviour than those who are less religious. This confirms previous findings from the ANOVA that casually religious respondents were trendier in their shopping behaviour than devout respondents. The negative relationship between the second religious affiliation dummy (*Religion 2*) and *trendy shopper type* implies that Catholics tend to be trendier in their shopping behaviour than Muslims. The relationship between religious affiliation and *trendy shopper type* confirms the earlier findings from ANOVA that differences exist among the three religious groups for the *trendy shopper type*.

The beta coefficients were estimated in order to determine the relative strength of the relationship between (1) religiosity and the *trendy shopper type* and (2) religious affiliation and *trendy shopper type*. The equation below shows the standardised beta coefficients, estimated by regression analysis.

$$\text{Trendy shopper} = 0.247 \text{ Income} + 0.130 \text{ MaritalStatus1} + 0.120 \text{ Sex} - 0.143 \text{ Religion2} \\ - 0.156 \text{ Religiosity} + 0.195 \text{ Leadership}$$

In the above equation, highest absolute values of beta coefficients were those on income (0.247) and the *leadership* lifestyle profile (0.195). However, religiosity had the third highest beta coefficient (-0.156), followed by the religious affiliation dummy variable *Religion 2* (-0.143). *Marital Status 1* (0.130) and sex (0.120) were

relatively weaker predictors of the *trendy shopper type* than the other variables.

Therefore, it can be concluded that (1) both religiosity and religious affiliation have an influence on the *trendy shopper type*, despite the presence of the extraneous variables (lifestyle and income) in Table 6.13, and (2) although income and *leadership* lifestyle profile are the strongest predictors, religiosity and religious affiliation are still strong predictors of this shopper type relative to the extraneous variables, marital status and sex.

#### 6.9.7 Traditional Shopper (Equation 4)

$$\text{Traditional shopper type} = 0.094 \text{ Age} + 0.298 \text{ Religion2} + 0.209 \text{ CommunityConscious} + 0.141 \text{ Hedonic}$$

Equation 4, in Table 6.13 shows the relationship between the *traditional shopper type* and the predictor variables. The equation showed that the *traditional shopper type* was related to age, religious affiliation (as measured by *Religion 2*), and lifestyle profiles (*community conscious and hedonic*). The  $R^2$  was 0.102 and the adjusted  $R^2$  was 0.096. The F value of 16.925 is highly significant ( $p \leq 0.001$ ), implying that the overall regression is significant. Therefore, it can be concluded that the combination of predictor variables (age, religious affiliation, and lifestyle profiles) is explaining some of the variation in the *traditional shopper type*. Before examining the coefficients in the equation, the diagnostic tests for the assumptions of regression analysis based on the residuals of the model are presented below.

The tests for linearity, homoscedasticity and independence were conducted by examining the studentised residuals plot (Cohen and Cohen, 1983; Hair *et al*, 1998). The tests showed that the residuals were linear, homoscedastic and independent. An examination of the normal probability plot of the standardised residuals showed that the residuals were normally distributed (Appendix 5).

The model was also tested for multicollinearity. The results of the variance inflation factor (VIF) and condition index tests are presented below (Table 6.18).

**Table 6.18 Multicollinearity diagnostics (traditional shopper type)**

Independent variables	Dependent variable (traditional shopper type)	
	VIF	Condition Index
Age	1.246	1.000
Religion 2	1.004	2.605
Community conscious	1.100	5.464
Hedonic	1.353	11.640

Multicollinearity diagnostics, summarised in Table 6.18 demonstrate that the maximum values of the VIF do not reach more than 1.4. Therefore, the values were well below the threshold value of 10, which is used to indicate the presence of multicollinearity (Hair *et al*, 1998). Furthermore, there is no condition index exceeding 15, which would be associated with high variance proportions above 0.90. Therefore, it can be concluded that there is no evidence of multicollinearity in the model.

The above discussion summarises the tests for potential violations in ordinary least squares (OLS) assumptions. The residuals showed that the assumptions of linearity, homoscedasticity, independence and normality of residuals were met in the estimation. Furthermore, there was no evidence of multicollinearity. Therefore this implies that the model could be interpreted.

The results in Table 6.13 show that (1) the two lifestyle profiles *community conscious* and *hedonic* were significant at the 0.001 level, (2) age was significant at the 0.01 level and (3) the religious affiliation dummy variable (*Religion 2*) was significant at 0.05 level. The *traditional shopper type* was negatively related to age (+0.094), implying that older respondents tend to be more traditional in their shopping behaviour than younger respondents. The coefficient on the *community conscious* lifestyle profile is positive (0.209) indicating that respondents who are more community conscious tend to be more traditional in their shopping behaviour than those who are less community conscious. Furthermore, the results suggest that respondents who have a more *hedonic* lifestyle tend to be more traditional in their shopping behaviour than those with a less hedonic lifestyle.

The religiosity variable did not significantly influence the *traditional shopper type*. The positive relationship between the second religious affiliation dummy (*Religion 2*) and *traditional shopper type* implies that Catholics tend to be more traditional in their shopping behaviour than Muslims. The relationship between religious affiliation and *traditional shopper type* confirms the earlier findings from ANOVA and cross-tabulations that differences exist among the three religious groups for the *traditional shopper type*.

The beta coefficients were estimated in order to determine the relative strength of the relationship between religious affiliation and *traditional shopper type*. The equation below shows the standardised beta coefficients, estimated by regression analysis.

$$\text{Traditional shopper type} = 0.137 \text{ Age} + 0.146 \text{ Religion2} + 0.168 \text{ Community conscious} + 0.126 \text{ Hedonic}$$

In the above equation, the highest absolute value of beta coefficient was that on *community conscious* lifestyle profile (0.168). However, the religious affiliation dummy had the second highest beta coefficient (0.146). Age (0.137) and the *hedonic* lifestyle profile (0.126) were weaker predictors of the traditional shopper type than the *community conscious* lifestyle profile and religious affiliation.

Therefore, it can be concluded that (1) religious affiliation has an influence on the *traditional* shopper type, despite the presence of the extraneous variables (age and lifestyle) in Table 6.13, and (2) although *community conscious* lifestyle profile is the strongest predictor, religious affiliation is still a strong predictor of this shopper type relative to the extraneous variables, age and *hedonic* lifestyle profile.

#### 6.9.8 Economic shopper (Equation 5)

$$\text{Economic shopper} = -0.054 \text{ Age} - 0.072 \text{ Income} + 0.214 \text{ Sex} + 0.138 \text{ Community Conscious} - 0.098 \text{ Knowledge Seeker} + 0.160 \text{ Current Affairs}$$

Equation 5, in Table 6.13 shows the relationship between the *economic shopper type* and the predictor variables. The equation showed that the *economic shopper type* was related to age, income, sex and lifestyle profiles (*community conscious, knowledge seeker, current affairs*). The  $R^2$  was 0.097 and the adjusted  $R^2$  was 0.094. The F value of 12.753 is highly significant ( $p \leq 0.001$ ), implying that the overall regression is significant. Therefore, it can be concluded that the combination of predictor variables (age, income, sex, and lifestyle profiles) is explaining some of the variation in the *economic shopper type*. Before examining the coefficients in the equation, the diagnostic tests for the assumptions of regression analysis based on the residuals of the model are presented below.

The tests for linearity, homoscedasticity and independence were conducted by examining the studentised residuals plot (Cohen and Cohen, 1983; Hair *et al*, 1998). The tests showed that the residuals were linear, homoscedastic and independent. An examination of the normal probability plot of the standardised residuals showed that the residuals were normally distributed (Appendix 5).

The model was also tested for multicollinearity. The results of the variance inflation factor (VIF) and condition index tests are presented below (Table 6.19).

**Table 6.19 Multicollinearity diagnostics (economic shopper type)**

Independent variables	Dependent variable (economic shopper type)	
	VIF	Condition Index
Age	1.078	1.000
Income	1.216	4.672
Sex	1.089	5.495
Community conscious	1.095	7.910
Knowledge seeker	1.359	9.847
Current affairs	1.241	14.008

Multicollinearity diagnostics, summarised in Table 6.19, demonstrate that the maximum values of the VIF do not reach more than 1.4. Therefore, the values were well below the threshold value of 10, which is used to indicate the presence of multicollinearity (Hair *et al*, 1998). Furthermore, there is no condition index exceeding 15, which would be associated with high variance proportions above 0.90. Therefore, it can be concluded that there is no evidence of multicollinearity in the model.

The above discussion summarises the tests for potential violations in ordinary least squares (OLS) assumptions. The residuals showed that the assumptions of linearity, homoscedasticity, independence and normality of residuals were met in the estimation. Furthermore, there was no evidence of multicollinearity. Therefore this implies that the model could be interpreted.

The results in Table 6.13 show that (1) the three lifestyle variables (*community conscious, knowledge seeker and current affairs*) were significant at the 0.001 level,

and (2) age, income and sex were significant at the 0.05 level. The *economic shopper type* was negatively related to age (-0.054), implying that older respondents tend to be less economic in their shopping behaviour than younger respondents. The coefficient on income was negative (-0.72) implying that higher income earners tend to be less economic than lower income earners. The positive coefficient on sex indicated that female respondents tend to be more economic in their shopping behaviour than male respondents. The coefficients on the lifestyle variables can be interpreted as follows: The coefficient on the *community conscious* lifestyle profile was positive, indicating that respondents who have a more *community conscious* lifestyle profile tend to be more economic in their shopping behaviour than those with a lesser *community conscious* lifestyle profile. Respondents who have a more *knowledge seeker* lifestyle profile tend to be less economic in their shopping behaviour than those who are less knowledge seeking. The coefficient on the *current affairs* lifestyle profile was positive, indicating that respondents who tend to have higher interest in current affairs tend to be more economic in their shopping behaviour than those who have a lower interest.

Although religious affiliation and religiosity did not significantly influence the *economic shopper type*, the beta coefficients are presented in order to determine which extraneous variables were strong predictors of this shopper type.

$\text{Economic shopper} = -0.096 \text{ Age} - 0.256 \text{ Income} + 0.234 \text{ Sex} + 0.045 \text{ Community Conscious}$ $- 0.198 \text{ Knowledge Seeker} + 0.034 \text{ Current Affairs}$
--

In the above equation, the absolute value of the beta coefficient for the income

variable is highest (-0.256). The beta coefficient of the sex variable was second (0.234), followed by the *knowledge seeker* lifestyle profile (-0.198). The other extraneous variables, age (-0.096), *community conscious* lifestyle profile (0.045) and *current affairs* lifestyle profile (0.034) were weaker predictors of the *economic shopper type*.

Therefore, it can be concluded that (1) religiosity and religious affiliation did not have a significant influence on the *economic shopper type* since only the extraneous variables were significant and (2) income was the strongest predictor of this shopper type relative to the other extraneous variables.

#### 6.9.9 Thoughtful shopper (Equation 6)

$$\text{Thoughtful shopper} = 5.07 \text{ Age} - 0.439 \text{ Religion2} - 0.409 \text{ Religiosity} \\ + 0.110 \text{ Community conscious} - 0.188 \text{ Current Affairs}$$

Equation 6 shows the relationship between the *thoughtful shopper type* and the predictor variables. The equation in table 6.13 showed that the thoughtful shopper type was related to age, religion (as measured by *Religion 2*), religiosity and lifestyle profiles (*community conscious* and *current affairs*). The  $R^2$  was 0.096 and the adjusted  $R^2$  was 0.088. The F value of 4.418 is significant ( $p \leq 0.01$ ), implying that the overall regression is significant. Therefore, it can be concluded that the combination of predictor variables (age, religious affiliation, religiosity and lifestyle

profiles) is explaining some of the variation in the *thoughtful shopper type*. Before examining the coefficients in the equation, the diagnostic tests for the assumptions of regression analysis based on the residuals of the model are presented below.

The tests for linearity, homoscedasticity and independence were conducted by examining the studentised residuals plot (Cohen and Cohen, 1983; Hair *et al*, 1998). The tests showed that the residuals were linear, homoscedastic and independent. An examination of the normal probability plot of the standardised residuals showed that the residuals were normally distributed (Appendix 5).

The model was also tested for multicollinearity. The results of the variance inflation factor (VIF) and condition index tests are presented below (Table 6.20).

**Table 6.20 Multicollinearity diagnostics (thoughtful shopper type)**

Independent variables	Dependent variable (thoughtful shopper type)	
	VIF	Condition Index
Age	1.073	1.000
Religion 2	1.163	2.770
Religiosity	1.273	5.959
Community conscious	1.086	7.169
Current affairs	1.212	12.172

Multicollinearity diagnostics, summarised in Table 6.20, demonstrate that the maximum values of the VIF do not reach more than 1.3. Therefore, the values were well below the threshold value of 10, which is used to indicate the presence of multicollinearity (Hair *et al*, 1998). Furthermore, there is no condition index exceeding 15, which would be associated with high variance proportions above 0.90.

Therefore, it can be concluded that there is no evidence of multicollinearity in the model.

The above discussion summarises the tests for potential violations in ordinary least squares (OLS) assumptions. The residuals showed that the assumptions of linearity, homoscedasticity, independence and normality of residuals were met in the estimation. Furthermore, there was no evidence of multicollinearity. Therefore this implies that the model could be interpreted.

The results in Table 6.13 show that (1) religiosity and the religious affiliation dummy variable *Religion 2* were significant at the 0.01 level, and (2) age and the lifestyle variables were significant at the 0.05 level. The *thoughtful shopper type* was positively related to age (5.07), implying that older respondents tend to be more thoughtful in their shopping behaviour than younger respondents. The coefficients on the lifestyle variables can be interpreted as follows: The coefficient on the *community conscious* lifestyle profile is positive, indicating that respondents who have a more *community conscious* lifestyle profile tend to be more thoughtful in their shopping behaviour than those with a lesser community conscious lifestyle profile. The negative coefficient on the *current affairs* lifestyle profile implies that respondents who are more interested in current affairs tend to be less thoughtful in their shopping behaviour than those who are less interested in current affairs.

Both religiosity and religious affiliation were determinants of the *thoughtful shopper type*, despite the presence of extraneous variables like age and lifestyle profiles. Religiosity was negatively related to the *thoughtful shopper type* (-0.409), implying

that individuals who are more religious tend to be less thoughtful in their shopping behaviour than those who are less religious. This confirms previous findings from the ANOVA that casually religious respondents were more thoughtful in their shopping behaviour than devout respondents. The negative relationship between the second religious affiliation dummy (*Religion 2*) and *thoughtful shopper type* implies that Catholics tend to be more thoughtful in their shopping behaviour than Muslims. The relationship between religious affiliation and thoughtful shopper type confirms the earlier findings from ANOVA and cross-tabulations that differences exist among the three religious groups for the *thoughtful shopper type*.

The beta coefficients were estimated in order to determine the relative strength of the relationship between (1) religiosity and the *thoughtful shopper type* and (2) religious affiliation and *thoughtful shopper type*. The equation below shows the standardised beta coefficients, estimated by regression analysis.

$$\text{Thoughtful shopper} = 0.071 \text{ Age} - 0.128 \text{ Religion2} - 0.127 \text{ Religiosity} \\ + 0.084 \text{ Community conscious} - 0.153 \text{ Current Affairs}$$

In the above equation, the highest absolute value of beta coefficient was that on the *current affairs* lifestyle profile (-0.153). However, the religious affiliation dummy variable *Religion 2* had the second highest beta coefficient (-0.128), followed by the religiosity variable (-0.127). The *community conscious* lifestyle profile (0.084) and age (0.071) were relatively weaker predictors of the *thoughtful shopper type*.

Therefore, it can be concluded that (1) both religiosity and religious affiliation are determinants of the *thoughtful shopper type*, despite the presence of the extraneous variables (lifestyle and income) in Table 6.13, and (2) although *current affairs* lifestyle profile is the strongest predictor, religiosity and religious affiliation are still strong predictors of this shopper type relative to the extraneous variables, age and *community conscious* lifestyle profile.

#### 6.9.10 Innovative shopper (Equation 7)

$\text{Innovative shopper} = - 0.108 \text{ Age} + 1.180 \text{ Marital status } 3 + 0.623 \text{ Religion } 2 - 0.323 \text{ Religiosity} \\ - 0.073 \text{ Leadership} + 0.155 \text{ Community}$
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Equation 7, in Table 6.13 shows the relationship between the *innovative shopper type* and the predictor variables. The equation showed that the *innovative shopper type* was related to age, marital status dummy variable 3, religion (as measured by *Religion 2*), religiosity and lifestyle profiles (*leadership and community conscious*). The  $R^2$  was 0.091 and the adjusted  $R^2$  was 0.081. The F value of 9.236 is significant ( $p \leq 0.001$ ), implying that the overall regression is significant. Therefore, it can be concluded that the combination of predictor variables (age, marital status, religious affiliation, religiosity and lifestyle profiles) is explaining some of the variation in the *innovative shopper type*. Before examining the coefficients in the equation, the diagnostic tests for the assumptions of regression analysis based on the residuals of the model are presented below.

The tests for linearity, homoscedasticity and independence were conducted by

examining the studentised residuals plot (Cohen and Cohen, 1983; Hair *et al*, 1998). The tests showed that the residuals were linear, homoscedastic and independent. An examination of the normal probability plot of the standardised residuals showed that the residuals were normally distributed (Appendix 5).

The model was also tested for multicollinearity. The results of the variance inflation factor (VIF) and condition index tests are presented below (Table 6.21).

**Table 6.21 Multicollinearity diagnostics (innovative shopper type)**

Independent variables	Dependent variable (innovative shopper type)	
	VIF	Condition Index
Age	1.031	1.000
Marital Status 3	1.012	2.289
Religion 2	1.170	2.784
Religiosity	1.219	6.063
Leadership	1.068	7.109
Community conscious	1.076	10.176

Multicollinearity diagnostics, summarised in Table 6.21, demonstrate that the maximum values of the VIF do not reach more than 1.3. Therefore, the values were well below the threshold value of 10, which is used to indicate the presence of multicollinearity (Hair *et al*, 1998). Furthermore, there is no condition index exceeding 15, which would be associated with high variance proportions above 0.90. Therefore, it can be concluded that there is no evidence of multicollinearity in the model.

The above discussion summarises the tests for potential violations in ordinary least

squares (OLS) assumptions. The residuals showed that the assumptions of linearity, homoscedasticity, independence and normality of residuals were met in the estimation. Furthermore, there was no evidence of multicollinearity. Therefore this implies that the model could be interpreted.

The results in Table 6.13 show that (1) the religious affiliation dummy variable *Religion 2* was significant at the 0.001 level, (2) age, *marital status 3* and religiosity were significant at the 0.01 level, and (3) the lifestyle variables were significant at the 0.05 level. The *innovative shopper type* was negatively related to age (-1.08), implying that older respondents tend to be less innovative in their shopping behaviour than younger respondents. The positive coefficient on the marital status dummy 3 showed that married respondents tend to be less innovative in their shopping behaviour than divorced respondents. The coefficients on the lifestyle variables can be interpreted as follows. The negative coefficient on the *leadership* lifestyle profile implies that respondents who rank high on the leadership scale tend to be less innovative in their shopping behaviour than those who rank low on the scale. The coefficient on the *community conscious* lifestyle profile is positive, indicating that respondents who have a more *community conscious* lifestyle profile tend to be more innovative in their shopping behaviour than those with a lesser *community conscious* lifestyle profile.

Both religiosity and religious affiliation had an influence on the *innovative shopper type*, despite the presence of extraneous variables like age, marital status and lifestyle profiles. Religiosity was negatively related to the innovative shopper type (-0.323), implying that individuals who are more religious tend to be less innovative in their

shopping behaviour than those who are less religious. This confirms previous findings from the ANOVAs that casually religious respondents were more innovative in their shopping behaviour than devout respondents. The positive relationship between the second religious affiliation dummy (*Religion 2*) and *innovative shopper type* implies that Catholics tend to be less innovative in their shopping behaviour than Muslim shoppers. The relationship between religious affiliation and innovative shopper type confirms the earlier findings from ANOVA and cross-tabulations that differences exist among the three religious groups for the *innovative shopper type*.

The beta coefficients were estimated in order to determine the relative strength of the relationship between (1) religiosity and the *innovative shopper type* and (2) religious affiliation and *innovative shopper type*. The equation below shows the standardised beta coefficients, estimated by regression analysis.

$$\text{Innovative shopper} = -0.131 \text{ Age} + 0.121 \text{ Marital status}_3 + 0.162 \text{ Religion 2} - 0.137 \text{ Religiosity} \\ - 0.092 \text{ Leadership} + 0.107 \text{ Community}$$

In the above equation, the highest absolute value of the beta coefficient was attributed to the religious affiliation dummy variable *Religion 2* (0.162), followed by the religiosity variable (-0.137). Age (0.131) and *Marital Status 3* (0.121) were (1) stronger predictors of the *innovative shopper type* than the *community conscious* lifestyle profile (0.107) and *leadership* lifestyle profile (0.092), and (2) weaker predictors than religiosity and religious affiliation.

Therefore, it can be concluded that (1) both religiosity and religious affiliation are

determinants of the *innovative shopper type*, despite the presence of the extraneous variables (lifestyle and income) in Table 6.13 and (2) religiosity and religious affiliation are stronger predictors of this shopper type relative to the extraneous variables, age, marital status and lifestyle profiles.

#### 6.9.11 Summary of regression analysis

The use of multiple regression analysis has demonstrated, in the presence of extraneous variables such as demographic characteristics and lifestyle, that:

1. Religious affiliation has an influence on most shopper profiles analysed above: namely *demanding, practical, trendy, traditional, thoughtful* and *innovative shopper types*.
2. Religious affiliation is a strong predictor of shopper profiles, relative to the extraneous variables, as shown by the beta coefficients associated to the religious affiliation dummy variables in the equations shown above.
3. Religiosity has an influence on most shopper profiles analysed above namely *demanding, practical, trendy, thoughtful* and *innovative shopper types*.
4. Religiosity is a strong predictor of shopper profiles, when compared to the extraneous variables, as shown by the beta coefficients associated to the religiosity variable in the equations shown above.
5. The results confirm the previous findings obtained through the use of cross-tabulations, *chi-square* test, MANOVA and one-way-ANOVAs.

The hypotheses tested in this chapter on shopping behaviour were:

**H1<sub>0</sub>: Shopping behaviour does not differ significantly among Hindus, Muslims and Catholics.**

**H1<sub>1</sub>: Shopping behaviour differs significantly among Hindus, Muslims and Catholics.**

**H2<sub>0</sub>: There is no significant difference between the shopping behaviour of highly religious consumers and that of non-religious consumers.**

**H2<sub>1</sub>: There is a significant difference between the shopping behaviour of highly religious consumers and that of non-religious consumers.**

It can therefore be concluded that

1. The null hypothesis that “shopping behaviour does not differ significantly among the three religious groups” is rejected.
2. The null hypothesis that “there is no significant difference between the shopping behaviour of devout and that of casually religious respondents” is rejected.

## **6.10 Conclusion**

This chapter has dealt with the first part of the analysis of questionnaire data and has discussed the influence of (1) religiosity and (2) religious affiliation on shopping behaviour. First, the shopping behaviour variables were factor analysed and seven

factors were extracted. These factors were named *demanding, practical, trendy traditional, economic, thoughtful* and *innovative* shopper types. Religiosity and religious affiliation were cross-tabulated with the seven shopper types. *Chi-square* tests revealed that shopping behaviour differed significantly among the three religious groups, namely Hindus, Muslims and Roman Catholics and between casually religious and devout respondents. MANOVA was then performed on all the shopper types. The results showed that, taken together, these shopper profiles provided stronger evidence of significant differences between highly religious and non-religious consumers and among Hindus, Muslims and Catholics. As a follow up to MANOVA, ANOVA tests were carried out and demonstrated that for each shopper type, significant differences exist (1) among Hindus, Muslims and Catholics and (2) between casually religious and devout respondents within each religious group. Post hoc tests confirmed these differences. The next step was to confirm whether religiosity and religious affiliation were strong predictors of shopping behaviour, relative to demographics and lifestyle. Multiple regression analysis was used and each shopper type was regressed against the two independent variables together with extraneous variables, demographics and lifestyle. Lifestyle profiles were obtained by factor analysing a number of lifestyle variables from which six lifestyle profiles were extracted. Multiple regression analysis revealed that religiosity and religious affiliation were strong predictors of shopping behaviour (measured by shopper types) compared to extraneous variables. Therefore it was concluded that:

1. The null hypothesis that “shopping behaviour does not differ significantly among the three religious groups” is rejected.
2. The null hypothesis that “there is no significant difference between the shopping

behaviour of casually religious and that of devout respondents” is rejected.

The next chapter deals with the second part of the analysis and discusses the relationships between the independent variables (religiosity and religious affiliation) and two other aspects of consumer behaviour, (1) retail store preference and (2) external information search. An overall conclusion to the data analysis and the research findings is also made in the next chapter.

## CHAPTER SEVEN

### DATA ANALYSIS AND RESEARCH FINDINGS (2)

#### 7.1 Introduction

This chapter contains the second and third part of the analysis of the questionnaire data. The second and third part of the analysis deals with the testing of hypotheses for the two other aspects of consumer behaviour (retail store preference and external information search) selected for this study. These hypotheses are presented in Section 7.2.

In the second part of the analysis, factor analysis of retail store variables is discussed first. Factor analysis was carried out to reduce the dimensionality of retail stores variables into a smaller set of factors representing retail store preferences. Cross-tabulation of these factors with (1) religious affiliation and (2) religiosity is then presented. The *chi-square* statistic was used in order to determine whether significant differences existed in retail store preferences among religious groups and between casually religious and devout respondents.

The results of MANOVA tests are then discussed. Multivariate analysis of variance (MANOVA) was used because it allows for examination of the main effects and interaction effects (Grimm, 1993) on a number of dependent variables by two or

more independent variables. Application of MANOVA technique in consumer behaviour has been discussed in Chapter Five and illustrated by several researchers (Darden and Perreault, 1975 and Darden and Rao, 1979) in identifying significant differences among groups of consumers. In this study, since the effects and interaction effects of two independent variables (religiosity and religious affiliation) were tested on several dependent variables (retail store preferences), use of MANOVA was appropriate.

MANOVA was then followed by univariate ANOVAs in order to find out whether significant differences existed between the three religious groups in terms of their retail store preferences. Post-hoc tests were also carried out to determine which *pairs* of religious groups differed for each type of retail store preference.

Finally, multiple regression analysis results are presented and discussed. Multiple regression analysis was carried out to determine whether religiosity and religious affiliation were strong predictors of retail store preference. Demographic and lifestyle variables were used as extraneous variables in the regression models.

This chapter then deals with the third part of the analysis, using the same statistical tests explained above to determine the relationships between (1) religiosity, (2) religious affiliation and consumer external information search. At the end of part two and part three of the analyses in this chapter, the respective results are summarised. The chapter ends with an overall conclusion to Chapters Six and Seven.

## 7.2 Hypotheses tested in this chapter

**H3<sub>0</sub>: There is no significant difference in preferences for retail store attributes between highly religious consumers and non-religious consumers.**

**H3<sub>1</sub>: There is a significant difference in preferences for retail store attributes between highly religious consumers and non-religious consumers.**

**H4<sub>0</sub>: There is no significant difference in preferences for retail store attributes among Hindus, Muslims and Catholics.**

**H4<sub>1</sub>: There is a significant difference in preferences for retail store attributes among Hindus, Muslims and Catholics.**

**H5<sub>0</sub>: There is no significant difference in external information search between highly and non-religious consumers.**

**H5<sub>1</sub>: There is a significant difference in external information search between highly and non-religious consumers.**

**H6<sub>0</sub>: External information search does not differ significantly among Hindus, Muslims and Catholics.**

**H6<sub>1</sub>: External information search differs significantly among Hindus, Muslims and Catholics.**

### **7.3 Retail store preference**

As discussed in Section 2.13.3, retail store preference is one very important aspect of consumer behaviour. Retail store preference and the evaluative criteria used in the choice of a store have been widely discussed in the consumer behaviour literature (Dash, Schiffman and Berenson, 1976; McDaniel and Burnett, 1990; Dawson, Bloch and Ridgway, 1989). However the influence of religiosity and religious affiliation on store choice still remains a subject for further research. In the current study respondents were asked a series of questions on the evaluative criteria used in retail store choice in order to determine whether differences exist between religious groups (Hindus, Muslims and Catholics) and between devout and casually religious consumers. The objective was also to determine whether religiosity and religious affiliation are strong predictors of retail store preference.

#### **7.3.1 Factor analysis of retail store attributes**

Retail store preference was measured by asking respondents 21 questions (Section 4.5.2.2) on the importance they attach to retail store attributes (McDaniel and Burnett, 1990). Retail store preference is defined as the combination of retail store attributes preferred by the consumer (Mc Daniel and Burnett, 1990). The twenty-one variables were checked for normality, as discussed in Section 5.6.1, by estimating the coefficients of skewness and kurtosis for each variable. More than 60% of the variables showed a low correlation ( $<.02$ ), which allowed the data to be factor analysed (Muthen and Kaplan, 1985).

As discussed in Section 5.6.2, the correlation matrix was checked to find out whether there was systematic covariation among the variables. The *Kaiser-Meyer-Olkin* (KMO) test of sample adequacy and the *Bartlett test of sphericity* were performed on the data and it was found that the *KMO* measure was 0.64 and the *Bartlett test of sphericity* was significant at  $p < 0.05$ . The data were deemed fit for factor analysis. Factor analysis was performed to reduce dimensionality and in order to summarize the information in a smaller set of variables. Five factors with eigenvalues greater than 1 emerged from the analysis. All five factors were extracted as the cumulative percentage of variance for the five factors was 60 percent which satisfies the percentage of variance criterion for social science research (Hair *et al*, 1998). The factors were subjected to *varimax* rotation to provide a simpler column structure for interpretation. Items with a factor loading of 0.5 and above were chosen (see Section 5.6.3). The five factors extracted were used to develop retail store preferences. Based on the loadings on each factor, they were characterized as *preference for store efficiency*, *preference for store product assortment and quality*, *preference for store credit availability*, *preference for store convenience* and *preference for store attractiveness* (McDaniel and Burnett 1990). This is illustrated in Table 7.1.

**Table 7.1 Factor extraction (retail store preferences)**

Factor	Variables	Factor loading	Eigenvalue value	Alpha value	Cumulative percent
1. Preference for store efficiency	Efficient shelving	.764	6.4	0.82	30.5
	In-store space	.757			
	Adequate parking facilities	.787			
	Quality of service	.643			
2. Preference Product Assortment	Availability of well-known brands	.650	2.0	0.76	40.2
	Adequate stock levels	.577			
	Product variety	.758			
3. Preference for store credit availability	Acceptance of credit cards	.553	1.8	0.56	48.7
	Credit availability	.632			
4. Preference for store convenience	Delivery service	.579	1.3	0.81	55.0
	Level of prices	.599			
	Opening hours	.543			
	Returned goods policy	.689			
5. Preference for store attractiveness	Friends' opinions	.738	1.0	0.67	60.0
	Location	.625			
	Reputation	.713			
	Window display	.587			
	Advertising	.744			
	In-store promotions	.597			
	Price deals	.728			
	Previous experience	.674			

### 7.3.2 Factors representing retail store preferences

Factor 1 explained 30.5 percent of the variance and has been termed *preference for store efficiency*. This factor represented preference for a store with efficient shelving,

in-store space, parking facilities and quality of service. Factor 2 explained 9.7 percent of the variance and has been termed *preference for store product assortment and quality*. This factor represented preference for a store with availability of well-known brands, high stock levels and product variety. Factor 3 explained 8.5 percent of the variance and has been termed *preference for credit availability*. This factor represented preference for a store which accepts credit cards and provides credit facilities. Factor 4 explained 6.3 percent of the variance and has been labelled *preference for store convenience*. This factor represented preference for a store which provides delivery service, has long opening hours, low prices, and has a returned goods policy. Factor 5 explained 5.0 percent of the variance and has been termed *preference for store attractiveness*. This factor represented preference for a store which is well located, has been visited before, offered price deals recommended by friends, has a good reputation, has in-store promotions, advertises and has good window display (McDaniel and Burnett, 1990).

For each retail store preference, a summated scale was constructed using the relevant variables having high loadings on each factor (See Sections 5.6.5.3 and 6.4.1). The sum of the scores of each respondent for the variables was averaged out and converted into a single variable. The scores of this new variable were converted into a scale ranging from “high” to “low”. The scores above the median on the scale were characterized as “high preference” while the scores below the median were characterized as “low preference” and those with the median score were characterized as “average preference”. The same procedure was applied to all five factors. The method used to construct the summated scales was discussed in Section 5.6.5.3.

In order to determine whether significant differences existed for each type of retail store preference between (1) Hindus, Muslims and Catholics and (2) casually religious and devout respondents, the retail store preferences (five factors) were cross-tabulated with (1) religious affiliation and (2) religiosity. The *chi-square* statistic was used as a test of significance. The conditions that apply to a *chi-square* as discussed in Section 5.4.1 were fulfilled given that the sample was randomly selected and the expected cell frequencies were greater than five (Hays, 1988). The results shown in Sections 7.3 and 7.4 are those where significant differences have been identified using the *chi-square* ( $p < 0.05$ ).

#### 7.4 Differences in retail store preference between casually religious and devout respondents

##### 7.4.1 Devout versus casually religious consumers

**Table 7.2 Differences in retail store preference between casually religious and devout respondents**

Preference for Store	Religiosity	
	Casually Religious	Devout
<b>Preference for Store efficiency<sup>1</sup></b>		
High	65.2%	43.0%
Average	30.4%	39.4%
Low	4.4%	17.6%
<b>Preference for store convenience<sup>2</sup></b>		
High	70.3%	44.4%
Average	26.6%	47.9%
Low	3.1%	7.7%
<b>Preference for store attractiveness<sup>3</sup></b>		
High	44.3%	17.6%
Average	53.2%	73.2%
Low	2.5%	9.2%

Note: Significance levels (p): 1=0.007, 2=0.000, 3=0.003

The results suggest that there are significant differences in shopping behaviour between the devout and casually religious respondents. A larger percentage of casually religious respondents had a high preference *retail store efficiency* (65.2%), that is, casually religious respondents preferred stores with efficient shelving, adequate parking facilities, quality of service and in-store space more than devout respondents. A larger percentage of casually religious respondents also had a high preference *retail store shopping convenience* (70.3%), that is, casually religious respondents preferred stores with delivery service, long opening hours and a returned goods policy more than devout respondents. A larger percentage of casually religious respondents (44.3%) also showed high preference for *retail store attractiveness* as compared to devout consumers, that is casually religious respondents preferred stores which were well located, had a good reputation, had attractive window displays and offered price deals more than devout respondents. This is illustrated in Table 7.2.

#### 7.4.2 Casually religious Hindus versus devout Hindus

**Table 7.3 Differences in retail store preference between devout and casually religious Hindus**

Preference for	Religiosity	
	Casually religious Hindus	Devout Hindus
<b>store efficiency<sup>1</sup></b>		
High	71.4%	46.2%
Average	20.0%	30.5%
Low	8.6%	15.4%
<b>store convenience<sup>2</sup></b>		
High	57.1%	41.5%
Average	37.1%	49.2%
Low	5.8%	9.3%
<b>store attractiveness<sup>3</sup></b>		
High	34.3%	16.9%
Average	62.9%	72.3%
Low	2.8%	10.8%

Note: Significance levels (p): 1=0.000, 2=0.001, 3=0.010

The findings suggest (Table 7.3) that there were significant differences in the retail store preferences of casually religious Hindus as compared to devout Hindus. A larger percentage of casually religious Hindus showed a high preference for *retail store efficiency* (71.4%), *retail store convenience* (57.1%) and *retail store attractiveness* (34.3%) as compared to devout Hindus.

#### 7.4.3 Casually religious Muslims versus devout Muslims

**Table 7.4 Differences in retail store preference between devout and casually religious Muslims**

Preference for	Religiosity	
	Casually religious Muslims	Devout Muslims
<b>store efficiency<sup>1</sup></b>		
High	57.5%	38.5%
Average	37.0%	34.6%
Low	5.5%	26.9%
<b>store convenience<sup>2</sup></b>		
High	71.2%	53.8%
Average	26.0%	42.3%
Low	2.8%	3.9%
<b>store attractiveness<sup>3</sup></b>		
High	42.5%	26.9%
Average	53.4%	61.5%
Low	4.1%	11.6%

Note: Significance levels (p): 1=0.020, 2=0.015, 3=0.000

The findings suggest that there were significant differences in retail store preferences between casually religious and devout Muslims. A larger percentage of casually religious Muslims showed a high preference for *retail store efficiency* (57.5%), *retail store shopping convenience* (71.2%), and *retail store attractiveness* (42.5%) compared to devout Muslims as illustrated in Table 7.4

#### 7.4.4 Casually religious Catholics versus devout Catholics

**Table 7.5 Differences in retail store preference between devout and casually religious Catholics**

Preference for store	Religiosity	
	Casually religious Catholics	Devout Catholics
<b>Preference for store efficiency<sup>1</sup></b>		
High	72.0%	41.2%
Average	28.0%	43.1%
Low	0	15.7%
<b>Preference for store convenience<sup>2</sup></b>		
High	78.0%	43.1%
Average	20.0%	49.0%
Low	2.0%	7.9%
<b>Preference for store attractiveness<sup>3</sup></b>		
High	54.0%	13.7%
Average	46.0%	80.4%
Low	0	5.9%
<b>Preference for store product assortment and variety<sup>4</sup></b>		
High	86.0%	74.5%
Average	12.0%	15.7%
Low	2.0%	9.8%
<b>Preference for store credit availability<sup>5</sup></b>		
High	36.0%	19.6%
Average	44.0%	56.9%
Low	20.0%	23.5%

Note: Significance levels (p): 1=0.011, 2=0.004, 3=0.010, 4=0.000, 5=0.035

The findings suggest that there were significant differences for all five retail store preferences between casually religious Catholics and devout Catholics. A larger percentage of casually religious Catholics showed high preference for *retail store efficiency* (72%), *retail store product assortment and quality* (86%), *retail store credit availability* (36%), *retail store shopping convenience* (78%), and *retail store attractiveness* (54%) as compared to devout Muslims as illustrated in Table 7.5.

## 7.5 Differences in retail store preference among religious groups

**Table 7.6 Differences in retail store preference among religious groups**

Preference for	Religion		
	Hindu	Muslim	Catholics
<b>store product assortment and quality<sup>1</sup></b>			
High	70.0%	68.7%	80.2%
Average	26.0%	26.3%	13.9%
Low	4.0%	5.1%	5.9%
<b>store convenience<sup>2</sup></b>			
High	47.0%	66.7%	60.4%
Average	45.0%	30.3%	34.7%
Low	8.0%	3.0%	5.0%
<b>store attractiveness<sup>3</sup></b>			
High	23.0%	38.4%	33.7%
Average	69.0%	55.6%	63.4%
Low	8.0%	6.0%	3.0%

Note: Significance levels (p): 1=0.020, 2=0.000, 3=0.013

There were significant differences in retail store preference among the three religious groups (table 7.6). A larger percentage (80.2%) of Catholics showed high preference for *retail store product assortment and quality* compared to 70.0% of Hindus and 68.7% of Muslims. Catholics had a higher preference for stores with (1) well known brands, (2) adequate stock levels, and (3) high product variety compared to Hindus.

A larger percentage of Muslims respondents (66.7%) showed high preference for *retail store convenience* as compared to 60.4% of Catholics and 47.0% of Hindus. Muslim shoppers showed higher preference for retail stores with (1) delivery service facilities, (2) longer opening hours, (3) returned goods policy and (4) low prices

compared to Hindus.

A larger percentage of Muslims showed high preference for *retail store attractiveness* (38.4%) as compared to 33.7% of Catholics and 23.0% of Hindus. Muslim shoppers had a higher preference for stores with the following attributes: (1) recommended by friends, (2) location, (3) reputation, (4) window display, (5) store advertisement, (6) in-store promotions, (7) availability of price deals and (8) previous experience with store.

It can be stated that Hindus, Muslims and Catholics differed significantly in their retail store preferences.

The results (Sections 7.3.3 and 7.3.4) tend to suggest that retail store preferences differed significantly among the three religious groups, namely Hindus, Muslims and Catholics and between casually religious and devout respondents.

## **7.6 Multivariate analysis of variance (MANOVA)**

The above results suggest that each retail store preference, tested individually, differs significantly between highly religious and non-religious consumers and among Hindus, Muslims and Catholics. The next step in the analysis was to find out whether overall, or taken together, these retail store preferences may provide stronger evidence of reliable differences between highly religious and non-religious consumers and among Hindus, Muslims and Catholics. The objective was to determine whether religious affiliation and religiosity have an influence on the retail

store preference.

MANOVA is a test to determine differences between two or more means. In this study, MANOVA was used to determine whether significant differences existed in the means of the independent variables (religiosity and religious affiliation) across a number of dependent variables (retail store preferences). The conditions for conducting MANOVA have been discussed in Chapter Five and the requirements were fulfilled prior to the analysis. The tests were carried out using the SPSS 10.0 package. The results are illustrated in Table 7.7.

**Table 7.7 MANOVA (retail store preferences)**

	Value	F	Hypothesis df	Error df	Sig.
<b>RELIGIOSITY</b>					
Pillai's Trace	.152	21.125	5.000	590.000	.000
Wilks' Lambda	.038	21.125	5.000	590.000	.000

	Value	F	Hypothesis df	Error df	Sig.
<b>RELIGION</b>					
Pillai's Trace	.079	4.889	10.000	1182.000	.000
Wilks' Lambda	.025	4.893	10.000	1180.000	.000

	Value	F	Hypothesis df	Error df	Sig.
<b>RELIGION* RELIGIOSITY</b>					
Pillai's Trace	.895	1.001	10.000	1182.000	0.312
Wilks' Lambda	.784	1.001	10.000	1180.000	0.312

The Wilks' Lambda and Pillai's criterion statistics (discussed in Section 5.6) were

used to measure the relationship between retail store preferences and (1) religiosity and (2) religious affiliation. Both statistics were significant at  $p < .05$  with the lambda value close to zero at .038 for religiosity and .025 for religion. The results confirmed that religiosity and religious affiliation had a significant effect on retail store preference. Significant differences were found between highly religious and non-religious consumers and among Hindus, Muslims and Catholics for all retail store preferences. However, it is to be noted that the F statistic for religiosity is much higher than that for religion, suggesting that there was a greater difference between devout and casually religious respondents with regard to retail store preference than between Hindus, Muslims and Catholics. This suggests that religiosity is the stronger independent variable. The two independent variables were also tested for interaction (see Section 5.7) and the interaction variable was found not to be significant and was therefore not included in further analysis.

MANOVA, as discussed in Section 5.7, is often undertaken with the intention of keeping the Type I error rate at the nominal level (Hurberty and Morris, 1989). The most popular way of proceeding from a significant effect in MANOVA is to perform univariate ANOVAs for each of the dependent variables (Bray and Maxwell, 1982). If MANOVA has shown significance (by controlling for Type I error and by showing some degree of intercorrelation among dependent variables), it is considered acceptable to carry out multiple univariate ANOVAs without undue inflation of Type I error (Hair *et al*, 1998).

## 7.7 One-way-ANOVA

The next step in the analysis was to carry out one-way ANOVAs for each dependent variable (retail store preference) to confirm that significant differences existed between the different religious groups and their retail store preferences. The requirements for conducting ANOVAs was discussed in Section 5 and these were fulfilled prior to the tests. The results of the one-way-ANOVAs are shown in Table 7.8.

**TABLE 7.8 One-way-ANOVA (Retail store preference)**

### Religiosity

Retail store preferences	F-statistic	Significance
Preference for store product assortment and quality	26.0	.000*
Preference for store credit availability	1.0	.293
Preference for store convenience	63.2	.000*
Preference for store attractiveness	68.9	.000*

Significance: \* p<0.05

### Religion

Retail store preferences	F-statistic	Significance
Preference for store product assortment and quality	6.3	.002*
Preference for store credit availability	2.6	.072**
Preference for store convenience	12.2	.000*
Preference for store attractiveness	4.2	.015*

Significance: \* p<0.05, \*\* p<0.1

The differences in means among Hindus, Muslims and Catholics were tested across each retail store preference and the same test was carried out between casually religious and devout respondents across each retail store preference. It was found that there were significant differences across the means of the factor scores for both religiosity and religious affiliation. However, no difference in means between

casually religious and devout respondent was found for preference for store credit availability (Table 7.8).

#### 7.7.1 Post hoc tests

Based on the ANOVA results, the next step was to determine whether significant differences existed in terms of religious affiliation for each type of retail store preference between (1) Hindus and Muslims, (2) Hindus and Catholics, and (3) Catholics and Muslims. This was also tested for religiosity within each religious group, between (1) casually religious Hindus and devout Hindus, (2) casually religious Muslims and devout Muslims and (3) casually religious Catholics and devout Catholics. Tukey post hoc tests (see Section 5.4.3) were carried out to test the difference in means between casually religious and devout respondents among religious groups across each retail store preference. The difference in means between Hindus, Muslims and Catholics was also tested across each retail store preference. The results are shown in Table 7.9 and discussed in the next section.

**Table 7.9 ANOVA post hoc tests (retail store preferences)**

	Devout Hindu V/s Casually religious Hindu	Devout Muslim V/s Casually religious Muslim	Devout Catholic V/s Casually religious Catholic	Hindu V/s Muslim	Hindu V/s Catholic	Muslim V/s Catholic
Preference for store efficiency	.002*	.001*	.000*	.933	.335	.284
Preference for store product assortment	.142	.188	.013*	.677	.137	.062**
Preference for store credit availability	.336	.228	.044*	.291	.891	.241
Preference for store convenience	.039*	.045*	.000*	.000*	.007*	.149
Preference for store attractiveness	.001*	.019*	.000*	.002*	.003*	.769

Significance \*\* p<0.1, \* p< .05

The results show that there were significant differences between the means of the religious groups for all retail store preferences. The results can be summarised as follows:

- *Preference for store efficiency* (Factor 1) differed significantly between devout and casually religious Hindus, between devout and casually religious Muslims and between devout and casually religious Catholics.
- *Preference for store product assortment* (Factor 2) and *preference for store credit availability* (Factor 3) differed only between devout and casually religious Catholics.
- *Preference for store shopping convenience* (Factor 4) differed between devout and casually religious Hindus, between devout and casually religious Muslims and between devout and casually religious Catholics. The *preference for store*

*shopping convenience* also differed between Hindus and Muslims and Hindus and Catholics.

- *Preference for store attractiveness* (Factor 5) differed between devout and casually religious Hindus, between devout and casually religious Muslims and between devout and casually religious Catholics. The *preference for store attractiveness* also differed between Hindus and Muslims and Hindus and Catholics.

### **7.8 Multiple Regression analysis (Retail store preference)**

The above results suggest that significant differences exist between (1) religiosity and retail store preference and (2) religious affiliation and retail store preference. The next step was to determine the direction of relationship that exists between (1) religious affiliation and retail store preference and (2) religiosity and retail store preference. Furthermore the strength of these two relationships needed to be assessed, that is, whether religious affiliation and religiosity are good predictors of retail store preference.

Multiple regression analysis was used to determine the direction and strength of the relationship between (1) religiosity and retail store preference and (2) religious affiliation and retail store preference.

A number of scenarios were tested using the stepwise method so that the model explaining maximum variation of the dependent variables could be obtained (Hair *et al.*, 1998). This method was used to regress each type of retail store preference

against the independent variables in order to identify the independent variables which explained maximum variation in the dependent variables. Extraneous variables were introduced in the regression model in order to assess whether religiosity and religious affiliation were strong predictors of types of retail store preference in the presence of other variables that might influence retail store preference.

Before carrying out the regression analysis, the data were examined in order to assess whether the basic assumptions underlying the use of ordinary least squares (OLS) regression analysis were observed. First, normality tests were conducted for the dependent (type of retail store preference), since the predictor variables (religious affiliation, religiosity and the extraneous variables) were normally distributed (see Section 6.4.5.2). The normal probability plots for the five types of retail store preference were examined and skewness and kurtosis statistics were estimated. The normality plots showed that the variables were normally distributed. The skewness and kurtosis statistics were in the range  $\pm 2$  and  $\pm 3$  (see Appendix 3). According to Muthen and Kaplan (1985) such values indicate that the variables approximate a normal distribution.

Secondly, the relationships among the variables were considered. The correlation matrix was used to determine whether (1) the independent variables were highly correlated among themselves and (2) the independent variables were highly correlated with the dependent variables. It is important to examine the correlations since they indicate whether the model was properly specified. In the current study, the correlation matrix showed that the correlations among the independent variables were weaker than the correlations between the dependent and independent variables

(see Appendix 4). Therefore, it can be concluded that the model was correctly specified (Bryman and Cramer, 1990).

After having ensured that all the assumptions for conducting regression analysis were met, the model was estimated (Neter *et al*, 1996). The independent variables, religiosity, religious affiliation together with the extraneous variables, demographics and lifestyle were regressed against the five different retail store preferences (Table 7.10).

**Table 7.10 Regression coefficients (Retail store preferences)**

Independent Variables	Equation 1 Store efficiency	Equation 2 Product assortment and quality	Equation 3 Credit availability	Equation 4 Store convenience	Equation 5 Store attractiveness
Age					
Income	.370***	.354***		-.334***	
Occupation					
Marital Status 2					-.960*
Family size				.173**	.188*
Sex	.442*	.446*		.985*	1.17**
Religion 1		-.611**		-1.151***	-.867***
Religion 2	-.742**			1.125***	.746***
Religiosity	-1.381***	-.542**		-2.184***	-2.358***
Leadership	.108*	.140**	-.147****	.134*	
Community conscious			.192***		
Hedonic					
Knowledge Seeker	.148*	.224***	.177***		
Current Affairs	.499***	.695***			
Optimist	.528***	.175*	.208***		.324***
R <sup>2</sup>	.343	.252	.096	.156	.161
Adjusted R <sup>2</sup>	.334	.242	.089	.146	.152
F value	38.503***	24.878****	12.180***	15.603***	15.219***

Notes: 1. \* p ≤ 0.05, \*\* p ≤ 0.01, \*\*\* p ≤ 0.001

2. The value, size and predictive significance issues of the R<sup>2</sup> have already been discussed in Section 6.9.3

### 7.8.1 Store efficiency (Equation 1)

$$\begin{aligned} \text{Preference for retail store efficiency} = & 0.370 \text{ Income} + 0.442 \text{ Sex} - 0.742 \text{ Religion2} \\ & - 1.381 \text{ Religiosity} + 0.108 \text{ Leadership} \\ & + 0.148 \text{ Knowledge seeker} \\ & + 0.499 \text{ Current affairs} + 0.528 \text{ Optimist} \end{aligned}$$

Equation 1, in Table 7.10, shows the relationship between *preference for retail store efficiency* and the predictor variables. The equation showed that *preference for retail store efficiency* was related to income, sex, religion (as measured by *Religion 2*), religiosity and to four lifestyle profiles (*leadership, knowledge seeker, current affairs* and *optimist*). The  $R^2$  was 0.343 and the adjusted  $R^2$  was 0.334. The F value of 38.503 is highly significant ( $p \leq 0.001$ ), implying that the overall regression is significant. Therefore, it can be concluded that the combination of predictor variables (income, sex, religion, religiosity and lifestyle profiles) is explaining some of the variation in the *preference for retail store efficiency*. Before examining the coefficients in the equation, the diagnostic tests for the assumptions of regression analysis based on the residuals of the model are presented below.

The tests for linearity, homoscedasticity and independence were conducted by examining the studentised residuals plot (Cohen and Cohen, 1983; Hair *et al*, 1998). The tests showed that the residuals were linear, homoscedastic and independent. An examination of the normal probability plot of the standardised residuals showed that the residuals were normally distributed (Appendix 5).

The model was also tested for multicollinearity. The results of the variance inflation

factor (VIF) and condition index tests are presented below.

**Table 7.11 Multicollinearity diagnostics (store efficiency)**

Independent variables	Dependent variable (preference for store efficiency)	
	VIF	Condition Index
Income	1.234	1.000
Sex	1.145	3.336
Religion 2	1.168	5.369
Religiosity	1.321	6.888
Leadership	1.333	7.782
Knowledge seeker	1.400	10.500
Current affairs	1.386	13.979
Optimist	1.304	15.015

Multicollinearity diagnostics, summarised in Table 7.11, demonstrate that the maximum values of the VIF do not reach more than 1.5. Therefore, the values were well below the threshold value of 10, which is used to indicate the presence of multicollinearity (Hair *et al*, 1998). Although one of the condition indices exceeded 15 (Optimist), it was not associated with high variance proportions above 0.90. Therefore, it can be concluded that multicollinearity was not a problem in the model.

The above discussion summarised the tests for potential violations in OLS assumptions. The residuals showed that the assumptions of linearity, homoscedasticity, independence and normality of residuals were met in the estimation. Furthermore, there was no evidence of multicollinearity. Therefore it implies that the model can now be interpreted.

The results in Table 7.10 show that (1) income, religiosity and two lifestyle profiles (*current affairs* and *optimist*) were significant at the 0.001 level, (2) the religious affiliation dummy variable *Religion 2* was significant at the 0.01 level and (3) sex and two lifestyle profiles (*leadership* and *knowledge seeker*) were significant at the 0.05 level. The *preference for retail store efficiency* was positively related to income (0.370), implying that higher income earners have higher *preference for retail store efficiency* than lower income earners. The positive coefficient on sex (0.442) indicated that female respondents have higher *preference for retail store efficiency* than male respondents.

The coefficients on the lifestyle profiles can be interpreted as follows. Respondents who rank high on the leadership scale tend to have a higher *preference for retail store efficiency* than those respondents that rank lower on this lifestyle scale because of the positive coefficient on leadership (0.108). Respondents who rank high on the knowledge seeker scale have a higher *preference for retail store efficiency* than those who rank lower (0.148). Respondents who are more interested in current affairs tend to have a higher *preference for retail store efficiency* than those who are less interested in current affairs as indicated by the positive coefficient on the *current affairs lifestyle profile* (0.499). The coefficient on the optimist lifestyle variable (0.528) implied that individuals who have a more *optimistic lifestyle profile* have a higher preference for *retail store efficiency* than those with a less *optimistic lifestyle profile*.

Both religiosity and religious affiliation had an influence on the *preference for retail*

*store efficiency*, despite the presence of extraneous variables like income, sex and lifestyle profiles. Religiosity was negatively related to the *preference for retail store efficiency* (-1.381), implying that individuals who are less religious tend to have a higher *preference for retail store efficiency* than those who are more religious. This confirms previous findings from the independent sample *t-tests* and *chi square* test that casually religious respondents have a higher *preference for retail store efficiency* than devout respondents. The negative relationship between the second religious affiliation dummy (*Religion 2*) and *preference for retail store efficiency* implies that Catholic shoppers tend to have a higher *preference for retail store efficiency* than Muslim shoppers.

Having established that religiosity and religious affiliation partly explain whether shoppers have a higher or lower *preference for retail store efficiency*, the beta coefficients were estimated in order to determine the relative strength of the relationships by controlling for the extraneous variables. The equation below shows the standardised beta coefficients, estimated by regression analysis.

<p style="text-align: center;"> <b>Preference for retail store efficiency = 0.101 Income + 0.060 Sex- 0.161 Religion2</b>  <b>-0.201 Religiosity + 0.070 Leadership</b>  <b>+ 0.078 Knowledge seeker</b>  <b>+ 0.150 Current affairs + 0.242 Optimist</b> </p>
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In the above equation, the absolute value of the beta coefficient for the *optimist lifestyle profile* is highest (0.242). The beta coefficient for religiosity has the second highest value (-0.201), followed by the beta coefficient for the second religious

affiliation dummy variable *Religion 2* (-0.161). The other extraneous variables, *current affairs lifestyle profile* (0.150), *income* (0.101), *knowledge seeker lifestyle profile* (0.078), *leadership lifestyle profile* (0.070) and *sex* (0.060) were relatively weaker predictors of the *preference for retail store efficiency*.

Therefore, it can be concluded that, (1) both religiosity and religious affiliation have an influence on the *preference for retail store efficiency*, despite the presence of the extraneous variables (lifestyle, sex and income) from Table 7.10, and (2) although *optimist lifestyle* is the strongest predictor variable, religiosity and religious affiliation are strong predictors of this retail store preference relative to the extraneous variables, income, sex and lifestyle.

#### 7.8.2 Store Product assortment and quality (Equation 2)

<p><b>Preference for retail store</b></p> <p><b>product assortment and quality = 0.354 Income + 0.446 Sex – 0.611 Religion1- 0.542 Religiosity</b></p> <p><b>+ 0.140 Leadership + 0.224 Knowledge seeker</b></p> <p><b>+ 0.695 Current affairs + 0.175 Optimist</b></p>
---

Equation 2, in Table 7.10, shows the relationship between *preference for retail store product assortment and quality* and the predictor variables. The equation showed that *preference for retail store product assortment and quality* was related to income, sex, religion (as measured by *Religion 1*), religiosity and to four lifestyle profiles (*leadership, knowledge seeker, current affairs* and *optimist*). The  $R^2$  was 0.252 and the adjusted  $R^2$  was 0.242. The F value of 24.878 is highly significant ( $p \leq 0.001$ ), implying that the overall regression is significant. Therefore, it can be concluded that

the combination of predictor variables (income, sex, religion, religiosity and lifestyle profiles) is explaining some of the variation in the *preference for retail store product assortment and quality*. Before examining the coefficients in the equation, the diagnostic tests for the assumptions of regression analysis based on the residuals of the model are presented below.

The tests for linearity, homoscedasticity and independence were conducted by examining the studentised residuals plot (Cohen and Cohen, 1983; Hair *et al*, 1998). The tests showed that the residuals were linear, homoscedastic and independent. An examination of the normal probability plot of the standardised residuals showed that the residuals were normally distributed (Appendix 5).

The model was also tested for multicollinearity. The results of the variance inflation factor (VIF) and condition index tests are presented below.

**Table 7.12 Multicollinearity diagnostics (Store product assortment)**

Independent variables	Dependent variable (preference for store product assortment and quality)	
	VIF	Condition Index
Income	1.233	1.000
Sex	1.172	3.223
Religion 2	1.111	5.433
Religiosity	1.241	6.985
Leadership	1.323	7.965
Knowledge seeker	1.397	10.358
Current	1.368	13.433
Optimist	1.296	14.896

Multicollinearity diagnostics, summarised in Table 7.12, demonstrate that the maximum values of the VIF do not reach more than 1.4. Therefore, the values were well below the threshold value of 10, which is used to indicate the presence of multicollinearity (Hair *et al*, 1998). None of the condition indices were higher than 15, which could be associated with high variance proportions above 0.90. Therefore, it can be concluded that multicollinearity was not a problem in the model.

The above discussion summarised the tests for potential violations in OLS assumptions. The residuals showed that the assumptions of linearity, homoscedasticity, independence and normality of residuals were met in the estimation (Hair *et al*, 1998). Furthermore, there was no evidence of multicollinearity. Therefore it implies that the model can now be interpreted.

The results in Table 7.10 showed that (1) income, and two lifestyle profiles (*knowledge seeker* and *current affairs*) were significant at the 0.001 level, (2) the religious affiliation dummy variable *Religion 2*, religiosity and *leadership lifestyle profile* were significant at the 0.01 level and (3) sex and *optimist lifestyle profile* were significant at the 0.05 level. The *preference for retail store product assortment and quality* was positively related to income (0.354), implying that higher income earners have higher *preference for retail store product assortment* than lower income earners. The positive coefficient on sex (0.446) indicated that female respondents have higher *preference for retail store product assortment* than male respondents.

The coefficients on the lifestyle profiles can be interpreted as follows. Respondents who rank high on the leadership scale tend to have a higher *preference for retail store product assortment and quality* than those respondents who ranked lower on the leadership scale because of the positive coefficient on leadership (0.140). Respondents who are more knowledge seeking have a higher *preference for retail store product assortment and quality* than those who were less knowledge seeking (0.224). Respondents who are more interested in current affairs tend to have a higher *preference for retail store product assortment and quality* than those who are less interested in current affairs as indicated by the positive coefficient on the current affairs lifestyle variable (0.695). The coefficient on the *optimist lifestyle* variable (0.175) implies that individuals who have a more *optimistic lifestyle profile* have a higher *preference for retail store product assortment and quality* than those with a less *optimistic lifestyle profile*.

Both religiosity and religious affiliation had an influence on the *preference for retail*

*store product assortment and quality*, despite the presence of extraneous variables like income, sex and lifestyle profiles. Religiosity was negatively related to the *preference for retail store product assortment and quality* (-0.542), implying that individuals who are more religious tend to have a lower *preference for retail store product assortment and quality* than those who are less religious. This confirms previous findings from the ANOVA and *chi-square* tests that casually religious respondents have a higher *preference for retail store product assortment and quality* than devout respondents. The negative relationship between the first religious affiliation dummy (*Religion 1*) and *preference for retail store product assortment and quality* implies that Catholic shoppers tend to have a higher *preference for retail store product assortment and quality* than Hindu shoppers. The relationship between religious affiliation and *preference for retail store product assortment and quality* confirms the earlier findings that differences exist among the three religious groups for the *preference for retail store product assortment and quality*.

Having established that religiosity and religious affiliation significantly determine whether shoppers have a higher or lower *preference for retail store product assortment and quality*, the beta coefficients were estimated in order to determine the relative strength of the relationships by controlling for the extraneous variables. The equation below shows the standardised beta coefficients, estimated by regression analysis.

<p><b>Preference for retail store</b>  <b>product assortment and quality = 0.145 Income + 0.072 Sex– 0.185 Religion1-0.242 Religiosity</b>  <b>+ 0.110 Leadership + 0.141 Knowledge seeker</b>  <b>+ 0.318 Current affairs + 0.096 Optimist</b></p>
---

In the above equation, the absolute value of the beta coefficient for the *current affairs lifestyle profile* is highest (0.318). The beta coefficient for religiosity has the second highest value (-0.242), followed by the beta coefficient for the first religious affiliation dummy variable *Religion 1* (-0.185). Income (0.145) and *knowledge seeker lifestyle profile* (0.141) were weaker predictors than *current affairs lifestyle profile*, religiosity and religious affiliation but were relatively stronger predictors than the *leadership lifestyle profile* (0.110), *optimist lifestyle profile* (0.096) and sex (0.072).

Therefore, it can be concluded that, (1) both religiosity and religious affiliation are determinants of the *preference for retail store product assortment and quality*, despite the presence of the extraneous variables (lifestyle, sex and income) from Table 7.10, and (2) although the *current affairs lifestyle profile* is the strongest predictor variable, religiosity and religious affiliation are strong predictors of this retail store preference relative to the extraneous variables, income, sex and lifestyle.

### 7.8.3 Store credit availability (Equation 3)

<p><b>Preference for retail store credit availability = -0.147 Leadership + 0.192 Community conscious + 0.177 Knowledge seeker + 0.208 Optimist</b></p>
---

Equation 3, in Table 7.10, shows the relationship between *preference for retail store credit availability* and the predictor variables. The equation showed that *preference for retail store credit availability* was related to four lifestyle profiles (*Leadership*,

*community conscious, knowledge seeker and optimist*). The  $R^2$  was 0.096 and the adjusted  $R^2$  was 0.089. The F value of 12.180 is highly significant ( $p \leq 0.001$ ), implying that the overall regression is significant. Therefore, it can be concluded that the combination of predictor variables (lifestyle profiles) is explaining some of the variation in *preference for retail store credit availability*. Before examining the coefficients in the equation, the diagnostic tests for the assumptions of regression analysis based on the residuals of the model are presented below.

The tests for linearity, homoscedasticity and independence were conducted by examining the studentised residuals plot (Cohen and Cohen, 1983; Hair *et al*, 1998). The tests showed that the residuals were linear, homoscedastic and independent. An examination of the normal probability plot of the standardised residuals showed that the residuals were normally distributed (Appendix 5).

The model was also tested for multicollinearity. The results of the variance inflation factor (VIF) and condition index tests are presented below.

**Table 7.13 Multicollinearity diagnostics ( store credit availability)**

Independent variables	Dependent variable (preference for store credit availability)	
	VIF	Condition Index
Leadership	1.249	1.000
Community conscious	1.058	7.504
Knowledge seeker	1.126	9.562
Optimist	1.174	11.202

Multicollinearity diagnostics, summarised in Table 7.13, demonstrate that the maximum values of the VIF do not reach more than 1.3. Therefore, the values were well below the threshold value of 10, which is used to indicate the presence of multicollinearity (Hair *et al*, 1998). None of the condition indices were higher than 15, which could be associated with high variance proportions above 0.90. Therefore, it can be concluded that multicollinearity was not a problem in the model.

The above discussion summarised the tests for potential violations in OLS assumptions. The residuals showed that the assumptions of linearity, homoscedasticity, independence and normality of residuals were met in the estimation (Hair *et al*, 1998). Furthermore, there was no evidence of multicollinearity. Therefore it implies that the model can now be interpreted.

The results in Table 7.10 show that the lifestyle profiles (*leadership, community conscious, knowledge seeker* and *optimist*) were significant at the 0.001 level.

The coefficients on the lifestyle profiles can be interpreted as follows. Respondents who rank high on the leadership scale tend to have a lower *preference for retail store credit availability* than those respondents who rank low on the leadership scale because of the negative coefficient on leadership (-0.147). Respondents who are more community conscious tend to have a higher *preference for retail store credit availability* than those who are less community conscious as indicated by the positive coefficient on the *community conscious lifestyle profile* (0.192). Respondents who are more knowledge seeking have a higher *preference for retail store credit*

*availability* than those who are less knowledge seeking (0.177). The coefficient on the *optimist lifestyle* variable (0.208) implied that individuals who have a more *optimistic lifestyle profile* have a higher *preference for retail store credit availability* than those with a less *optimistic lifestyle profile*.

The beta coefficients for this retail store preference are presented below.

<p><b>Preference for retail store credit availability = -0.147 Leadership + 0.192 Community conscious + 0.177 Knowledge seeker + 0.208 Optimist</b></p>
---

The above equation suggests that the *optimist lifestyle* was the strongest predictor of *preference for retail store credit availability* as indicated by the beta coefficient (0.208).

It can be concluded that (1) religiosity and religious affiliation were not significant predictors of the *preference for retail store credit availability* from Table 7.10, and (2) the *optimist lifestyle* was the strongest predictor of this retail store preference relative to the other lifestyle variables.

#### 7.8.4 Preference for retail store shopping convenience (Equation 4)

<p><b>Preference for retail store convenience = -0.334 Income + 0.173 Family Size + 0.985 Sex - 1.151 Religion1 + 1.125 Religion2 - 2.184 Religiosity + 0.134 Leadership</b></p>
--

Equation 4, in Table 7.10, shows the relationship between *preference for retail store*

*shopping convenience* and the predictor variables. The equation showed that *preference for retail store shopping convenience* was related to income, family size, sex, religion (as measured by both dummy variables *Religion 1* and *Religion 2*), religiosity and to the *leadership lifestyle profile*. The  $R^2$  was 0.156 and the adjusted  $R^2$  was 0.146. The F value of 15.603 is highly significant ( $p \leq 0.001$ ), implying that the overall regression is significant. Therefore, it can be concluded that the combination of predictor variables (income, family size, sex, religion, religiosity and lifestyle profile) is explaining the variation in the *preference for retail store shopping convenience*. Before examining the coefficients in the equation, the diagnostic tests for the assumptions of regression analysis based on the residuals of the model are presented below.

The tests for linearity, homoscedasticity and independence were conducted by examining the studentised residuals plot (Cohen and Cohen, 1983; Hair *et al*, 1998). The tests showed that the residuals were linear, homoscedastic, and independent. An examination of the normal probability plot of the standardised residuals showed that the residuals were normally distributed (Appendix 5).

The model was also tested for multicollinearity. The results of the variance inflation factor (VIF) and condition index tests are presented in table 7.14.

**Table 7.14 Multicollinearity diagnostics (store convenience)**

Independent variables	Dependent variable (preference for store convenience)	
	VIF	Condition Index
Income	1.157	1.000
Family size	1.103	2.438
Sex	1.070	4.225
Religion 1	1.403	4.684
Religion 2	1.434	6.445
Religiosity	1.155	7.665
Leadership	1.106	8.161

Multicollinearity diagnostics, summarised in Table 7.14, demonstrate that the maximum values of the VIF do not reach more than 1.5. Therefore, the values were well below the threshold value of 10, which is used to indicate the presence of multicollinearity (Hair *et al*, 1998). None of the condition indices were higher than 15, which could be associated with high variance proportions above 0.90. Therefore, it can be concluded that multicollinearity was not a problem in the model.

The above discussion summarised the tests for potential violations in OLS assumptions. The residuals showed that the assumptions of linearity, homoscedasticity, independence and normality of residuals were met in the estimation (Hair *et al*, 1998). Furthermore, there was no evidence of multicollinearity. This implies that the model can now be interpreted.

The results in Table 7.10 show that (1) income, the religious affiliation dummy variables *Religion 1* and *Religion 2* and religiosity were significant at the 0.001 level, (2) family size was significant at the 0.01 level and (3) sex and *leadership lifestyle profile* were significant at the 0.05 level. The *preference for retail store shopping convenience* was negatively related to income (-0.334), implying that lower income earners have higher *preference for retail store shopping convenience* than higher income earners. Family size was positively related to *preference for retail store shopping convenience* (0.173), indicating that respondents having larger family size tend to have a higher *preference for retail store shopping convenience*. The positive coefficient on sex (0.985) indicated that female respondents have higher *preference for retail store shopping convenience* than male respondents. The positive coefficient on the *leadership lifestyle profile* indicates that respondents who have rank high on the leadership scale tend to have a higher *preference for retail store shopping convenience* than those respondents who rank low on this lifestyle scale.

Both religiosity and religious affiliation were determinants of the *preference for retail store shopping convenience*, despite the presence of extraneous variables like income, sex and lifestyle profiles. Religiosity was negatively related to the *preference for retail store shopping convenience* (-2.184), implying that individuals who are more religious tend to have a lower *preference for retail store shopping convenience* than those who are less religious. This confirms previous findings from ANOVA and *chi-square* tests that casually religious respondents have a higher *preference for retail store convenience* than devout respondents. The negative relationship between the first religious affiliation dummy (*Religion 1*) and *preference for retail store shopping convenience* (-1.15) implies that Catholic shoppers tend to

have a higher *preference for retail store shopping convenience* than Hindu shoppers. The positive relationship between the second religious affiliation dummy (*Religion 2*) and *preference for retail store shopping convenience* implies that Catholic shoppers tend to have a lower *preference for retail store shopping convenience* than Muslim shoppers. The relationship between religious affiliation and *preference for retail store shopping convenience* confirms the earlier findings that differences exist among the three religious groups for the *preference for retail store shopping convenience*.

Having established that religiosity and religious affiliation determine whether shoppers have a higher or lower *preference for retail store shopping convenience*, the beta coefficients were estimated in order to determine the relative strength of the relationships by controlling for the extraneous variables. The equation below shows the standardised beta coefficients, estimated by regression analysis.

<p style="text-align: center;"> <b>Preference for retail store convenience = -0.137 Income + 0.074 Family Size + 0.125 Sex</b>  <b>- 0.194 Religion1 + 0.114 Religion2</b>  <b>- 0.298 Religiosity+ 0.082 Leadership</b> </p>
---

In the above equation, the absolute value of the beta coefficient for the religiosity variable is highest (-0.298). The beta coefficient for the first religious affiliation dummy variable *Religion 1* was second (-1.94), followed by the beta coefficient for *Religion 2* (0.144). Income (-0.137), sex (0.125), *leadership lifestyle profile* (0.082)) and family size (0.074) were comparatively weaker predictors of the *preference for retail store shopping convenience*.

Therefore, it can be concluded that (1) both religiosity and religious affiliation are predictors of the *preference for retail store shopping convenience*, despite the presence of the extraneous variables (lifestyle, sex, family size and income), and (2) religiosity and religious affiliation are the strongest predictors of this retail store preference relative to the extraneous variables, income, sex, family size and lifestyle.

#### 7.8.5 Preference for retail store attractiveness (Equation 5)

<p style="text-align: center;"> <b>Preference for retail store attractiveness = -0.960 Marital Status 2 + 0.188 Family Size</b>  <b>+ 1.170 Sex - 0.867 Religion1 + 0.746 Religion2</b>  <b>- 2.358 Religiosity + 0.324 Optimist</b> </p>
---

Equation 5, in Table 7.10, shows the relationship between *preference for retail store attractiveness* and the predictor variables. The equation showed that *preference for retail store attractiveness* was related to marital status (as measured by dummy variable *marital status 2*), family size, sex, religion (as measured by both dummy variables *Religion 1* and *Religion 2*), religiosity and *optimist lifestyle profile*. The  $R^2$  was 0.161 and the adjusted  $R^2$  was 0.152. The F value of 15.219 is highly significant ( $p \leq 0.001$ ), implying that the overall regression is significant. Therefore, it can be concluded that the combination of predictor variables (marital status, family size, sex, religion, religiosity and lifestyle) is explaining some of the variation in the *preference for retail store attractiveness*. Before examining the coefficients in the equation, the diagnostic tests for the assumptions of regression analysis based on the residuals of the model are presented below.

The tests for linearity, homoscedasticity and independence were conducted by examining the studentised residuals plot (Cohen and Cohen, 1983; Hair *et al*, 1998). The tests showed that the residuals were linear, homoscedastic and independent. An examination of the normal probability plot of the standardised residuals showed that the residuals were normally distributed (Appendix 5).

The model was also tested for multicollinearity. The results of the variance inflation factor (VIF) and condition index tests are presented in table 7.15.

**Table 7.15 Multicollinearity diagnostics (store attractiveness)**

Independent variables	Dependent variable (preference for store attractiveness)	
	VIF	Condition Index
Marital status 2	1.127	1.000
Family size	1.096	2.532
Sex	1.122	4.225
Religion 1	1.394	6.445
Religion 2	1.405	7.423
Religiosity	1.148	10.123

Multicollinearity diagnostics, summarised in Table 7.15, demonstrate that the maximum values of the VIF do not reach more than 1.5. Therefore, the values were well below the threshold value of 10, which is used to indicate the presence of multicollinearity (Hair *et al*, 1998). None of the condition indices were higher than 15, which could be associated with high variance proportions above 0.90. Therefore,

it can be concluded that multicollinearity was not a problem in the model.

The above discussion summarised the tests for potential violations in OLS assumptions. The residuals showed that the assumptions of linearity, homoscedasticity, independence and normality of residuals were met in the estimation (Hair *et al*, 1998). Furthermore, there was no evidence of multicollinearity. Therefore it implies that the model can now be interpreted.

The results in Table 7.10 show that (1) the religious affiliation dummy variables *Religion 1* and *Religion 2*, religiosity and *the optimist lifestyle profile* were significant at the 0.001 level, (2) sex was significant at the 0.01 level and (3) marital status and family size were significant at the 0.05 level. The *preference for retail store attractiveness* was negatively related to the marital status dummy variable (*Marital status 2*) (-0.334), implying that married respondents have a higher *preference for retail store attractiveness* than divorced respondents. Family size was positively related to *preference for retail store attractiveness* (0.188), indicating that respondents having larger family size tend to have a higher *preference for retail store attractiveness*. The positive coefficient on sex (1.174) indicated that female respondents have higher *preference for retail store attractiveness* than male respondents. Respondents who have a more *optimist lifestyle profile* have a higher *preference for retail store attractiveness* than those with a less *optimist lifestyle profile*.

Both religiosity and religious affiliation influenced the *preference for retail store attractiveness*, despite the presence of extraneous variables like marital status, family

size, sex and lifestyle. Religiosity was negatively related to the *preference for retail store attractiveness* (-2.358), implying that individuals who are more religious tend to have a lower *preference for retail store attractiveness* than those who are less religious. This confirms previous findings from ANOVA and *chi-square* tests that casually religious respondents have a higher *preference for retail store attractiveness* than devout respondents. The negative relationship between the first religious affiliation dummy (*Religion 1*) and *preference for retail store attractiveness* (-0.867) implies that Catholic shoppers tend to have a higher *preference for retail store attractiveness* than Hindu shoppers. The positive relationship between the second religious affiliation dummy (*Religion 2*) and *preference for retail store attractiveness* implies that Catholic shoppers tend to have a higher *preference for retail store attractiveness* than Muslim shoppers. The relationship between religious affiliation and *preference for retail store attractiveness* confirms the earlier findings that differences exist among the three religious groups for the *preference for retail store attractiveness*.

Having established that religiosity and religious affiliation significantly determine whether shoppers have a higher or lower *preference for retail store attractiveness*, the beta coefficients were estimated in order to determine the relative strength of the relationships by controlling for the extraneous variables. The equation below shows the standardised beta coefficients, estimated by regression analysis.

$$\begin{aligned} \text{Preference for retail store attractiveness} = & -0.074\text{Marital Status 2} + 0.095 \text{ Family Size} \\ & + 0.081 \text{ Sex} - 0.173\text{Religion1} + 0.108 \text{ Religion2} \\ & - 0.345 \text{ Religiosity} + 0.060 \text{ Optimist} \end{aligned}$$

In the above equation, the absolute value of the beta coefficient for the religiosity variable is highest (-0.345). The beta coefficient for the first religious affiliation dummy variable, *Religion 1*, was second (-0.173), followed by the beta coefficient for *Religion 2* (0.108). Family size (0.095), sex (0.081), *Marital status 2* (0.074) and optimist lifestyle profile (0.060) were relatively weaker predictors of the *preference for retail store attractiveness*.

Therefore, it can be concluded that, (1) both religiosity and religious affiliation have an influence on the *preference for retail store attractiveness*, despite the presence of the extraneous variables (sex, family size, marital status and lifestyle) from Table 7.10, and (2) religiosity and religious affiliation are strongest predictors of this retail store preference relative to the extraneous variables, marital status, sex, family size and lifestyle.

#### 7.8.6 Summary of multiple regression analysis

The use of multiple regression analysis has demonstrated that:

1. Religious affiliation has an influence on most retail store preferences analysed above: namely *preference for store efficiency, preference for store product assortment and quality, preference for store shopping convenience and preference for store attractiveness*.
2. Religious affiliation is a strong predictor of retail store preferences, compared to

extraneous variables, as shown by the beta coefficients associated with the religious affiliation dummy variables in the equations shown above.

3. Religiosity has an influence on most of the retail store preferences analysed above: namely *preference for store efficiency, preference for store product assortment and quality, preference for store shopping convenience and preference for store attractiveness.*
4. Religiosity is a strong predictor of retail store preferences, compared to extraneous variables, as shown by the beta coefficients associated to the religiosity variable in the equations shown above.

The following hypotheses were tested in this section:

**H3<sub>0</sub>: There is no significant difference in preferences for retail store attributes between highly religious consumers and non-religious consumers.**

**H3<sub>1</sub>: There is a significant difference in preferences for retail store attributes between highly religious consumers and non-religious consumers.**

**H4<sub>0</sub>: There is no significant difference in preferences for retail store attributes among Hindus, Muslims and Catholics.**

**H4<sub>1</sub>: There is a significant difference in preferences for retail store attributes among Hindus, Muslims and Catholics.**

Therefore it can be concluded that

1. The null hypothesis that “retail store preferences do not differ significantly among the three religious groups” is rejected.
2. The null hypothesis that “there is no significant difference between the retail store preferences of highly religious and that of non-religious respondents” is rejected.

### **7.9 External information search**

The third part of the analysis of the data questionnaire deals with the final aspect of consumer behaviour selected for this study; that of consumer external information search. Understanding how consumers acquire information is important for marketing management decisions because information search represents the primary stage at which marketing can provide information and influence consumers' decisions (Srinivasan, 1990; Wilkie and Dickson, 1985). Information search constitutes the major component of the basic model of consumer behaviour (Howard and Sheth , 1969; Engel, Kollat and Blackwell, 1978) and has been found to be influenced by religious affiliation and religiosity among Jews and Catholics (Delener, 1989; Hirschman, 1982). Therefore in this study, the relationship between (1) religiosity and (2) religious affiliation and external information search has been investigated.

*Chi-square* tests and one-way-ANOVA were used to determine whether significant differences existed between (1) religious affiliation and (2) religiosity and external information search. Multiple regression analysis was used to determine whether the two independent variables were good predictors of external information search in the presence of extraneous variables, demographics and lifestyle.

Responses to three questions were used in order to find out whether differences existed in the external search for information among the three religious groups for all three products: TV set, rice and soft drink. Respondents were asked (1) whether they seek information from friends before purchase, (2) whether they seek information at all and (3) whether they search the media for information before purchase. A reliability test was undertaken for responses to the three questions for each product. The alpha-coefficient for TV set was 0.80, for rice was 0.68 and for soft drink was 0.72. Given the high values of coefficient of alpha (Nunally, 1967) a summated scale (see Section 5.6.5.3) was constructed for external information search for each product ranging from “high to low”. Scores above the median were considered *high*, scores below the median were considered as *low* and median scores were considered as *average*.

The next step in the analysis was to cross-tabulate the external information search variable for each product with (1) religious affiliation and (2) religiosity, to determine whether significant differences existed among the three religious groups. The *chi-square* statistic was used as a test of significance. The conditions that apply to a *chi-square* test as discussed in Section 5.4.1 were fulfilled given that the sample was randomly selected and the expected cell frequencies were greater than five

(Hays, 1988).

### 7.9.1 Cross-tabulations and *chi-square* tests

**Table 7.16 Differences in external information search among religious groups**

<i>TV set</i>	External information search		
	Low	Average	High
<b>Religious affiliation<sup>1</sup></b>			
Hindu	37.6%	17.4%	45.0%
Muslim	37.4%	16.2%	46.4%
Catholic	24.0%	22.0%	54.0%
<b>Religiosity<sup>2</sup></b>			
Casually religious	25.4%	21.8%	52.8%
Devout	41.1%	15.8%	43.1%
<b>Rice</b>			
<b>Religious affiliation<sup>3</sup></b>	<b>Low</b>	<b>Average</b>	<b>High</b>
Hindu	44.7%	13.1%	42.2%
Muslim	40.5%	15.2%	44.3%
Catholic	34.7%	16.1%	49.2%
<b>Religiosity<sup>4</sup></b>			
Casually religious	29.4%	20.2%	50.4%
Devout	43.2%	17.8%	39.0%
<b>Soft drink</b>			
<b>Religious affiliation<sup>5</sup></b>	<b>Low</b>	<b>Average</b>	<b>High</b>
Hindu	40.6%	19.4%	40.0%
Muslim	37.8%	19.8%	42.4%
Catholic	25.0%	23.0%	52.0%
<b>Religiosity<sup>6</sup></b>			
Casually religious	26.0%	23.8%	50.2%
Devout	39.1%	19.8%	41.1%

Note: Significance (p): 1=0.002, 2=0.023, 3=0.015, 4=0.000, 5=0.011, 6=0.000

The new variable representing external information search for each product, explained above, was cross-tabulated with religious affiliation and religiosity to determine whether significant differences existed between (1) religious affiliation and (2) religiosity and external information search. The *chi-square* test results were significant at  $p < .05$ . The findings (Table 7.16) suggest that a larger percentage of

Catholics respondents tend to carry out extensive external information search as compared to Muslims and Hindus for all three products. The findings also suggest that significant differences exist between religiosity and external information search. A larger percentage of casually religious respondents tend to carry out extensive external information search as compared to devout respondents for all three products. Also, among the three products, the findings suggest that the percentage of respondents searching extensively for information was highest for the TV set.

From the cross-tabulation, the amount of external information search seems to be highest for Catholics and casually religious respondents. This pattern is observed across the three products. The responses to the nine questions were all measuring external information search and showed similar patterns in their relationships with religious affiliation and religiosity. A reliability test was carried out among the nine variables to determine whether they could be combined into a single variable for subsequent analysis. Given the high coefficient of alpha of 0.76 (Nunnally, 1967), a new summated scale (see Section 5.6.5.3) was constructed for external information search, ranging from “high, average to low”. This new variable was used for the ANOVA and multiple regression analysis.

### 7.9.2 One-way ANOVA

The next step in the analysis was to carry out one-way ANOVA for the dependent variable (external information search) to confirm that significant differences existed between the different religious groups and between casually religious and devout respondents (Weiss and Hassett, 1991). The requirements for conducting ANOVAs

was discussed in Section 5 and these were fulfilled prior to the tests. The results of the one-way ANOVAs are shown in Table 7.17.

**Table 7.17 One-way ANOVA (external information search)**

	F-statistic	Significance
Religious affiliation	4.176	.081**
Religiosity	8.66	.003*

\* =  $p < .05$ , \*\*  $p < .10$

One-way ANOVA tests revealed that significant differences existed between Hindus, Muslims and Catholics and between casually religious and devout respondents with respect to external information search. The results are summarised in Table 7.17 where

$p < .10$  for both independent variables suggesting that the differences in group means were significant between religious groups and casually religious and devout groups.

Based on the ANOVA results, the next step was to determine whether significant differences existed within each religious group, between (1) casually religious Hindus and devout Hindus, (2) casually religious Muslims and devout Muslims and (3) casually religious Catholics and devout Catholics. Tukey post hoc tests (see Section 6.4.4.1) were carried out to test the difference in means between these groups (Lane, 1993). The results are shown in Table 7.18.

**Table 7.18 ANOVA post hoc tests (external information search)**

	Devout Hindu V/s Casually religious Hindu	Devout Muslim V/s Casually religious Muslim	Devout Catholic V/s Casually religious Catholic	Hindu V/s Muslim	Hindu V/s Catholic	Muslim V/s Catholic
Significance ( $p < .05$ )	.005	.012	.000	.043	.000	.000

The results suggest that a significant difference existed in external information search between casually religious and devout Hindus, casually religious and devout Catholics and between casually religious and devout Muslims. The results also suggest that a significant difference existed in external information search between Hindus and Muslims, Hindus and Catholics and Muslims and Catholics.

### 7.9.3 Multiple regression analysis

The above results suggested that significant differences exist between (1) religiosity, (2) religious affiliation and external information search. The next step was to determine the direction of relationship that exists between (1) religious affiliation, (2) religiosity and external information search. Furthermore the strength of these two relationships was assessed: that is, whether religious affiliation and religiosity are strong predictors of external information search. Multiple regression analysis was used to determine the direction and strength of the relationship between (1) religiosity and external information search and (2) religious affiliation and external information search.

A number of scenarios were tested using the stepwise method so that the model explaining maximum variation of the dependent variable (external information search) could be obtained. This method was used to regress the external information search variable against the independent variables in order to identify the independent variables which explained maximum variation in the dependent variable. Extraneous variables (demographics and lifestyle) were introduced in the regression model in

order to assess whether religiosity and religious affiliation are strong predictors of external information search in the presence of other variables that might influence external information search.

Before carrying out the regression analysis, the data were examined in order to assess whether the basic assumptions underlying the use of OLS regression analysis were observed. First, normality tests were conducted for the external information search variable, since the predictor variables (religious affiliation, religiosity and the extraneous variables) were normally distributed (see Section 6.4.5.2). The normal probability plot of the external information search variable was examined and skewness and kurtosis statistics were estimated. The normality plot showed that the variable was normally distributed. The skewness and kurtosis statistics were in the range  $\pm 2$  and  $\pm 3$  respectively (Appendix 3). According to Muthen and Kaplan (1985) such values indicate that the variables approximate a normal distribution.

Secondly, the relationships among the variables were considered. The correlation matrix was used to determine whether (1) the independent variables were highly correlated among themselves and (2) the independent variables were highly correlated with the external information search. It is important to examine the correlations since they indicate whether the model was properly specified. In the current study, the correlation matrix showed that the correlations among the independent variables were weaker than the correlations between the dependent and independent variables (Appendix 4). Therefore, it can be concluded that the model was correctly specified.

After having ensured that all the assumptions for conducting regression analysis were met, the model was estimated. The independent variables, religiosity, religious affiliation together with the extraneous variables, demographics and lifestyle were regressed against the external information search variable (Table 7.19)

**Table 7.19 Regression coefficients (External information search)**

Independent variables	Unstandardised Coefficients	Standardised beta coefficients
Sex	-.515**	-0.095
Religion1	-0.300*	-0.081
Religion 2	-0.354**	0.137
Religiosity	0.491***	0.140
R <sup>2</sup>	0.105	
Adjusted R <sup>2</sup>	0.096	
F-statistic	15.249***	

Notes: \* p ≤ 0.05, \*\* p ≤ 0.01, \*\*\* p ≤ 0.001

Table 7.19, shows the relationship between external information search and the predictor variables. The equation showed that external information search was related to sex, religion (as measured by the two dummy variables *Religion 1* and *Religion 2*) and religiosity. The R<sup>2</sup> was 0.105 and the adjusted R<sup>2</sup> was 0.096. The F value of 15.249 is significant (p ≤ 0.001), implying that the overall regression is significant. Therefore, it can be concluded that the combination of predictor variables (sex, religion and religiosity) is explaining some of the variation in external information search. Before examining the coefficients in the equation, the diagnostic tests for the assumptions of regression analysis based on the residuals of the model are presented below.

The tests for linearity, homoscedasticity and independence were conducted by examining the studentised residuals plot. The tests showed that the residuals were linear, homoscedastic and independent. An examination of the normal probability plot of the standardised residuals showed that the residuals were normally distributed (Appendix 5).

The model was also tested for multicollinearity. The results of the variance inflation factor (VIF) and condition index tests are presented below.

**Table 7.20 Multicollinearity diagnostics (external information search)**

Independent variables	Dependent variable (external information search)	
	VIF	Condition Index
Sex	1.118	1.000
Religion 1	1.031	1.849
Religion 2	1.388	3.440
Religiosity	1.377	3.955

Multicollinearity diagnostics, summarised in Table 7.20, demonstrate that the maximum values of the VIF do not reach more than 1.4. Therefore, the values were well below the threshold value of 10, which is used to indicate the presence of multicollinearity (Hair *et al*, 1998). It can be concluded that multicollinearity was not a problem in the model.

The above discussion summarised the tests for potential violations in OLS assumptions. The residuals showed that the assumptions of linearity, homoscedasticity, independence and normality of residuals were met in the estimation. Furthermore, there was no evidence of multicollinearity. Therefore it implies that the model can now be interpreted.

The results in Table 7.19 show that (1) religiosity was significant at the 0.001 level, (2) the religious affiliation dummy variable *Religion 2* and sex were significant at the 0.01 level and (3) *Religion 1* was significant at the 0.05 level. External information search was negatively related to sex (-0.515), implying that male respondents tend to carry out more extensive external information than female respondents.

Both religiosity and religious affiliation influenced the extent to which respondents engage in external information search. Religiosity was positively related to the external information search (1.381), implying that individuals who are more religious tend to carry out more extensive external search than those who are less religious. This confirms previous findings from the *chi-square* tests that casually religious respondents are less inclined to search for information than devout respondents. The negative relationship between the first religious affiliation dummy (*Religion 1*) and external information search (-0.300) implies that Catholic shoppers are inclined to search for more information than Hindu shoppers. Furthermore, Catholic shoppers tend to engage in more extensive information search than Muslim shoppers as indicated by the negative coefficient on *Religion 2* (-0.354). The relationship between religious affiliation and external information search confirms the earlier findings that differences exist among the three religious groups for external

information search.

Having established that religiosity and religious affiliation determine whether shoppers engage in more intensive or less intensive external information search, the beta coefficients were estimated in order to determine the relative strength of the relationships by controlling for the extraneous variable. The equation below shows the standardised beta coefficients, estimated by regression analysis.

$$\text{External information search} = -0.095 \text{ Sex} - 0.081 \text{ Religion1} - 0.137 \text{ Religion 2} + 0.140 \text{ Religiosity}$$

In the above equation, the absolute value of the beta coefficient for the religiosity variable is highest (0.140), followed by the beta coefficient for the second religious affiliation dummy variable *Religion 2*, (-0.137). The coefficient on sex (0.095) was larger than the coefficient on the first religious affiliation dummy, *Religion 1* (0.081).

Therefore, it can be concluded that (1) both religiosity and religious affiliation are determinants of external information search despite the presence of the extraneous variable (sex) and (2) religiosity and religious affiliation are the strongest predictors of external information search relative to the extraneous variable sex.

#### 7.9.4 Summary of results for external information search

The use of multiple regression analysis has demonstrated that for all products:

1. Religious affiliation has an influence on consumer information search.

2. Religious affiliation is a strong predictor of consumer information search, compared to the extraneous variables, as shown by the beta coefficients associated to the religious affiliation dummy variable (*Religion 2*) in the equation shown above.
3. Religiosity is a determinant of consumer information search
4. Religiosity is a strong predictor of consumer information search, compared to the extraneous variables, as shown by the beta coefficients associated to the religiosity variable in the equations shown above.

The following hypotheses were tested in this section:

**H5<sub>0</sub>: There is no significant difference in external information search between highly and non-religious consumers.**

**H5<sub>1</sub>: There is a significant difference in external information search between highly and non-religious consumers.**

**H6<sub>0</sub>: External information search does not differ significantly among Hindus, Muslims and Catholics.**

**H6<sub>1</sub>: External information search differs significantly among Hindus, Muslims and Catholics.**

Therefore it can be concluded that

1. The null hypothesis that “external information search does not differ significantly among the three religious groups” is rejected.

2. The null hypothesis that “there is no significant difference between external information search of highly religious and that of non-religious respondents” is rejected.

### **7.10 Conclusion**

This chapter and Chapter Six have illustrated the analysis of data and findings of the current research. The main objective of the analysis was to test the relationships proposed in the hypotheses between the independent variables (religious affiliation and religiosity) and the dependent variables (shopping behaviour, retail store preference and external information search). The hypotheses in this study were that:

**H1<sub>0</sub>: Shopping behaviour does not differ significantly among Hindus, Muslims and Catholics.**

**H1<sub>1</sub>: Shopping behaviour differs significantly among Hindus, Muslims and Catholics.**

**H2<sub>0</sub>: There is no significant difference between the shopping behaviour of highly religious consumers and that of non-religious consumers.**

**H2<sub>1</sub>: There is a significant difference between the shopping behaviour of highly religious consumers and that of non-religious consumers. .**

**H3<sub>0</sub>: There is no significant difference in preferences for retail store attributes between highly religious consumers and non-religious consumers.**

**H3<sub>1</sub>: There is a significant difference in preferences for retail store attributes between highly religious consumers and non-religious consumers.**

**H4<sub>0</sub>: There is no significant difference in preferences for retail store attributes among Hindus, Muslims and Catholics.**

**H4<sub>1</sub>: There is a significant difference in preferences for retail store attributes among Hindus, Muslims and Catholics.**

**H5<sub>0</sub>: There is no significant difference in external information search between highly and non-religious consumers.**

**H5<sub>1</sub>: There is a significant difference in external information search between highly and non-religious consumers.**

**H6<sub>0</sub>: External information search does not differ significantly among Hindus, Muslims and Catholics.**

**H6<sub>1</sub>: External information search differs significantly among Hindus, Muslims and Catholics.**

First, hypotheses H1 and H2 were tested. This was done by, first, factor analysing shopping behaviour variables and by extracting seven factors to represent seven

shopper profiles. These factors were named *demanding, practical, trendy traditional, economic, thoughtful* and *innovative shopper types* and represented the shopping behaviour of respondents. Religiosity and religious affiliation were then cross-tabulated with the seven shopper types. *Chi-square* tests revealed that shopping behaviour differed significantly among the three religious groups - Hindus, Muslims and Catholics - and between casually religious and devout respondents.

The results suggested that casually religious consumers were more concerned with the quality and nutritional value of rice compared to devout consumers. Casually religious consumers looked out for price deals, promotions and the availability of credit and were therefore more practical in their shopping behaviour. Casually religious consumers were also trendier in their shopping behaviour than their devout counterparts as they attached a lot of importance to brand names and bought up-market brands. They were also more innovative as they were willing to try any product once and not to stick to one brand.

Casually religious Catholic respondents were more demanding, practical and trendy in their shopping behaviour compared to their devout counterparts. They attached more importance to quality, would look for stores with price deals and where credit was available and purchased to a greater extent up-market brands as compared to devout Catholics.

Catholics were more demanding, traditional and thoughtful in their shopping behaviour compared to Hindus and Muslims. Catholics were more demanding in their shopping behaviour in that they attached more importance to quality of

products, nutritional value of products and quality of service in retail stores compared to Hindus and Muslims. Catholic shoppers were more traditional in their shopping behaviour in that they believed that advertising is truthful and they always searched the media for bargains as compared to Hindus and Muslims. Catholics were more thoughtful in their shopping behaviour than Hindus and Muslims in that they seek other people's advice before making a purchase and they take advantage of bargains.

Muslims were found to be more practical and innovative in their shopping behaviour than Hindus and Catholics. Muslims were found to be more practical in their shopping behaviour than Catholics and Hindus in that Muslims attach more importance to price deals, promotions and store credit facilities than Catholic and Hindu shoppers. Muslim shoppers were more innovative in that they would try any new product once, would not favour any specific brand and would not wait for other consumers to try a product before they do.

MANOVA was then performed to test whether overall a significant difference existed between (1) religious groups and (2) devout and casually religious respondents and shopping behaviour. The results showed that, taken together, these shopper profiles provided stronger evidence of significant differences between highly religious and non-religious consumers and among Hindus, Muslims and Catholics. As a follow up to MANOVA, ANOVA tests were carried out and demonstrated that for each shopper type, significant differences exist (1) among Hindus, Muslims and Catholics and (2) between casually religious and devout respondents within each religious group. Post hoc tests confirmed these differences. Each shopper type was

then regressed against the two independent variables together with extraneous variables; demographics and lifestyle. Lifestyle profiles were obtained by factor analysing a number of lifestyle variables from which six lifestyle profiles were extracted. Multiple regression analysis revealed that religiosity and religious affiliation were strong and significant predictors of shopping behaviour (measured by shopper types) relative to the extraneous variables.

The same procedures were then carried out to test hypotheses H3 and H4. Six factors were extracted by factor analysing retail store preference variables and named *preference for store efficiency, preference for store product assortment and quality, preference for store credit availability, preference for store convenience and preference for store attractiveness*. Chi-square tests, MANOVA and ANOVA revealed that significant differences existed between the retail store preferences and the two independent variables (religiosity and religious affiliation). Multiple regression analysis established that religiosity and religious affiliation were strong predictors of retail store preferences relative to the extraneous variables.

Finally, hypotheses H5 and H6 were tested. Significant differences were found between external information search of casually religious respondents and devout respondents. Differences were also found between Hindus, Muslims and Catholics in their external information search. Multiple regression analysis established that religiosity and religious affiliation were strong predictors of information search relative to the extraneous variables.

Based on the above results, hypotheses H1, H2, H3, H4, H5, and H6 were rejected. The rejection of the hypotheses from the data analysis in Chapters Six and Seven raises a number of interesting issues regarding the influence of religiosity and religious affiliation on consumer behaviour. The interpretation of these findings and possible conclusions that can be drawn from the analysis are discussed in Chapter Eight.

## **CHAPTER EIGHT**

### **DISCUSSION OF FINDINGS AND CONCLUSIONS**

#### **8.1 Introduction**

In Chapters Seven and Eight, the data collected from the survey were analysed in order to establish whether the null hypotheses proposed in this study could be rejected. A number of bivariate and multivariate statistical techniques were used to test the hypotheses and it was concluded that all six hypotheses should be rejected because (1) significant differences were found between Hindus, Muslims and Catholics and between devout and casually religious consumers in terms of their shopping behaviour, retail store preference and external information search; and (2) religiosity and religious affiliation were found to influence selected aspects of consumer behaviour. In this chapter, the results of the analyses are discussed and conclusions are derived in line with the objectives of the study.

The chapter begins with a summary of the research, followed by a discussion of the influence of religiosity and religious affiliation on each aspect of consumer behaviour analysed in this study. The implications and contributions of this study to the field of consumer behaviour are also discussed. The chapter concludes with a discussion of the limitations of this study and the avenues it offers for further research.

## **8.2 Summary of the Research**

This research was an exploratory study of the influence of religion on consumer behaviour. Very few studies provide evidence of the relationships between religion and consumer behaviour. In the literature, religion has been studied from two main perspectives: religious affiliation and religiosity. Religious affiliation is the adherence of individuals to a particular religion while religiosity is the degree of belief in one's religion. The main objective of this study was, therefore, to fill the gap in the literature by developing a methodology to investigate whether religious affiliation and religiosity have a significant influence on consumer behaviour. Three aspects of consumer behaviour were tested: namely, shopping behaviour, retail store preference and external information search. A substantial number of previous research studies, some from the marketing literature and some from the psychological and sociological literature, provided a logical basis for anticipating that religiosity and religious affiliation would be significantly related to consumer behaviour.

This research started with a detailed review of the theoretical literature and existing empirical findings on religious affiliation and religiosity which was discussed in Chapter Two. Firstly, religion as a component of culture was reviewed in order to identify cultural studies which included religion as a construct. It was found that most studies on culture and consumer behaviour focused on either cultural values or ethnicity. Secondly, a review of the literature on religious affiliation was carried out and showed that few studies had investigated the influence of religious affiliation on

consumer behaviour (Hirschman, 1983; Thompson and Raine, 1990; Sood and Nasu, 1995). Since it was noted that most of these studies focused on the Judeo-Christian religious groups (Jews, Protestants and Catholics), three different religious groups - Hindus, Muslims and Catholics - were selected for the purpose of the current study. Thirdly, the literature on religiosity was reviewed. It was found that religiosity has an influence on the lifestyle and general behaviour of individuals (McCain, 1979; Barton and Vaughn, 1976; Eysenck, 1970; Hamby, 1973). The few studies, which had investigated the relationship between religiosity and consumer behaviour, were identified and discussed (Delener, 1986, 1989, 1990, 1994; La Barbera, 1987; La Barbera and Gurhan, 1997; McDaniel and Burnett, 1990; Sood and Nasu, 1995; Wilkes *et al*, 1986). Fourthly, a review of the measurement of religiosity in the literature was conducted. As a result of this review, it was decided to select a multi-dimensional measure of religiosity for the current study. This is because a uni-dimensional measure using church attendance alone as a measure of religiosity was deemed inadequate by a number of researchers (Allport, 1950, 1954; Fichter, 1954; King and Hunt, 1972; Lenski, 1961; Stark and Glock, 1968). The specific scale chosen was the Religious Orientation Scale by Allport and Ross (1967).

The next stage in the literature review was a discussion of the basic beliefs and practices of each religious group in order to understand the differences in religious beliefs and to hypothesise how these beliefs could influence purchasing behaviour. This was followed by a discussion of the consumer behaviour variables selected for this study. Shopping behaviour, retail store preference and external information search were the variables selected since they were portrayed as important consumer

behaviour constructs in the literature. Finally, the hypotheses to be tested in this study were developed.

Chapter Three provided an overview of Mauritius, the research setting, with reference to its socio-economic and cultural background. Emphasis was laid on the role of religion in different aspects of Mauritian life and Mauritius was identified as an example of emerging small island economies.

Chapter Four discussed the research design and methodology. The survey method was chosen as the most appropriate data collection technique. The research instrument was developed based on questionnaires used in previous similar studies. The independent variables (religiosity and religious affiliation), the dependent variables (shopping behaviour, retail store preference and external information search) and the extraneous variables were operationalised. Religiosity was measured using the Religious Orientation Scale (Allport and Ross, 1967) and respondents were characterised as either devout or casually religious according to their scores on the scale. Religious affiliation was measured by asking respondents about their adherence to a particular religious faith. The dependent variables were measured using five-point Likert and semantic differential scales. The questionnaire was pilot tested before it was mailed to a representative sample of 1000 heads of household in Mauritius. Six hundred usable questionnaires were obtained.

The statistical techniques employed in this research for analysing the questionnaire data were discussed in Chapter Five. The first part of the chapter looked at the factors influencing the choice of statistical techniques with a view to determining the

appropriate techniques for this study. Four factors were discussed: the analysis objectives, the focus of the analysis, the sample size and type and the measurement of variables. In the second part of the chapter, procedures and assumptions pertaining to univariate (*chi-square* and descriptive statistics) and bivariate (cross-tabulation and ANOVA) techniques used in this study were discussed. In the final part of the chapter, multivariate techniques (factor analysis, MANOVA and multiple regression analysis) were discussed. The procedures and assumptions of each technique followed in this study were highlighted.

Chapters Six and Seven presented the analysis of the survey data. Factor analysis was used to reduce dimensionality of two of the dependent variables (shopping behaviour and retail store preference) and one extraneous variable (lifestyle). Seven factors representing shopping behaviour, five factors representing retail store preference and six factors representing lifestyle were extracted respectively. The dependent variables (factors representing shopping behaviour, factors representing retail store preference and the external information search variable) and the independent variables (religious affiliation and religiosity) were first subjected to *chi-square*, ANOVA and MANOVA tests. Significant differences in shopping behaviour, in retail store preferences and in external information search were found (1) among the three religious groups and (2) between devout and casually religious respondents. Based on these findings, multiple regression analysis was conducted for each dependent variable (factors representing shopping behaviour, factors representing retail store preference and the external information search variable) against independent variables (religiosity and religious affiliation) in the presence of the extraneous variables (factors representing lifestyle and demographic

characteristics). Religiosity and religious affiliation were found to be strong predictors of shopping behaviour, retail store preferences and external information search. A summary and discussion of the findings is presented in the next section.

### **8.3 Summary and discussion of findings**

#### **8.3.1 Religiosity**

Hypotheses H2, H4 and H6 tested the influence of religiosity on the three components of consumer behaviour. An examination of the results indicates support for accepting the three hypotheses. Devout and casually religious consumers seem to have different purchasing behaviours.

The acceptance of the above hypotheses suggests that religiosity is an important influence on consumer behaviour. The findings suggest that members of a religious group differ to the degree in which they believe in their religion as was reflected by their scores on the religious orientation scale. The degree of belief seems to influence their behaviour and it would seem that devout members of a religious group might exhibit completely different behaviours from other members of that religious group in buying situations. This difference in religiosity between casually religious and devout respondents was seen to have an impact on the way they shop, in their preference for retail stores, and in their search for information.

Casually religious respondents were found to differ in their shopping behaviour as compared to their devout counterparts in that they were *trendier* and more *innovative*

in their shopping behaviour. It has been suggested that highly religious individuals tend to be more conservative and traditional (Barton and Vaughan, 1976; Hamby, 1973; Tate and Miller, 1971) and more insightful and mature (Hamby, 1973). This may explain the findings that devout consumers were less *innovative* and *trendy* in their shopping behaviour, as they do not attach much importance to brand name and upmarket brands. They are also more reluctant to try new products and wait for others to try new products before they do.

The findings also suggest that casually religious consumers were more *practical* in their shopping behaviour than devout consumers. The former attach more importance to price deals and credit availability. It has been suggested that highly religious individuals tend to behave in a more disciplined and responsible manner (Hamby, 1973; Wiebe and Fleck, 1980). It has also been suggested that these characteristics might manifest themselves in the importance attached to financial factors involved in the purchase of products: that is cash versus credit and/or level of prices of products in stores. Cash purchases usually require greater self-restraint and discipline than credit purchases. Therefore, highly religious individuals were expected to attach less importance to credit availability as suggested by the findings.

Casually religious consumers were also found to be more *demanding* in their shopping behaviour than devout consumers in that they attached more importance to product quality, nutritional value of products and quality of service. It was suggested that highly religious individuals are more empathetic (Wiebe and Fleck, 1980) and more submissive and trusting (Hamby, 1973; Kahoe 1974, Tate and Miller, 1971),

implying that they would be tolerant in terms of product quality, nutritional value and quality of service. The findings tend to confirm this behaviour.

Casually religious consumers also differed from devout consumers in their retail store preferences. They showed a higher preference for *retail store attractiveness*. It was suggested that highly religious individuals tend to be more conservative and traditional (Barton and Vaughan, 1976; Hamby, 1973; Tate and Miller, 1971) and more insightful and mature (Hamby, 1973) and were therefore expected to attach less importance to store attractiveness criteria such as window display. This was confirmed by the findings.

Background literature pertaining to the expected relationship between religiosity and *retail store efficiency* is not definitive. It was suggested that highly religious individuals, being more conscientious and consistent (Wiebe and Fleck, 1980) and more disciplined and responsible (Hamby, 1973), would attach more importance to *retail store efficiency*. However, this was not found to be true in this study. One explanation, that casually religious consumers were found to attach more importance to *retail store efficiency* instead of devout consumers in the current study, may be attributed to the fact that the latter are also submissive and trusting (Hamby, 1973; Kahoe 1974; Tate and Miller, 1971).

It was also suggested that highly religious individuals would attach less importance to *retail store shopping convenience*, being more empathetic than less religious individuals (Wiebe and Fleck, 1980). This was confirmed by the findings since

casually religious consumers showed a higher preference for *retail store convenience* than devout consumers.

Another finding of this study suggests that casually religious consumers were more likely to search for information than devout consumers. Schaninger and Buss (1984) have shown that consumers with high tolerance for ambiguity and low rigidity are likely to search for more information. Highly religious individuals are characterised by low tolerance for ambiguity and high rigidity as they are more disciplined and responsible (Hamby, 1973) and therefore are less likely to search for information as suggested by Delener (1990). This is confirmed by the findings of this study.

The above results confirm that religiosity has a significant influence on consumer behaviour. They support the findings of studies carried out by Delener (1989), Sood and Nasu (1995), McDaniel and Burnett (1990) and Wilkes *et al* (1986). Moreover, the current study provides additional evidence that religiosity among members of a religious group influence their purchasing behaviour since the results of this study are based on differences among non-Judeo-Christian religions which had not been included in similar previous studies.

### 8.3.2 Religious affiliation

Hypothesis H1, H3 and H5 tested the influence of religious affiliation on the three components of consumer behaviour. An examination of the results indicates support for accepting the three hypotheses. Members of the three religions seem to have different purchasing behaviours.

Consumers of the Catholic faith were reported to be more *thoughtful* in their shopping behaviour as compared to consumers of the Hindu and Islamic faiths. This implies that Catholic shoppers tend to attach more importance to bargains and people's opinions before purchasing products than Hindu and Muslim shoppers. Catholic consumers were also found to be more *traditional* in their shopping behaviour than Hindus and Muslims, implying that they believe that advertisements are truthful and search the media for bargains. Consumers of the Catholic faith were also found to be more *demanding* in their shopping behaviour as compared to consumers from the other two religious groups. The fact that Catholic shoppers were more *demanding* implies that they attach more importance to product quality, nutritional value of products and quality of service.

Catholic shoppers showed greater preference for *retail store product assortment and quality* as compared to Hindu and Muslim consumers. This implies that Catholics showed a higher preference for stores with well-known brands, adequate stock levels and product variety. The findings also suggest that Catholic consumers tend to carry out more extensive external information search compared to Hindus and Muslims.

These findings are fairly consistent with the anticipated differences in purchasing behaviour based on the discussion of the principal beliefs and practices of each of the three religions (Section 2.11). It was also suggested that, because of their religious beliefs, Catholics would tend to prefer products that are more popular and which are well-known brands. Catholics would also search extensively for information and be responsive to advertising, a position consistent with conformity found in their

religion. This was proved to be true in that Catholics were more *demanding*, *thoughtful* and *traditional* in their shopping behaviour and showed greater preference for *retail store product assortment and quality* than Hindus and Muslims.

Muslim consumers were found to be more *practical* and *innovative* in their shopping behaviour than Hindus and Catholics. Muslims were found to be more *practical* in their shopping behaviour than Catholics and Hindus in that they attach more importance to price deals, promotions and store credit facilities than Catholic and Hindu shoppers. Muslim shoppers were more *innovative* in their shopping behaviour in that they would try any new product once, did not favour any specific brand and would not wait for other consumers to try a product before they did.

The results also suggest that Muslim consumers showed greater preference for *retail store shopping convenience* than Hindu and Catholic consumers. Muslim shoppers showed higher preference for retail stores with (1) delivery service facilities, (2) longer opening hours, (3) returned goods policy and (4) low prices. Muslim consumers also showed greater preference for *retail store attractiveness* than Hindu and Catholic consumers. Muslim shoppers showed a higher preference for stores with the following attributes: (1) recommended by friends, (2) location, (3) reputation, (4) window display, (5) store advertisement, (6) in-store promotions, and (7) availability of price deals.

In Section 2.11, it was suggested that members of the Islamic faith believe that the outcome of their actions is God's will, and it was suggested that Muslims would be great risk takers and innovators. They would therefore try out new brands or new

retail stores, since the outcome would depend on God's will rather than their own doing. It was also suggested that Muslims would not search extensively for information as the outcome, as they believe, is not affected by their actions. This proved to be the case since Muslims were more *practical* and *innovative* in their shopping behaviour.

It was considered that fatalism and the importance of religious beliefs such as self-control, calmness, detachment and compassion would indicate a relatively passive purchasing behaviour on the part of Hindus. This means that minimum effort would be made by Hindus to acquire new products, to request quality service or low prices. These beliefs would also lead to acceptance of poorer service and higher prices. This is reflected in the findings where Hindu consumers were found to be less *demanding*, less *thoughtful*, less *traditional*, less *practical* and less *innovative* in their shopping behaviour than Muslim and Catholic consumers.

The above results tend to support the findings of a number of studies which looked at the influence of religious affiliation on consumer behaviour. This study corroborates the findings of Hirschman (1983) that differences in consumption patterns can be attributed to religious group membership. This study also confirms the findings of Delener (1989) that external information search varies according to religious affiliation. The differences in retail store preferences among religious groups tend to support the findings of Thompson and Raine (1976) in that different religious groups differ in the importance they attach to store attributes. The current study also confirms the findings of Sood and Nasu (1995) that shopping behaviour differs among religious denominations.

Apart from confirming the findings of a number of studies, this study provides additional evidence of differences in consumer behaviour among three religious groups. Most studies have used Judeo-Christian religions in identifying differences in consumer behaviour (Hirschman, 1983; Delener, 1989 and Thompson and Raine, 1976). This study provides additional contribution by providing evidence that Hindus and Muslims, members of two of the world's largest religions, also differ in their purchasing behaviour in hypothetical buying situations.

### 8.3.3 Religious affiliation and religiosity as predictors of consumer behaviour

Multiple regression analysis results suggested that both religiosity and religious affiliation are predictors of consumer behaviour. However it was found that in certain cases religiosity was the stronger predictor while in other cases religious affiliation was the stronger predictor of the two. Religious affiliation was found to be the stronger predictor for the *practical*, *traditional*, *thoughtful* and *innovative* shopper types while religiosity was found to be the stronger predictor of the two for the *demanding* and *practical* shopper types. Religiosity was found to be the stronger predictor for all retail store preferences and for external information search. This means that in some buying situations, adherence to a particular faith influences the decision to purchase while in other situations, the degree of belief in one's religion is a stronger determinant than one's religious affiliation. The results also suggest that both religiosity and religious affiliation are predictors of shopping behaviour, retail store preference and external information, but this varies according to buying situations.

#### **8.4 Academic contributions**

This research makes several contributions to the literature on the role of religion in consumer behaviour. A number of studies, as discussed in Chapter Two, have investigated the role of culture on consumer behaviour. These studies have concentrated on cultural values of societies, and cross-cultural research has been carried out to compare the purchasing behaviour of consumers from different cultural backgrounds. The influence of culture on consumer behaviour has been amply investigated in the literature and there is strong evidence that culture does influence consumer behaviour since culture is included in most models of consumer behaviour.

However, culture is a broad concept which has been defined and interpreted in a variety of ways. Culture manifests itself in a number of ways through the built environment, art, language, literature, music and religion (Brassington and Pettitt, 2000). This list is not exhaustive, as culture is the personality of a society and therefore could be extended to include sub-cultures, moral values and lifestyles. Given the broad nature of culture, it cannot be studied as one unified concept. The understanding of the influence of culture on any aspect of behaviour therefore requires that its different components be studied individually. This is because the components themselves have a high degree of complexity and because one component may have a stronger influence in determining the orientation of a particular culture. In order to understand behaviour of individuals within society, cultural components have to be isolated and their influence studied closely. Religion is a good example of a complex component of culture and there is still an on-going debate as to a formal definition and measurement of religion in the literature.

The current study is a bold attempt at investigating the influence of religion on consumer behaviour. This is because (1) few studies have looked at religion and marketing and (2) this study endeavours to bridge the gap that exists in the consumer behaviour literature by providing evidence of relationships between religion and some aspects of consumer behaviour. This study has addressed a number of issues regarding religion and consumer behaviour. The findings provide a valuable contribution to the literature as discussed below.

#### 8.4.1 Religion as an important influence on consumer behaviour

The findings of this study provide considerable support for viewing religion as an important construct in the study of consumer behaviour for a number of reasons. Firstly, religion was found to influence the way in which people shop. In the consumer behaviour literature most studies suggest that shopping is influenced by the following factors: the nature of the product, the degree of perceived risk in the product class, the amount of information search, store location, product assortment and store image. It has also been suggested that shoppers are influenced by employment, social, religious, educational and recreational activities. Little research has been carried out to provide empirical evidence that religion influences the way in which people shop. Consequently, there was an inadequate explanation of the role of religion in purchasing situations. This study therefore enhances our understanding of the influence of religion on shopping behaviour because it provides empirical

evidence that consumers are influenced by their religious beliefs and the degree to which they believe in their religion when shopping for a number of products.

Secondly, religion was found to influence consumers' preference for retail store attributes. Although the literature suggests that personal values influence preference for retail store attributes, few studies provide evidence that religion influences retail store preference. The current study has shown that some religious groups attach more importance to certain retail store attributes such as retail store attractiveness or retail store efficiency while other religious groups attach more importance to other retail store attributes. Furthermore, this study has provided evidence that preference for retail store attributes is also a function of the degree to which consumers believe in their religion. No research has explicitly shown that both religious affiliation and religiosity of a particular group of consumers influence their preference for retail store attributes.

Thirdly, little research has been carried out to determine the influence of religion on the consumer decision-making process across a number of products. The limited research has focused on external information search for expensive items of purchase such as a car and/or a microwave (Delener, 1989). Delener (1989) has suggested that the choice of the product may have biased the conclusion that religion influenced external information search. The current study has provided empirical evidence that both religious affiliation and religiosity influence external information search for a number of products which require different levels of involvement.

This study also supports the view of Delener (1990) and Hirschman (1983) that religion and religiosity should be considered as generators of consumption patterns rather than simply as correlates of item purchasing. This view was confirmed from the results of the multiple regression analyses where it was found that both religiosity and religious affiliation are predictors of consumer behaviour. If religion is considered to have a strong influence on consumer behaviour, this important component of culture should therefore be explicitly highlighted in consumer behaviour models as an external influence on the consumer decision-making process.

A number of additional contributions made to the marketing and psychology literature are discussed in the next sections.

#### 8.4.2 Measurement of religiosity

A significant part of this study has been devoted to operationalising the religious construct. After an extensive review of the literature on religion, religiosity was found to be best measured using a multi-dimensional construct rather than a uni-dimensional one. Although church attendance is generally assumed in consumer behaviour sources to predict religiosity, the findings of this study support the view that church attendance alone does not capture the meaning of religiosity nearly as well as when it is combined with other measures such as those used in this study. This tends to support the findings of Wilkes *et al* (1986) in that church attendance alone is not a satisfactory measure of religiosity and that multi-dimensional measures should be adopted. Therefore, while it is easier to obtain data on church attendance, a

more complex measurement of religiosity is suggested such as the Religious Orientation Scale used in this study.

The Religious Orientation Scale has been widely used in more than 70 studies as a reliable measure of religiosity. The scale has again proved to be a reliable measure of religiosity in the current research since a relatively high alpha co-efficient of 0.85 was obtained for the scale indicating a high degree of internal consistency. Moreover, in the current research this scale was used to measure the religiosity of members of two religions, Hindus and Muslims, which had not previously been measured with this scale. The current research therefore contributes to support the Religious Orientation Scale as a reliable measure of religiosity across a number of religions.

#### 8.4.3 Choice of products

One of the major limitations of previous research studies of religion on aspects of consumer behaviour has been the choice of the product category. Delener (1994) and Sood and Nasu (1995) highlight this limitation in their choice of a motorcar and an expensive radio set respectively. These products could be purchased only by a section of the population due to their high price and therefore influenced the results of those studies. In the current study, *three* products were chosen to test purchasing decisions. The products were affordable by all respondents and the purchase of these products was not associated with any one religion. The choice of three products with the above characteristics has allowed the researcher to draw conclusions for this

study using a number of buying situations. This implies that the influence of the religious factor does not restrict itself to a category of products but is significant across a number of products. Moreover, two of the products chosen, rice and TV set, each require different levels of involvement in their purchase, low involvement in the case of rice and higher involvement in the case of the TV set. This further corroborates that religiosity and religious affiliation are influences of purchasing behaviour across a number of buying situations.

#### 8.4.4 Extraneous variables

A number of studies have shown that demographic characteristics and lifestyles have an influence on consumer behaviour (Anderson Jr and Golden, 1984; Lazer, 1963). Given the influence of these variables on religion and religiosity, it was important to control for the lifestyle and demographic variables and to ensure that no multicollinearity existed among the independent variables which could have influenced the outcome of the results. This was achieved by controlling for the extraneous variables, lifestyle and demographics, in multiple regression analysis. The findings of this study have demonstrated that when extraneous variables such as age, sex, occupation, marital status, income and lifestyle are controlled for, religiosity and religious affiliation are still predictors of consumer behaviour. This is considered as an important contribution to the field of consumer behaviour.

#### 8.4.5 Research setting

Among the few studies that have investigated the influence of religion on consumer behaviour, most of them have been carried out in Europe, North America or Japan. No such study had been carried out in a small island economy where a number of different cultures co-habit in diversity. The current research was carried out in Mauritius, a country known for its religious diversity but where there is peaceful co-existence of its inhabitants. It has been argued that despite their religious differences, Mauritians have a national culture (Eriksen, 1998). This study may therefore be considered as an example of a study of religiosity in different religions in the same culture. If this argument stands, then, in the current research, it has been possible to isolate the effect of religion from national background. The results have shown that casually religious members differ from devout members of the same religion in their purchasing behaviour despite belonging to the same culture. Furthermore, members of different religious groups belonging to the same culture also differed in their purchasing behaviour.

#### 8.5 Managerial implications

Marketing strategists who endeavour to understand consumers in a more predictive and comprehensive manner may find it useful to view religious affiliation and religiosity as predictors of consumer behaviour. Enhanced knowledge of religious differences in consumption should have significant impact on the effectiveness of marketing strategies and tactics. The implications of the findings of this study for the

marketer could be realised in many aspects of marketing strategy. These are discussed below.

#### 8.5.1 The marketing mix

The elements of the marketing mix seem to be affected by the religious construct. Consumers from different religious groups were found to attach different amounts of importance to product attributes, pricing, promotion and choice of retail outlets. This means that product positioning, price levels, retail strategies and communication programmes of companies will probably have to be adjusted in certain markets to account for these differences. The marketing mix elements would have to be modified in markets which are made up of a large percentage of casually religious consumers as compared to markets with more devout consumers.

##### *Communication strategy*

Since casually religious consumers are more active in acquiring market information than devout consumers, more aggressive promotional strategies would probably be needed to target the latter. The promotional messages for a product could also be developed, not only to refer to the desirable attributes of the product, but also to enhance the consumption values associated with these product attributes. Religiosity and religious affiliation should also be related to media search of the consumer. Knowing the religious beliefs of consumers in different market segments, marketing strategists should select media appeals which reach and enhance the important religious values of consumers. However marketers need to be careful in formulating

promotional appeals in markets made up of different religious groups so that members of any particular religious group do not feel offended in their beliefs and values. The appropriate communications target should be clearly identified by the marketer so that the needs of diverse religious groups are more effectively satisfied.

### *Product positioning*

Assessment of the religious orientations of consumers should allow the identification of new product opportunities and the repositioning of existing products by marketers. Members of different religious groups were found to attach more importance to certain product attributes as compared to others: for example, in the case of rice, Muslims attached more importance to nutritional value of the product as compared to Hindus and Catholics. Therefore one can project that product perception differs among members of different religious groups. This contention may have a strong bearing on the construction of perceptual maps for a number of products. Perceptual mapping within the product positioning and repositioning process should take into consideration those attributes that appeal to the targeted religious group.

### *Distribution*

The presence of a larger percentage of consumers belonging to a particular religious group in certain markets should influence retail strategies of companies. It was found that religious groups differ in their preference for retail attributes, for example, Catholics showed higher preference for stores with up-market brands and product assortment compared to Hindus and Muslims. Therefore, stores operating in areas

where a large percentage of the population belongs to a particular religious group should provide products and services which appeal to that religious group. Differentiation in retail strategies should also apply to communities and areas where consumers can be categorised as casually religious and devout since these two groups also differed in their retail store preferences.

### 8.5.2 Market segmentation

A consumer's religiosity and religious affiliation may also provide an important basis for segmenting markets. When undertaking market segmentation, a distinction is made between causal and descriptive differences (Engel, Blackwell and Miniard, 1993). Causal differences are those which represent motivating influences which define and shape behaviour. Unless causal differences are identified, effective segmentation is not possible. The most common bases presently used in consumer research are demographics and psychographics and these bases do not take into consideration the religious factor. Since religious differences were found to be predictors of shopping behaviour, information search and retail store preferences, it implies that consumers vary in the criteria by which they evaluate products based upon the religious values by which they were raised. Religion and religiosity would therefore be effective bases for segmenting markets. The marketing strategist could develop programmes and policies that would enhance the important religious values of the consumers in each market segment. Thus, religion can be used as a tool to achieve greater precision and effectiveness in market segmentation.

## **8.6 Limitations of the study**

In interpreting the results of the current study, the limitations discussed below should be taken into consideration.

Since this study was exploratory in nature, more research involving other product categories and countries is required to provide conclusive and generalisable evidence regarding the factors influencing consumer behaviour.

The findings of this study are based on consumer durables and, therefore, may or may not be generalised to include the purchase of services. The definitions of the chosen products (e.g. rice) may not be consistent across countries. This is because in certain countries consumption of rice is associated to a particular culture. This study examines consumption patterns only in Mauritius (predominantly an example of developing economies), and, as such, the findings may not be generalised to other more developed and less developed economies.

The scope of the present study is also limited due to the problems associated with measuring attitudes as opposed to behaviour. Although the research instrument was designed to measure the purchasing behaviour of respondents, the questions addressed their attitudes towards purchase. Inferring that attitudes of respondents towards purchase reflect their behaviour revives the longstanding discussion in consumer behaviour literature as to whether attitudes influence behaviour. In other words, do people really behave the way they say they do? Therefore the findings of this study may contain this inherent limitation.

Owing to its non-experimental nature, it is impossible for this research to rule out completely all extraneous variables that may have had an impact on the dependent variables and to conclude that there are no other factors that influence the selected aspects of consumer behaviour.

Finally, in considering the results of the current study, one should recognise the inherent limitations associated with generalising these findings beyond the sample utilised and its geographic scope.

### **8.7 Avenues for further research**

It is hoped that this research provides a beginning for the understanding of the relationship between religiosity, religious affiliation and consumer behaviour. The research findings suggest that the study of these religious factors hold considerable promise for future research. Based on the results of this exploratory study, religiosity and religious affiliation should be included in future cross-cultural research. One possible extension of this research is the selection of other products and services and to more geographically and demographically diverse research settings.

Other possible extensions of this research would be:

- The study of the influence of religiosity and religious affiliation on other aspects of consumer behaviour such as other stages in the decision-making process, brand preference and internet shopping.

- Research into the influence of religion on purchasing behaviour of sub-cultures, such as the youth culture and the elderly, or into the sub-divisions of religions or caste systems.
- A comparative analysis of the findings of this study with the same or other religions in other countries.

## **8.8 Epilogue**

The main objective of this research was to investigate whether religiosity and religious affiliation have an influence on consumer behaviour. A number of previous studies had provided an indication that these religious factors could have an impact on consumer behaviour. A comprehensive research design and methodology, comprising of a thorough review of the marketing, psychology, sociology and theology literature, design of the research instrument, data collection, analysis and interpretation of findings, was carried out. It is believed that, through this research process, major academic and managerial contributions have been made in understanding the influence of religion on consumer behaviour. It is often argued in the marketing literature that there has been a communications gap between academic consumer specialists and marketing practitioners and that this is a consequence of disagreements among social scientists about the meanings of concepts and their applications (Jenkins, 1972). Consumer researchers have often been accused of becoming too preoccupied with theoretical concepts and misunderstanding the needs of marketing practitioners. Foxall (1974) suggests that three general principles should guide researchers through all stages of their research:

1. Does the concept or technique under study explain an aspect of consumer behaviour which was previously fully or partially unexplained?
2. Does the concept or technique under study have implications for marketing strategy?
3. Does this concept or technique relate aspects of the wider social structure to the individual's socio-psychological make-up and thus help determine consumption choices?

The researcher is of the humble opinion that despite a number of limitations in the current study, these principles have been respected. This research, it is hoped, will provide additional evidence of the relationship between religion and consumer behaviour and will serve as a basis for further research.

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## APPENDIX 1: Mail survey cover letter to respondents.

Nittin Essoo  
19 Meldrum street  
Curepipe Road

Date

Name of respondent  
Address

Dear Sir/Madam

I am a doctoral student at the University of Warwick in the United Kingdom and I am conducting a survey to determine the influence of religion on the purchasing behaviour of consumers in Mauritius. The findings of the survey will be used as data for my doctoral thesis.

Your household is one of a small number in which people are being asked to give information on their purchasing behaviour. It was drawn in a random sample of the whole country. In order that the results may truly represent the thinking of the people of Mauritius, it is important that each questionnaire be completed and returned. Thus, the questionnaire for your household should be completed by the Head of the household; the person who usually takes the purchasing decisions in your household.

You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes only. This is so that we may check your name off the mailing list when your questionnaire is returned. Your name will never be placed on the questionnaire. A self-addressed, stamped envelope is enclosed so that you may return the completed questionnaire. I would be grateful if you could return the questionnaire within two weeks of after you receive it.

The results of this research are expected to contribute to the understanding of consumer behaviour in Mauritius and enable academics and practitioners in the field of marketing to better understand the purchasing behaviour of Mauritian consumers. Your participation will therefore be greatly appreciated.

I would be most happy to answer any questions you might have. I can be reached on telephone number 6961955, by email : [nittin@intnet.mu](mailto:nittin@intnet.mu) or at the address at the top of this letter .

Thank you for your assistance.

Yours sincerely,

Nittin Essoo

## APPENDIX 2: The Questionnaire

### PART I

The questions below refer to your decisions in the purchase of products and services.

**A1. When was the last time you purchased a television set?**

- During the last three months
- During the last six months
- During the last twelve months
- More than a year ago

**A2. When you purchased the television set, how important to you were the following:**

(Please circle the number on the scale, which best fits the importance you attached to each attribute)

		Very unimportant	Unimportant	No opinion	Important	Very important
A1.1	Price	1	2	3	4	5
A1.2	Brand name	1	2	3	4	5
A1.3	Quality of picture	1	2	3	4	5
A1.4	Screen size	1	2	3	4	5
A1.5	Audio ( Mono/ Stereo/Dolby)	1	2	3	4	5
A1.6	Guarantee	1	2	3	4	5
A1.7	Advertising	1	2	3	4	5
A1.8	Reputation	1	2	3	4	5
A1.9	Your previous experience	1	2	3	4	5
A1.10	Friends/colleagues opinions	1	2	3	4	5
A1.11	Country of manufacture	1	2	3	4	5

**A3. Please state your agreement with the following statements relating to the purchase of your TV set.**

**(Please circle the number on the scale, which best describes your agreement to each statement)**

(SA= Strongly Agree, A= Agree, NOP= No opinion, D= Disagree, SD= Strongly Disagree)

	SD	D	NOP	A	SA
I sought my friends' opinions before purchase	1	2	3	4	5
I sought my own information before purchase	1	2	3	4	5
I searched the media for bargains	1	2	3	4	5

**B1. When was the last time you purchased rice?**

- During the last three months
- During the last six months
- During the last twelve months
- More than a year ago

**B2. When you purchased rice, how important were the following:**

**(Please circle the number on the scale, which best fits the importance you attached to each attribute)**

		Very unimportant	Unimportant	No opinion	Important	Very important
B1.1	Price	1	2	3	4	5
B1.2	Brand name	1	2	3	4	5
B1.3	Quality	1	2	3	4	5
B1.4	Taste	1	2	3	4	5
B1.5	Ease of cooking	1	2	3	4	5
B1.6	Versatility in different dishes	1	2	3	4	5
B1.7	Nutritional value	1	2	3	4	5
B1.8	Storage time	1	2	3	4	5
B1.9	Packaging	1	2	3	4	5
B1.10	Pack size	1	2	3	4	5
B1.11	Advertising	1	2	3	4	5
B1.12	Reputation	1	2	3	4	5
B1.13	Your previous experience	1	2	3	4	5
B1.14	Friends/colleagues opinions	1	2	3	4	5
B1.15	Country of origin	1	2	3	4	5

**B3. Please state your agreement with the following statements relating to your purchase of rice.**

**(Please circle the number on the scale, which best describes your agreement to each statement)**

(SA= Strongly Agree, A= Agree, NOP= No opinion, D= Disagree, SD= Strongly Disagree)

	SD	D	NOP	A	SA
I sought my friends' opinions before purchase	1	2	3	4	5
I sought my own information before purchase	1	2	3	4	5
I searched the media for bargains	1	2	3	4	5

**C1. When was the last time you purchased a soft drink?**

- During the last three months
- During the last six months
- During the last twelve months
- More than a year ago

**C2. When you purchased the soft drink, how important to you were the following:**

**(Please circle the number on the scale, which best fits the importance you attached to each attribute)**

		Very unimportant	Unimportant	No opinion	Important	Very important
C1.1	Price	1	2	3	4	5
C1.2	Brand name	1	2	3	4	5
C1.3	Taste	1	2	3	4	5
C1.4	Packaging (bottle or can)	1	2	3	4	5
C1.5	Pack size	1	2	3	4	5
C1.6	Advertising	1	2	3	4	5
C1.7	Reputation	1	2	3	4	5
C1.8	Your previous experience	1	2	3	4	5
C1.9	Friends/colleagues opinions	1	2	3	4	5
C1.10	Country of origin	1	2	3	4	5

**C3. Please state your agreement with the following statements relating to your purchase of the soft drink.**

**(Please circle the number on the scale, which best describes your agreement to each statement)**

(SA= Strongly Agree, A= Agree, NOP= No opinion, D= Disagree, SD= Strongly Disagree)

	SD	D	NOP	A	SA
I sought my friends' opinions before purchase	1	2	3	4	5
I sought my own information before purchase	1	2	3	4	5
I searched the media for bargains	1	2	3	4	5

**D1. The following questions refer to your shopping behaviour.**

**Please circle the appropriate number**

(SA= Strongly Agree, A= Agree, NOP= No opinion, D= Disagree, SD= Strongly Disagree)

	STATEMENTS	SD	D	N OP	A	SA
D1.1	I enjoy shopping	1	2	3	4	5
D1.2	I believe that quality has a high price	1	2	3	4	5
D1.3	I usually seek my friends' opinions before shopping	1	2	3	4	5
D1.4	I tend to shop for necessities only	1	2	3	4	5
D1.5	I seek my own information before shopping	1	2	3	4	5
D1.6	I believe that advertising is truthful	1	2	3	4	5
D1.7	I wait for sales(bargains) to buy a product even if I need it now	1	2	3	4	5
D1.8	I try any new product at least once	1	2	3	4	5
D1.9	I don't like shopping	1	2	3	4	5
D1.10	I stick to the brands that I am happy with	1	2	3	4	5
D1.11	I am the kind of person who usually searches the media for bargains	1	2	3	4	5
D1.12	I wait for others to try a new product before trying it myself	1	2	3	4	5
D1.13	I always tend to buy upmarket, well-known branded products	1	2	3	4	5

## PART II

**E1. When you choose a retail store for your household shopping, how important to you are the following:**

(Please circle the appropriate number)

		Very Important	Important	Neither important nor unimportant	Unimportant	Very Unimportant
E1.1	Level of prices of products in Store	1	2	3	4	5
E1.2	Quality of service of staff	1	2	3	4	5
E1.3	Window display	1	2	3	4	5
E1.4	Reputation of store	1	2	3	4	5
E1.5	Variety of products offered	1	2	3	4	5
E1.6	Availability of well known brands	1	2	3	4	5
E1.7	Availability of product in stock	1	2	3	4	5
E1.8	Location of store	1	2	3	4	5
E1.9	Parking facilities	1	2	3	4	5
E1.10	In-store room or space to move around	1	2	3	4	5
E1.11	Efficient shelving, easy to find items needed	1	2	3	4	5
E1.12	Easy exchange of goods after purchase	1	2	3	4	5
E1.13	Opening hours	1	2	3	4	5
E1.14	Delivery service	1	2	3	4	5
E1.15	Availability of credit	1	2	3	4	5
E1.16	Acceptance of credit cards	1	2	3	4	5
E1.17	Your previous experience	1	2	3	4	5
E1.18	Friends/colleagues opinions	1	2	3	4	5
E1.19	Advertising made by store	1	2	3	4	5
E1.20	Price deals	1	2	3	4	5
E1.21	Promotions offered	1	2	3	4	5

### **PART III**

**F1. Please find below a number of statements about religion. Please state whether you agree or disagree with each one of them on a scale of one to five by circling the appropriate one.**

(SA= Strongly Agree, A= Agree, NOP= No opinion, D= Disagree, SD= Strongly Disagree)

	STATEMENTS	SD	D	N OP	A	SA
F1.1	I enjoy reading about my religion	1	2	3	4	5
F1.2	I go to church/mosque/temple because it helps me make friends.	5	4	3	2	1
F1.3	It does not matter what I believe so long as I am good.	5	4	3	2	1
F1.4	Sometimes I have to ignore my religious beliefs because of what people might think of me	5	4	3	2	1
F1.5	It is important for me to spend time in private thought and prayer.	1	2	3	4	5
F1.6	I would prefer to go to church/mosque/temple. A few times a year.           5 Once every month or two.    4 Two or three times a month.  3 About once a week.           2 More than once a week.       1					
F1.7	I have often had a strong sense of God presence.	1	2	3	4	5
F1.8	I pray mainly to get relief and protection	5	4	3	2	1
F1.9	I try hard to live all my life according to my religious beliefs.	1	2	3	4	5
F1.10	What religion offers me most is the comfort in times of trouble and sorrow.	5	4	3	2	1
F1.11	My religion is important because it answers many questions about the meaning of life	1	2	3	4	5
F1.12	I would rather join a religious study group than a church/mosque/temple social group	1	2	3	4	5
F1.13	Prayer is for peace and happiness.	5	4	3	2	1
F1.14	Although I am religious I don't let it affect my daily life.	5	4	3	2	1
F1.15	I go to church/mosque/temple mostly to spend time with my friends.	5	4	3	2	1
F1.16	My whole approach to life is based on my religion.	1	2	3	4	5
F1.17	I enjoy going to church/mosque/temple because I enjoy seeing people I know there.	5	4	3	2	1
F1.18	I pray chiefly because I have been taught to pray.	5	4	3	2	1
F1.19	Prayers I say when I am alone are as important to me as those I say in church/mosque/temple.	1	2	3	4	5
F1.20	Although I believe in my religion, many other things are more important in life.	5	4	3	2	1

## PART IV

### **G1. Please signify your agreement or disagreement with the following statements.**

(SA= Strongly Agree, A= Agree, NOP= No opinion, D= Disagree, SD= Strongly Disagree)

	STATEMENTS	SD	D	N OP	A	SA
G4.1	I like to attend social events	1	2	3	4	5
G4.2	I will probably have more money to spend next year than I have now	1	2	3	4	5
G4.3	I am actively involved in community work	1	2	3	4	5
G4.4	I think that I have more self confidence than most people	1	2	3	4	5
G4.5	I am member of a social club	1	2	3	4	5
G4.6	I enjoy going to the cinema	1	2	3	4	5
G4.7	I enjoy going to the beach	1	2	3	4	5
G4.8	I am more independent than most people	1	2	3	4	5
G4.9	I believe that every citizen should be aware of international affairs and events	1	2	3	4	5
G4.10	I enjoy eating out	1	2	3	4	5
G4.11	I believe that every citizen should understand the state of the economy of his or her country	1	2	3	4	5
G4.12	Five years from now, my family's disposable income will probably be much higher than it is now	1	2	3	4	5
G4.13	I enjoy reading books	1	2	3	4	5
G4.14	Job satisfaction is more important than financial reward	1	2	3	4	5
G4.15	I enjoy reading the newspaper daily	1	2	3	4	5

## PART V

Please tick the appropriate box.

1. Sex: Male  Female

2. Age:

18-25  26-30  31-35  36-40  41-45   
46-50  51-55  56-60  Above 60

3. Current marital status:

Single  Married  Separated/Divorced  Living with partner

4. To which religious group do you identify yourself with?

Hindu   
Muslim   
Catholic   
Other .....( Please specify)

5. Occupation:

Legislator/Senior Official/Manager   
Professional   
Technician/associate professional   
Clerk   
Service worker/shop, market/sales worker   
Skilled agricultural/fishery worker   
Crafts/related trade worker   
Plant/machine operator/assembler   
Elementary occupation   
Housewife   
Other (Retired, unemployed, etc..)

6. Monthly Household Income

RS 4000<Rs 6000  RS 6000<Rs 8000  Rs8000<Rs10000   
RS 10000<Rs 12000  RS 12000<Rs 14000  RS 14000 and >

7. Family size (All members living under the same roof including children): .....

### APPENDIX 3: Descriptive statistics

#### 1. Religious affiliation

Religion	Hindu	Muslim	Catholic
	54%	13%	33%

The sample was made up of 54% Hindus, 33% Catholics and 13% Muslims.

#### 2. Religiosity

Religiosity scores	Median	Mean	Mode	Minimum	Maximum	Range
	55	54.5	56	29	94	65

The religiosity scores of respondents on the Religious Orientation Scale ranged from 29 to 94. The median was estimated at a score of 55. Respondents scoring above the median score were referred to as casually religious and those scoring below the median score were referred to as devout.

Religiosity	Hindus	Muslims	Catholics	Total
Casually Religious	35 %	73.7%	49.5%	52.7%
Devout	65%	26.3%	50.5%	47.3%

Religiosity was highest among Hindus (65%), followed by Catholics (50.5%) and Muslims (26.3%).

#### 3. Demographic characteristics

Variables	Mean	Standard deviation	Skewness	Kurtosis
Age	(36-45)	1.11	0.24	-1.05
Income	(4000-6000)	1.22	0.63	-0.46

<b>Family size</b>	<b>3.99</b>	<b>1.57</b>	<b>0.73</b>	<b>1.70</b>
<b>Sex</b>	<b>0.69</b>	<b>0.46</b>	<b>-0.81</b>	<b>-1.35</b>
<b>Occupation</b>	<b>7.43</b>	<b>2.95</b>	<b>-0.56</b>	<b>-0.85</b>
<b>Marstat 1</b>	<b>0.04</b>	<b>0.21</b>	<b>2.06</b>	<b>2.98</b>
<b>Marstat 2</b>	<b>0.91</b>	<b>0.27</b>	<b>-1.97</b>	<b>2.97</b>
<b>Marstat3</b>	<b>0.04</b>	<b>0.18</b>	<b>2.02</b>	<b>2.98</b>

#### 4. Independent variables

<b>Variables</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Skewness</b>	<b>Kurtosis</b>
<b>Religiosity</b>	<b>1.47</b>	<b>0.50</b>	<b>0.11</b>	<b>-2.00</b>
<b>Religion 1</b>	<b>0.33</b>	<b>0.47</b>	<b>0.72</b>	<b>-1.48</b>
<b>Religion 2</b>	<b>0.33</b>	<b>0.47</b>	<b>0.71</b>	<b>-1.50</b>

#### 5. Extraneous variables (Lifestyles)

<b>Variables</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Skewness</b>	<b>Kurtosis</b>
<b>Leader</b>	<b>2.06</b>	<b>.075</b>	<b>-0.09</b>	<b>-1.22</b>
<b>Community Conscious</b>	<b>2.77</b>	<b>0.42</b>	<b>-1.25</b>	<b>-0.42</b>
<b>Hedonic</b>	<b>1.76</b>	<b>0.55</b>	<b>-0.06</b>	<b>-0.30</b>
<b>Knowledge-seeking</b>	<b>2.22</b>	<b>0.81</b>	<b>-0.41</b>	<b>-1.35</b>
<b>Current Affairs</b>	<b>2.75</b>	<b>0.45</b>	<b>-1.49</b>	<b>1.03</b>
<b>Optimist</b>	<b>2.27</b>	<b>0.62</b>	<b>-0.25</b>	<b>-0.62</b>

#### 6. Dependent variables (Shopper profiles)

<b>Variables</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Skewness</b>	<b>Kurtosis</b>
<b>Demanding shopper</b>	<b>1.26</b>	<b>0.60</b>	<b>2.06</b>	<b>3.03</b>
<b>Practical shopper</b>	<b>1.36</b>	<b>0.56</b>	<b>1.26</b>	<b>0.62</b>
<b>Trendy shopper</b>	<b>1.54</b>	<b>0.60</b>	<b>0.63</b>	<b>-0.54</b>
<b>Traditional shopper</b>	<b>1.73</b>	<b>0.57</b>	<b>0.06</b>	<b>-0.49</b>
<b>Economic shopper</b>	<b>2.24</b>	<b>0.47</b>	<b>0.61</b>	<b>-0.28</b>
<b>Thoughtful shopper</b>	<b>2.51</b>	<b>0.67</b>	<b>-1.02</b>	<b>-0.15</b>

<b>Innovative shopper</b>	<b>1.78</b>	<b>0.54</b>	<b>-0.11</b>	<b>-0.19</b>
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**7. Dependent variables (Retail store preference)**

<b>Variables</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Skewness</b>	<b>Kurtosis</b>
<b>Store efficiency</b>	<b>2.44</b>	<b>0.68</b>	<b>-0.81</b>	<b>-0.51</b>
<b>Store product assortment</b>	<b>2.68</b>	<b>0.56</b>	<b>-1.58</b>	<b>1.51</b>
<b>Store credit availability</b>	<b>2.03</b>	<b>0.68</b>	<b>-0.04</b>	<b>-0.80</b>
<b>Store convenience</b>	<b>2.53</b>	<b>0.59</b>	<b>-0.86</b>	<b>-0.25</b>
<b>Store attractiveness</b>	<b>2.26</b>	<b>0.55</b>	<b>0.02</b>	<b>-0.42</b>

**8. Dependent variable (External information search)**

<b>Variables</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Skewness</b>	<b>Kurtosis</b>
<b>External information search</b>	<b>3.07</b>	<b>0.58</b>	<b>-0.02</b>	<b>0.12</b>

## APPENDIX 4: Correlation matrices

Correlation matrix - Demographics, lifestyle profiles, religiosity, religious affiliation and external information search

	External information search	Religion1	Religion2	Marstat1	Marstat2	Marstat3	Religiosity	Family size	Occupation	Income	Sex	Age	Leadership lifestyle	Community conscious	Hedonic lifestyle	Knowledge seeker lifestyle	Current affairs lifestyle	Optimistic lifestyle	
External information search	1.000																		
Religion1	0.659	1.000																	
Religion2	0.684	-0.236	1.000																
Marstat1	0.321	-0.047	0.025	1.000															
Marstat2	0.316	-0.002	0.026	0.234	1.000														
Marstat3	0.412	0.028	-0.053	-0.042	-0.231	1.000													
Religiosity	0.697	0.250	-0.276	0.055	-0.082	0.042	1.000												
Family size	0.444	-0.080	0.029	-0.116	0.207	-0.143	0.017	-1.000											
Occupation	-0.359	0.022	0.064	-0.024	-0.078	0.127	-0.134	-0.101	1.000										
Income	0.410	-0.002	-0.063	0.009	0.195	-0.141	0.056	0.245	0.298	1.000									
Sex	0.699	0.158	-0.046	-0.095	0.215	-0.186	0.093	-0.093	-0.233	0.121	1.000								
Age	-0.413	0.072	-0.061	-0.064	0.040	-0.020	-0.122	-0.152	-0.211	-0.191	-0.166	1.000							
Leadership lifestyle	0.331	-0.060	-0.091	-0.085	0.059	0.042	-0.132	0.013	-0.264	0.208	0.079	-0.057	1.000						
Community conscious	0.310	0.057	-0.020	-0.059	0.099	-0.075	-0.163	0.030	-0.160	0.155	0.129	-0.048	0.175	1.000					
Hedonic lifestyle	-0.324	-0.164	0.026	-0.040	-0.052	0.026	0.037	0.053	-0.241	0.211	0.153	-0.235	0.171	0.201	1.000				
Knowledge seeker lifestyle	0.401	-0.106	-0.114	0.077	-0.066	0.046	-0.122	0.174	-0.233	0.223	0.191	-0.195	0.199	0.052	0.213	1.000			
Current affairs lifestyle	0.325	-0.124	-0.101	-0.071	0.092	-0.010	-0.255	0.055	-0.241	0.165	0.222	-0.143	0.211	0.232	0.176	0.274	1.000		
Optimistic lifestyle	-0.321	0.003	0.105	-0.056	0.081	-0.004	-0.251	0.086	-0.158	0.173	0.203	-0.127	0.013	0.154	0.150	0.176	0.226	1.000	

Correlation matrix- shopper types and lifestyle profiles

	Demanding shopper	Practical shopper	Trendy shopper	Traditional shopper	Economic shopper	Thoughtful shopper	Innovative shopper	Leadership lifestyle	Community conscious	Hedonic lifestyle	Knowledgeseeker lifestyle	Current affairs lifestyle	Optimistic lifestyle
Demanding shopper	1.000												
Practical shopper	-	1.000											
Trendy shopper	-	-	1.000										
Traditional shopper	-	-	-	1.000									
Economic shopper	-	-	-	-	1.000								
Thoughtful shopper	-	-	-	-	-	1.000							
Innovative shopper	-	-	-	-	-	-	1.000						
Leadership lifestyle	0.338	-0.643	0.567	0.511	0.364	0.412	0.504	1.000					
Community conscious	0.312	0.564	0.361	0.685	0.593	0.645	0.305	0.175	1.000				
Hedonic lifestyle	0.354	-0.637	0.348	0.546	-0.354	-0.322	-0.348	0.171	0.201	1.000			
Knowledgeseeker lifestyle	0.336	0.325	0.342	0.288	-0.658	0.323	0.423	0.199	0.052	0.213	1.000		
Current affairs lifestyle	0.334	0.623	0.400	0.347	0.542	-0.522	0.399	0.211	0.232	0.176	0.274	1.000	
Optimistic lifestyle	0.382	0.423	0.432	0.341	0.328	0.412	0.356	0.013	0.154	0.150	0.176	0.276	1.000

Correlation matrix - Demographics, religion, religiosity and shopper types

	Religion1	Religion2	Marstat1	Marstat2	Marstat3	Religiosity	Family size	Occupation	Income	Sex	Age	Demanding shopper	Practical shopper	Trendy	Traditional	Economic	Thoughtful	Innovative	
Religion1	1.000																		
Religion2	-0.236	1.000																	
Marstat1	-0.047	0.025	1.000																
Marstat2	-0.002	0.026	0.234	1.000															
Marstat3	0.028	-0.053	-0.042	-0.231	1.000														
Religiosity	0.250	-0.276	0.055	-0.082	0.042	1.000													
Family size	-0.080	0.029	-0.116	0.207	-0.143	0.017	-1.000												
Occupation	0.022	0.064	-0.024	-0.078	0.127	-0.134	-0.101	1.000											
Income	-0.002	-0.063	0.009	0.105	-0.141	0.096	0.245	0.298	1.000										
Sex	0.158	-0.046	-0.095	0.215	-0.186	0.093	-0.093	-0.233	0.121	1.000									
Age	0.072	-0.061	-0.064	0.040	-0.020	-0.122	-0.152	-0.211	-0.191	-0.166	1.000								
Demanding shopper	0.597	0.565	0.331	0.313	-0.364	-0.517	0.359	-0.665	0.675	0.346	0.351	1.000							
Practical shopper	-0.643	0.674	0.316	0.312	0.333	-0.641	0.658	0.514	-0.456	-0.332	0.367		1.000						
Trendy shopper	-0.401	-0.566	0.621	0.339	0.317	-0.491	0.322	-0.337	0.689	0.654	0.521			1.000					
Traditional shopper	-0.599	0.645	0.345	0.322	0.301	-0.355	0.341	-0.461	0.397	0.418	0.354				1.000				
Economic shopper	-0.645	0.354	-0.333	0.346	0.367	-0.366	0.316	-0.444	-0.514	0.677	0.321					1.000			
Thoughtful shopper	0.555	-0.512	0.311	0.323	0.345	-0.576	-0.351	-0.388	0.334	0.317	0.412						1.000		
Innovative shopper	0.542	0.644	-0.399	0.347	0.497	-0.668	0.333	-0.414	0.441	-0.349	0.323								1.000

Correlation matrix- Demographics, religion, religiosity and retail store preferences

	Religion1	Religion2	Marstat1	Marstat2	Marstat3	Religiosity	Family size	Occupation	Income	Sex	Age	Store efficiency	Product assortment	Credit availability	Store convenience	Store attractiveness
Religion1	1.000															
Religion2	-0.236	1.000														
Marstat1	-0.047	0.025	1.000													
Marstat2	-0.002	0.026	0.234	1.000												
Marstat3	0.028	-0.053	-0.042	-0.231	1.000											
Religiosity	0.250	-0.276	0.055	-0.082	0.042	1.000										
Family size	-0.080	0.029	-0.116	0.207	-0.143	0.017	-1.000									
Occupation	0.022	0.054	-0.024	-0.078	0.127	-0.134	-0.101	1.000								
Income	-0.002	-0.063	0.009	0.105	-0.141	0.056	0.245	0.298	1.000							
Sex	0.158	-0.046	-0.095	0.215	-0.186	0.093	-0.093	-0.233	0.121	1.000						
Age	0.072	-0.061	-0.064	0.040	-0.020	-0.122	-0.152	-0.211	-0.191	-0.166	1.000					
Store efficiency	0.425	0.381	-0.332	-0.331	0.401	-0.673	0.429	0.413	0.675	0.625	0.310	1.000				
Product assortment	-0.676	0.342	0.314	0.302	0.389	-0.686	0.412	0.325	0.692	0.649	0.426		1.000			
Credit availability	0.331	0.328	0.328	-0.435	0.411	-0.341	0.336	0.364	0.461	0.583	0.348			1.000		
Store convenience	-0.688	-0.583	-0.376	0.412	0.312	-0.599	0.543	0.400	-0.678	0.601	0.406				1.000	
Store attractiveness	-0.613	-0.672	0.311	-0.652	0.316	-0.652	0.601	.328	0.435	0.661	0.324					1.000

Correlation matrix - retail store preferences and lifestyle

	Store efficiency	Product assortment	Credit availability	Store convenience	Store attractiveness	Leadership lifestyle	Community conscious	Hedonic lifestyle	Knowledgeseeker lifestyle	Current affairs lifestyle	Optimistic lifestyle
Store efficiency	1.000										
Product assortment	-	1.000									
Credit availability	-	-	1.000								
Store convenience	-	-	-	1.000							
Store attractiveness	-	-	-	-	1.000						
Leadership lifestyle	0.452	0.426	-0.532	0.342	0.325	1.000					
Community conscious	0.364	0.331	0.514	0.375	0.411	0.175	1.000				
Hedonic lifestyle	0.343	0.432	0.354	0.412	0.322	0.171	0.201	1.000			
Knowledgeseeker lifestyle	0.524	-0.664	0.336	0.334	0.341	0.199	0.052	0.213	1.000		
Current affairs lifestyle	0.452	0.588	0.421	0.331	0.312	0.211	0.232	0.176	0.274	1.000	
Optimistic lifestyle	0.477	0.377	0.331	0.321	0.588	0.013	0.154	0.150	0.176	0.226	1.000

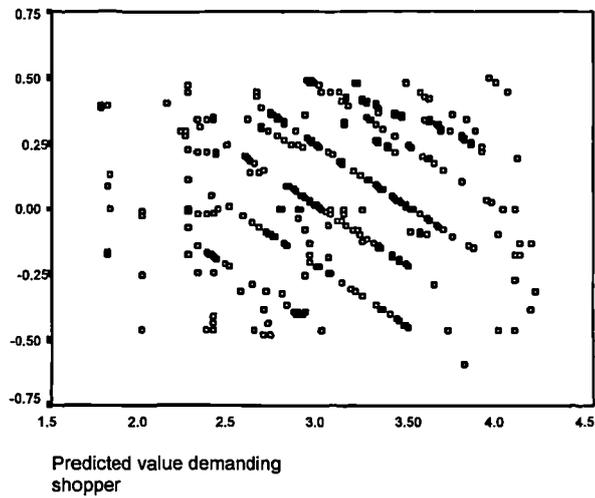
Correlation matrix- Religion, religiosity, lifestyle profiles and demographics

	Religion1	Religion2	Marstat1	Marstat2	Marstat3	Religiosity	Family size	Occupation	Income	Sex	Age	Leadership lifestyle	Community conscious	Hedonic lifestyle	Knowledge seeker lifestyle	Current affairs lifestyle	Optimistic lifestyle
Religion1	1.000																
Religion2	-0.236	1.000															
Marstat1	-0.047	0.025	1.000														
Marstat2	-0.002	0.026	0.234	1.000													
Marstat3	0.028	-0.053	-0.042	-0.231	1.000												
Religiosity	0.250	-0.276	0.055	-0.082	0.042	1.000											
Family size	-0.080	0.029	-0.116	0.207	-0.143	0.017	-1.000										
Occupation	0.022	0.064	-0.024	-0.078	0.127	-0.134	-0.101	1.000									
Income	-0.002	-0.063	0.009	0.105	-0.141	0.056	0.245	0.298	1.000								
Sex	0.158	-0.046	-0.095	0.215	-0.186	0.053	-0.093	-0.233	0.121	1.000							
Age	0.072	-0.061	-0.064	0.040	-0.020	-0.122	-0.152	-0.211	-0.191	-0.166	1.000						
Leadership lifestyle	-0.060	-0.091	-0.085	0.059	0.042	-0.132	0.013	-0.264	0.208	0.079	-0.057	1.000					
Community conscious	0.057	-0.020	-0.059	0.099	-0.075	-0.163	0.030	-0.160	0.155	0.129	-0.048	0.175	1.000				
Hedonic lifestyle	-0.164	0.026	-0.040	-0.052	0.026	0.037	0.053	-0.241	0.211	0.153	-0.235	0.171	0.201	1.000			
Knowledge seeker lifestyle	-0.106	-0.114	0.077	-0.066	0.046	-0.122	0.174	-0.233	0.223	0.191	-0.195	0.199	0.052	0.213	1.000		
Current affairs lifestyle	-0.124	-0.101	-0.071	0.092	-0.010	-0.255	0.055	-0.241	0.165	0.222	-0.143	0.211	0.232	0.176	0.274	1.000	
Optimistic lifestyle	0.003	0.105	-0.056	0.081	-0.004	-0.251	0.086	-0.158	0.173	0.203	-0.127	0.013	0.154	0.150	0.176	0.226	1.000

## APPENDIX 5: Diagnostic tests for multiple regression analysis

### Demanding Shopper Type

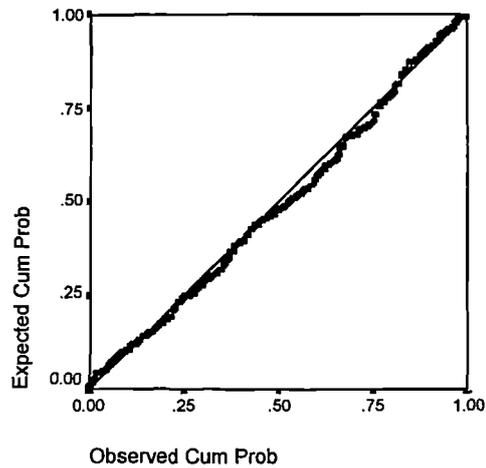
Residuals plot



The residuals show a random pattern, implying that they are homoscedastic and independent.

Normal probability plot

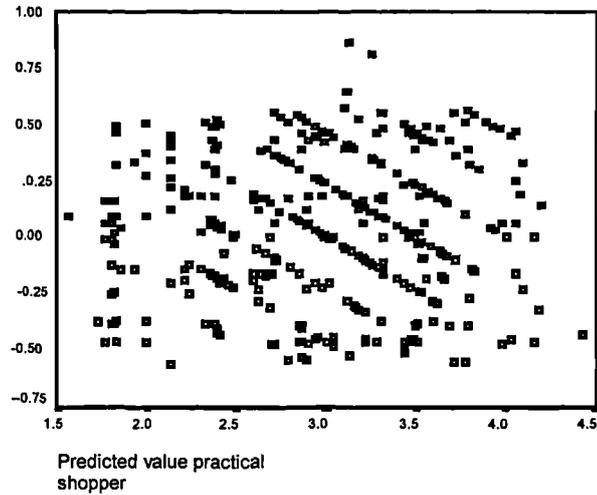
Standardised residuals for demanding shopper



The normal probability plot of the standardised residuals does not show much divergence from the diagonal. Therefore, the residuals approximate the normal distribution.

## Practical Shopper Type

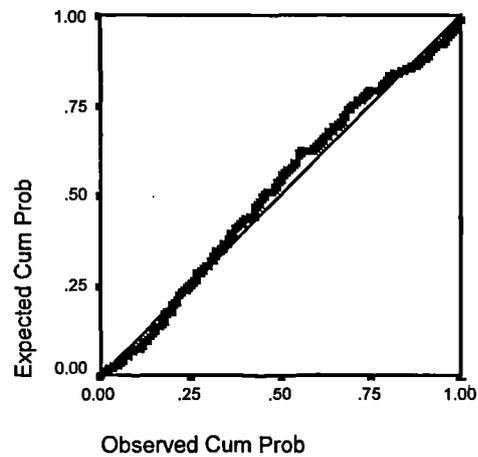
Residuals plot



The residuals show a random pattern, implying that they are homoscedastic and independent.

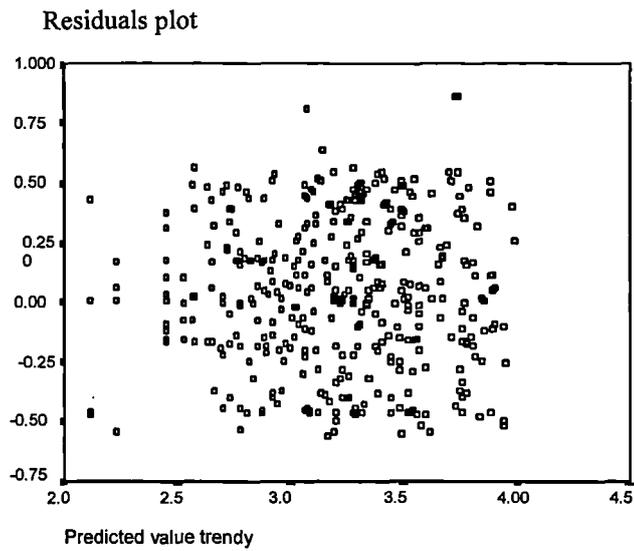
Normal Probability Plot

Standardised residuals: Practical shopper

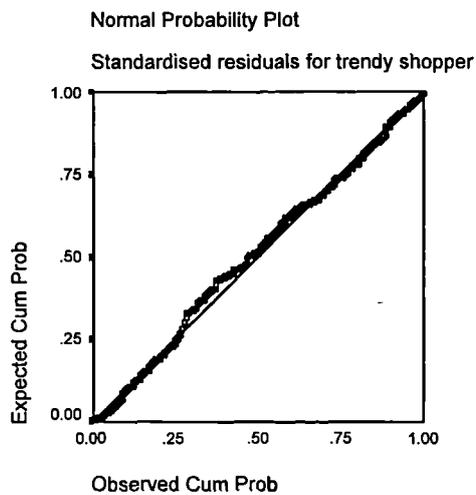


The normal probability plot of the standardised residuals does not show much divergence from the diagonal. Therefore, the residuals approximate the normal distribution.

## Trendy Shopper Type



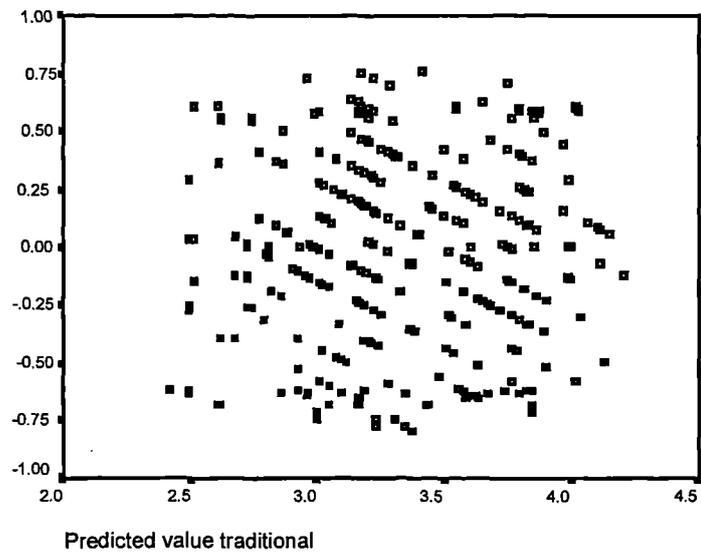
The residuals show a random pattern, implying that they are homoscedastic and independent.



The normal probability plot of the standardised residuals does not show much divergence from the diagonal. Therefore, the residuals approximate the normal distribution.

## Traditional Shopper Type

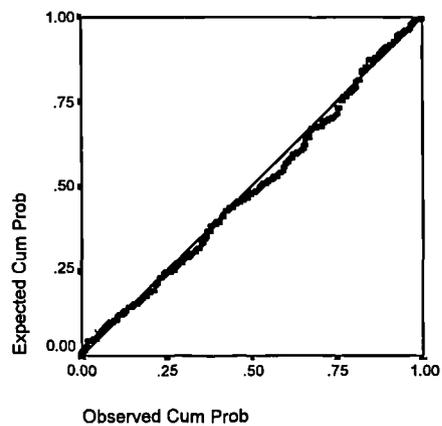
Residuals plot



The residuals show a random pattern, implying that they are homoscedastic and independent.

Normal probability plot

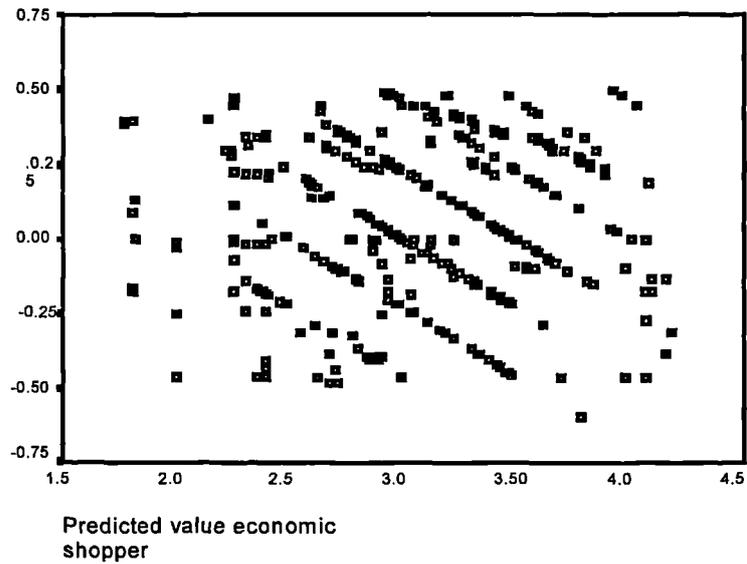
Standardised residuals for traditional shopper



The normal probability plot of the standardised residuals does not show much divergence from the diagonal. Therefore, the residuals approximate the normal distribution.

## Economic Shopper Type

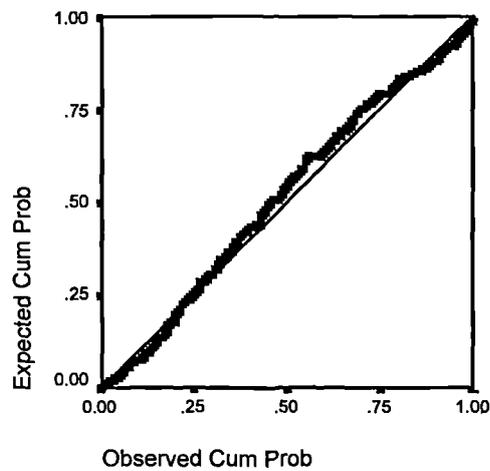
Residuals plot



The residuals show a random pattern, implying that they are homoscedastic and independent.

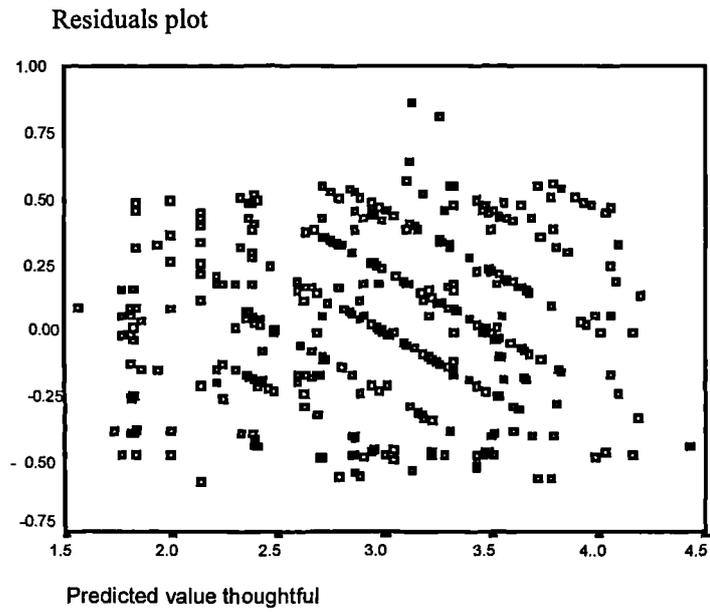
Normal Probability Plot

Standardised residuals:Economic shopper

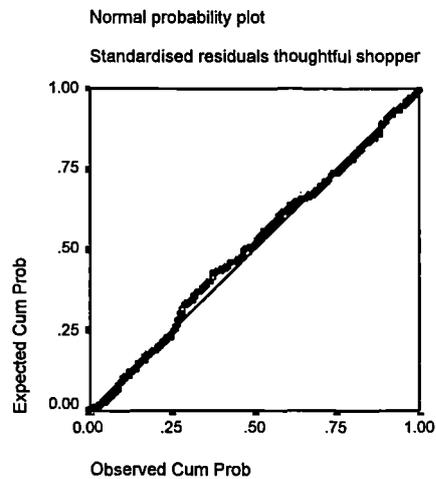


The normal probability plot of the standardised residuals does not show much divergence from the diagonal. Therefore, the residuals approximate the normal distribution.

## Thoughtful Shopper Type

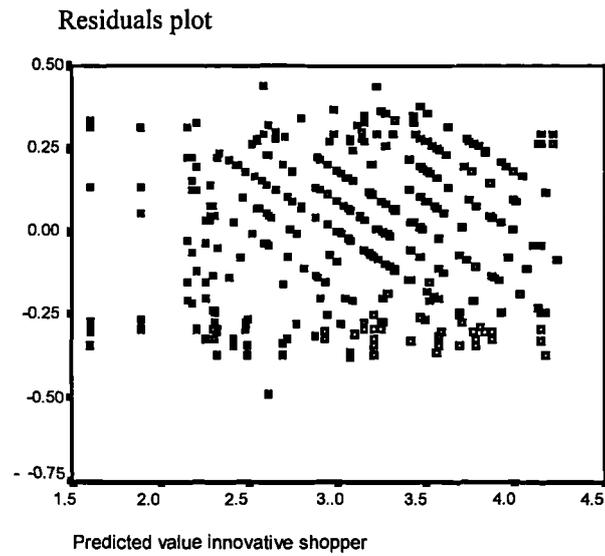


The residuals show a random pattern, implying that they are homoscedastic and independent.



The normal probability plot of the standardised residuals does not show much divergence from the diagonal. Therefore, the residuals approximate the normal distribution.

## Innovative Shopper Type

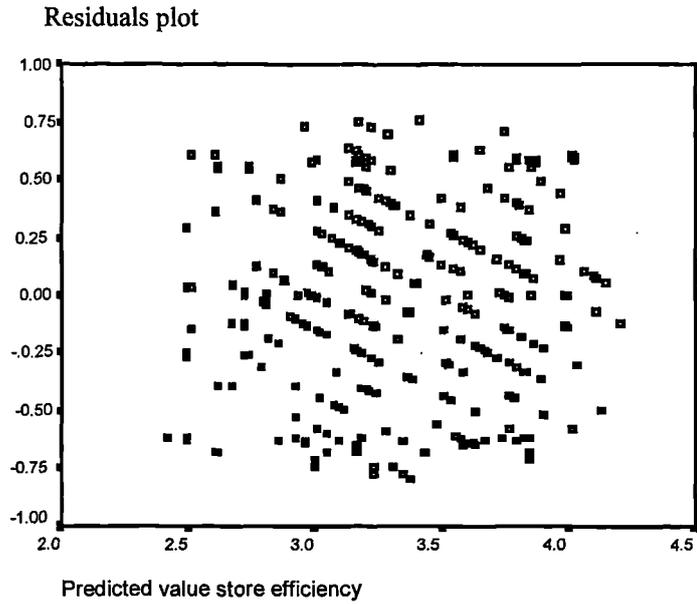


The residuals show a random pattern, implying that they are homoscedastic and independent.

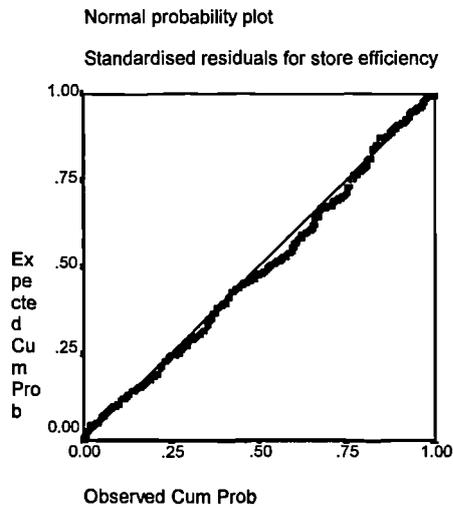


The normal probability plot of the standardised residuals does not show much divergence from the diagonal. Therefore, the residuals approximate the normal distribution.

## Preference for Retail Store Efficiency



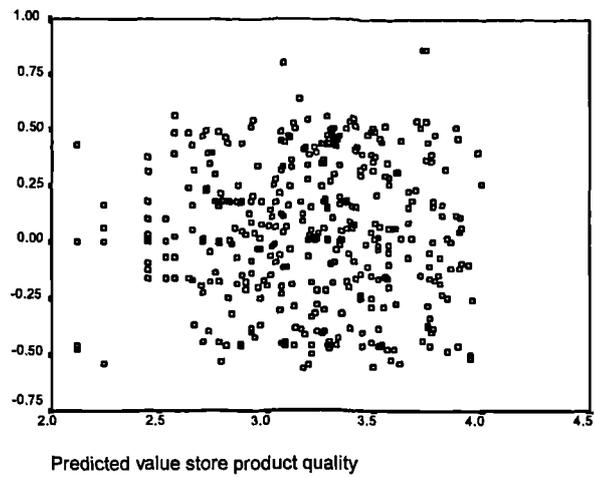
The residuals show a random pattern, implying that they are homoscedastic and independent.



The normal probability plot of the standardised residuals does not show much divergence from the diagonal. Therefore, the residuals approximate the normal distribution.

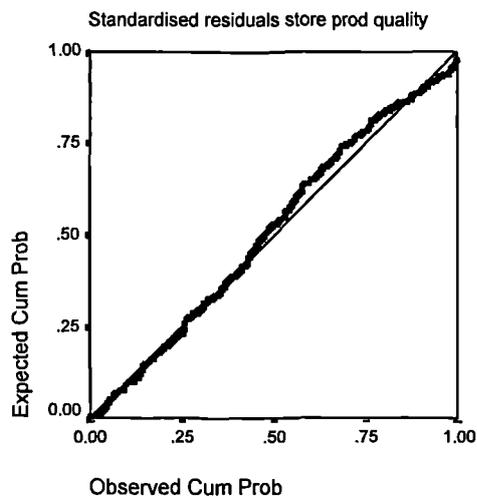
## Preference for Retail Store Product Assortment

Residuals plot



The residuals show a random pattern, implying that they are homoscedastic and independent.

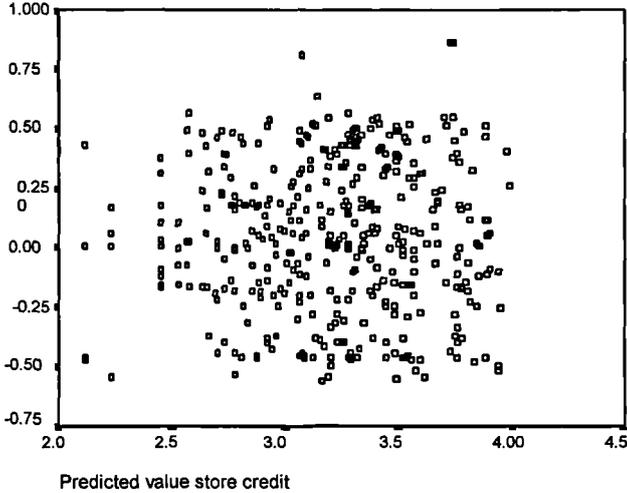
Normal Probability Plot



The normal probability plot of the standardised residuals does not show much divergence from the diagonal. Therefore, the residuals approximate the normal distribution.

# Preference for Retail Store Credit Availability

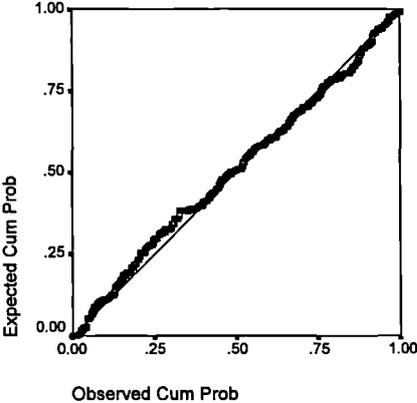
Residuals Plot



The residuals show a random pattern, implying that they are homoscedastic and independent.

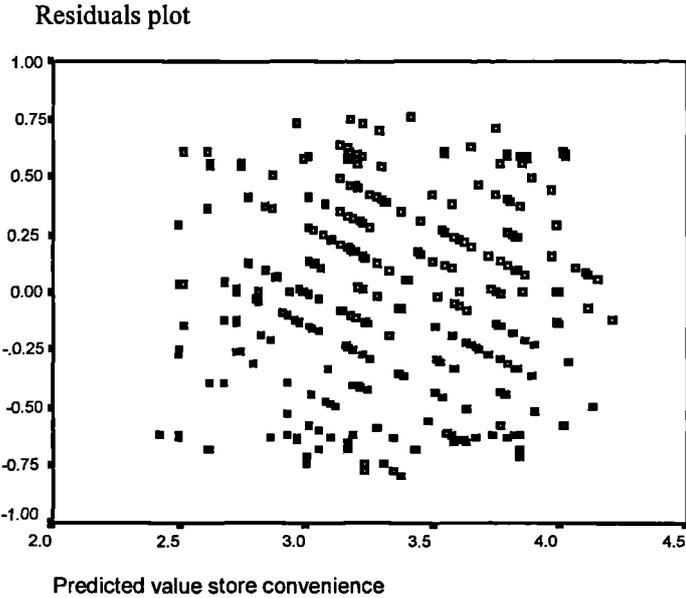
Normal Probability Plot

Standardised residuals store credit

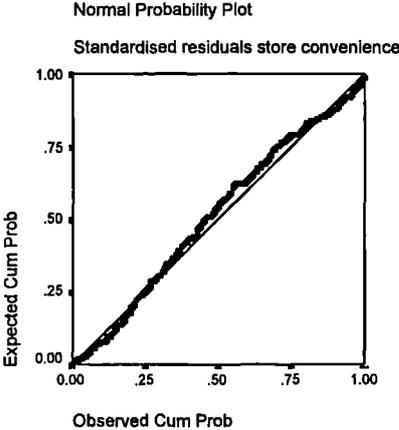


The normal probability plot of the standardised residuals does not show much divergence from the diagonal. Therefore, the residuals approximate the normal distribution.

# Preference for Retail Store Convenience

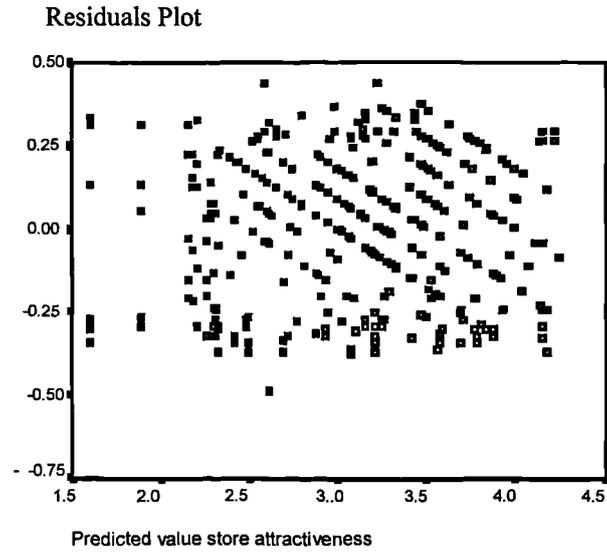


The residuals show a random pattern, implying that they are homoscedastic and independent.

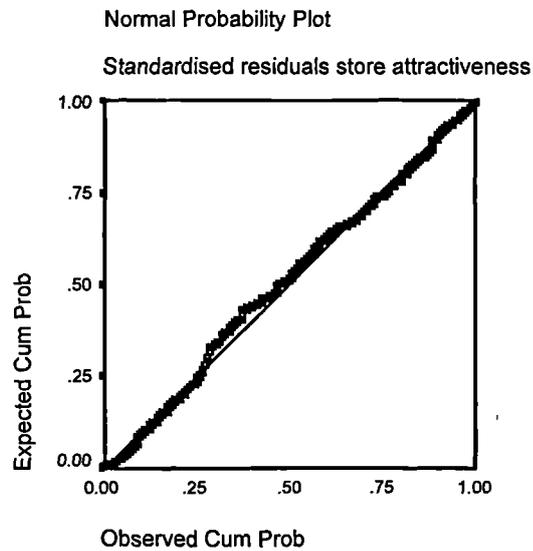


The normal probability plot of the standardised residuals does not show much divergence from the diagonal. Therefore, the residuals approximate the normal distribution.

## Preference for Retail Store Attractiveness

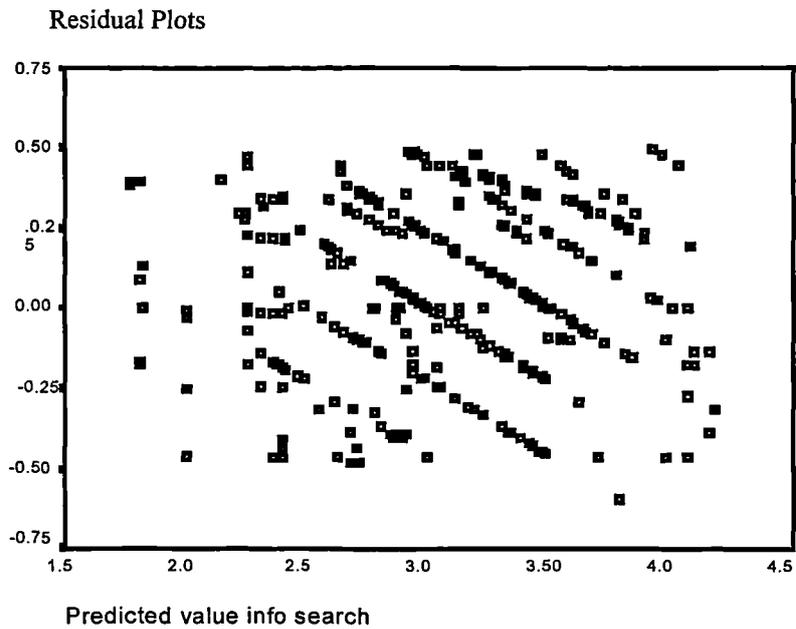


The residuals show a random pattern, implying that they are homoscedastic and independent.

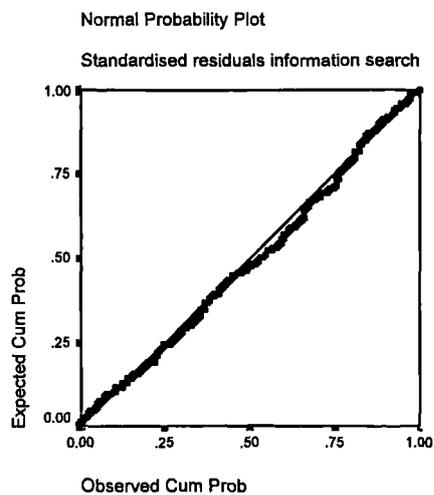


The normal probability plot of the standardised residuals does not show much divergence from the diagonal. Therefore, the residuals approximate the normal distribution.

## External Information Search



The residuals show a random pattern, implying that they are homoscedastic and independent.



The normal probability plot of the standardised residuals does not show much divergence from the diagonal. Therefore, the residuals approximate the normal distribution.