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Religious heterogeneity of food consumers: The impact of global markets upon methods of production

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Abstract

The production and distribution of food is a topic of perennial interest. Specific concern arises over the provision of foods that have been prepared in accordance with religious requirements because they place additional demands and constraints upon methods of food production and distribution. This paper explores the attitude of consumers towards the method of production of food that has been prepared in accordance with the requirements of their own and other faiths. Consumer's gender, age, education level, and the degree of respondent religiosity are all found to be influen-tial. Furthermore, the assumption that such foods are acceptable to nonreligious people is flawed. This study advances our understanding of the role of religiosity upon consumer behaviour. It makes a unique investigation of attitudes towards food that has been prepared in accordance with religious requirements and finds that consumer religion is an important demographic but that the degree of religiosity and other attitudes, such as those towards animal husbandry, are also important factors that need to be taken into account during production and retailing. Such polydoxity has implications for marketing systems concerned with the production and consumption of religiously prepared foodstuff. This research concludes that religious consumers are a highly heterogeneous group. Although interfaith differences may be obvious and expected, intrafaith differences also exist.

KEYWORDS   Animal Slaughter; Consumer Attitude; Food Production; Halal, Religiosity

1.   INTRODUCTION

The food supply chain has faced significant uncertainties over recent years fueled by major events such as the bovine spongiform encaphalopathy crisis in the UK and the spread of foot and mouth in Europe (BBC, 2000). Other examples include the discovery of horsemeat in products labelled and marketed as "100% beef" (Carter, 2015) and the detection of pork dioxiribonucleic acid (DNA) in Halal meat products intended for prisons (BBC, 2013a) and schools (BBC, 2013b). In some situations, non-Muslims have been served Halal meat without their knowledge (Hastings, 2012; Penman, 2010; Taher, 2010) and pork-based foods have been removed from school menus even where the consumers have not expressed a desire for this to occur (Henry, 2012). Other issues arise over claims of diminishing freedom of choice as large food chain operators introduce Halal-only outlets (BBC, 2009). These incidents can be seen to have sparked heightened interest and concern among consumers over the dependability of the food supply chain (Thomas, White, Plant, & Zhou, 2017).

Evidence shows that the methods of provisioning faith-based foods, and their consequent acceptability to consumers, are intrinsically linked yet highly complicated systems (White & Samuel, 2016). Significant deficiencies in the methods of Halal food production, for example, have been found that include loss of traceability, crosscontamination, and the misidentification of Halal and non-Halal slaughtered meat products (Thomas et al. 2017). Issues such as these have led to large-scale changes in food production policy and practice around the world as methods of ritualised slaughter in particular have come under increased scrutiny (BBC, 2003; RSPCA, 2013). For instance, in Tanzania, the method of animal slaughter has highlighted the need for separate facilities for Halal and non-Halal products (Balile, 2013) and Kosher and Halal slaughter has been banned in Denmark in order to respect animal rights (Withnall, 2014).

As the food supply chain in general, and faith-specific food supply chains in particular, come under increasing attention, this study aims to address a gap in the current literature by making a quantitative examination of the attitudes of consumers of multiple faiths (and nonreligious) towards foodstuffs that

have been prepared in accordance with the requirements of other faiths. It also investigates the highly emotive issue of the significance of the method of slaughter (production) upon consumer attitudes towards ritually prepared meat products (consumption).

As the demand for religiously prepared foods increases, the concerns over the legitimacy of such products is also likely to increase in importance. The study seeks to explore the relationships between consumer religiosity and their attitude towards food that has been produced in accordance with religious doctrine. The next section of the paper examines the use of religiosity within consumer research. Following this the constraints that are placed upon food production by religious requirements are examined before the research hypotheses are developed and discussed. The methods of data acquisition and analysis are detailed before the analyses and discussion are presented. The paper closes with a statement of contributions to knowledge and suggestions for future research.

2. RELIGIOSITY

Religiosity has been used to investigate a diverse range of subjects including consumer behaviour (Bazeem & Mortimer, 2016; Ghorbani, Watson, Ghramaleki, Morris, & Hood, 2000; McGuire, Thomas, & Sharp, 2012; Parameshwaran & Srivastava, 2010; Samanta, Pleskov, & Zadeh, 2010). Some research has made comparative analyses of the behaviours of individuals of different faiths. For example, Mokhlis (2006) found convincing relationships between religiosity and consumer practice, according to the factors of quality, impulse and price, among Malaysian shoppers. Moschis and Ong's (2011) multi-faith study does not support the notion that religiosity influences brand and store choice, whereas Choi (2010) identifies that consumers who demonstrate high levels of religiosity are likely to remain loyal consumers with regard to both where (retail outlets) and what (products and service) they purchase.

Much of the literature has identified the need to develop brand, products, and approaches that are tailored towards the requirements and expectations of faith groups. For example, Mukhtar and Butt (2012) studied consumers' religiosity and attitude towards Halal food products and concluded that religious attitude and behavioural norms are significant determinants of consumer behaviour. Choi, Rahul, and Shin (2010) found that Korean consumers' religiosity is a determinant of their use of different sources of product information. Rehman and Shabbir (2010) established that Muslim consumers' degree of religiosity affects their likelihood to adopt new products. Choi's (2010) study of religiosity among multi-faith Korean consumers found that highly religious consumers were less likely to engage in product and store switching. Muhamad (2009) studied the religiosity of Malay students and their attitude towards the ethical practices of businesses and found that more religious persons are less tolerant of unethical practices.

Our review has not identified any research that examines consumers' attitude towards products that have been developed for other faith groups. This is significant since Henley, Philhours, Ranganathan, and Bush (2009) explored the reaction of Christian consumers towards misplaced Christian symbolism in advertising and found that the irrelevant use of Christian symbology has a significant negative effect upon consumers that display high degrees of Christian religiosity. It can be construed that faith-specific brands, products, symbols, or approaches are likely to have a significant negative influence upon more highly religious persons of a different faith.

3. FAITH-BASED FOOD PRODUCTION AND PREPARATION

Some faiths prescribe the foods that may be consumed by their followers and the methods by which those foods are produced (Thomas et al., 2017). Perhaps the most commonly known ritualised methods of food production and preparation are those of Islam (Halal) and Judaism (Kosher), but even these are not well understood by food manufacturers (Regenstein, Chaudry, & Regenstein, 2006). Both methods restrict the types of animals that may be eaten, demand that animals are alive at the time of slaughter, and forbid the consumption of diseased animals (Talib & Jamaludin, 2008). It must be noted however that there are many subtle and important aspects and terminologies used in both that are beyond the scope of this paper to explain (see, for example, Rahman & Shaarani, 2012; Riaz & Chaudry, 2003; Shafie & Othman, 2003; Wood, 2012).

Among both Halal and Kosher slaughter, there is much debate over the legitimacy of stunning prior to the process taking place (Mason, 2014). This is important because it suggests that consumer attitudes can have a significant influence upon the choice of process technology that is employed. For example, if the target consumer groups are more concerned with animal welfare than the ritualised requirements of the method of slaughter, then this will necessitate the deployment of mechanical or electrical stunning facilities in abattoirs.

Discussions of animal slaughter inevitably turn to questions and concerns about animal welfare. Early dialogue around animal rights seemed to centre on their use in scientific enquiry and their use for food was less significant (Herzog, Dinoff, & Page, 1997). Animal rights have been written in law (Tannenbaum, 1995), but still the treatment of animals during processing for food remains hotly debated. For instance, Allen (2005) found that animal rights groups have had a significant effect upon the development of policy and legislation in the United States.

4. RESEARCH PURPOSE

Concerns for both animal welfare and personal religiosity are highly emotive subjects that can influence consumer choice (Choi, 2010) but Ulrich (1991:197) makes the observation that "more wisdom and less emotion" is needed in order to develop policy that is in the interests of both humans and animals. It is not the purpose of this paper to present arguments for or against the slaughter of live animals for food products, nor does this paper attempt to debate the requirements of any particular faith group.

In undertaking this study, the research addresses the lack of quantitative research in this field (Drenten and McManus, 2015) by unravelling the relationships between consumer religiosity and their attitude towards generic "food," and "meat" products that have been produced in accordance with religious doctrine. By responding to Mukhtar and Butt's (2012) call, this research aims to discover whether persons of one faith act with indifference, tolerance, or abhorrence towards foods that are designated for persons of another faith. This underpins the development of research hypotheses RH4 and RH5 (below).

Although concerns for animal welfare have been noted in the literature, to date, there have been no studies that examine its influence upon consumer attitudes. Similarly, although concern for animal welfare is known to be moderated by gender, there have, as yet, been no studies that explore whether this manifests in differences in consumer attitudes towards religiously prepared foodstuffs. Collectively, this underpins the development of research hypotheses RH1, RH2, and RH3 (below).

RH1 Consumer gender will influence their preferences for the methods of slaughtering.

RH2 Consumer age will influence their preferences for the methods of slaughtering.

RH3 Consumer education will influence their preferences for the methods of slaughtering.

RH4 Individuals of one religion, or nonreligious, will be intolerant of foods that have been prepared in accordance with the requirements of another faith.

RH5 Individuals' degree of religiosity influences their tolerance of foods that have been prepared in accordance with the requirements of another faith.

5. METHODOLOGY

The study adopts a survey strategy because it is a widely accepted and common approach in business and management research (Bryman & Bell, 2011; Panneerselvam, 2010). They have been used in a wide variety of research settings including examination of the behaviours of religious consumers (Arli & Pekerti, 2017; Choi, 2010) and drivers for organic food consumption (Krystallis, Vassallo, Chryssohoidis, & Perrea, 2008). Surveys allow for the collection of a large amount of data from a large population in a highly economical way (Bryman & Bell, 2011).

The survey instrument was developed from the key themes identified in the literature (Appendix A). In the first section, demographic data comprising gender, age, and level of education was captured (Q1–Q3). In the next section, respondents selected their religion from a list that also included an option for "no religion/not religious" (Q4). The degree of respondent religiosity was determined using a 5-point Likert scale response to a question regarding the extent to which they followed the aspects of their particular religion (Q5). The final section explored respondents' requirement to eat food that had been prepared in accordance with their belief system and those of other faiths (Q6–Q8). In particular, it queried their attitude towards meat products and their attitude towards stunning of animals prior to slaughter (Q9–Q15). Questions were worded to explore respondents' attitude towards "foods that have been prepared in accordance with religious requirements": the terms Halal and Kosher were not used in the survey in order to remove potential response bias and to avoid making the survey to appear to be concerned only with the practices of Islam and Judaism.

The survey instrument was piloted among a group of 30 students of various faiths and ages to refine the wording and order of questions. The final survey was constructed using Qualtrics and distributed electronically, a link to the instrument being circulated to as wide an audience as possible in order to illicit responses that were representative of the population. The link was circulated using social media, college and university student networks, professional networks, as well as religious groups and organisations. Distributing the survey in this way was highly cost-effective. Initial descriptive analysis of the data was conducted and is presented in the following section in Tables 1–3. In total, 481 responses were received, of which a small number were incomplete for one or more items of demographic data.

5.1 Inferential analysis

In contrast to the descriptive analysis, inference analysis aims to explore the causal links between the choice variables (the caused consumer behaviour) and the determinant variables (the causing factors). To obtain the "pure" effects of religious belief on the consumer choice of food, it is essential to control for other relevant factors. Regression technique is the most popular way to purge off the correlated effects, returning the pure effect of each factor

5.2 The econometric model

A special modelling issue is that the dependent variable in this study is a binary choice variable. However, if the linear regression model

$$y_i = x_i\beta = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i}\cdots + \beta_K x_{Ki} + \varepsilon_i + \varepsilon_i \qquad (1)$$

is used, the predicted value of the model might be negative or greater than 1, which does not make sense. Moreover, the linear regression model for binary variable is also subject to the heteroskedasticity problem (Greene, 2011). As a result, the t-statistics under simple linear regression model are misleading and the implied inferences are wrong.

To resolve the two problems above, a generalised linear regression model is usually adopted. PROBIT model is a popular choice if it is believed that the error term is normally distributed. LOGIT model is an alternative choice if the normality assumption is violated. Given the binary nature of the dependent variable, the PROBIT econometric

TABLE1 Correlation coefficients between choice variables

		Nonconformity behaviour		
		Q8	Q12	Q15
Conformity behaviour	Q7	-0.4756		
	Q10		-0.2929	
	Q14			-0.5855

TABLE 2 PROBIT estimation results

	Determinant factors	Q8 food	Q12 meat	Q15 slaughter
x_1	Gender (male = 1)	0.0556 (0.0645)	0.0049 (0.0622)	-0.2364*** (0.0680)
	Q2 = 30-39	-0.0484 (0.0958)	0.3653*** (0.0805)	-0.132 (0.0872)
	Q2 = 40-49	-0.4401*** (0.0680)	-0.3802*** (0.0575)	-0.0075 (0.0702)
	Q2 = 50-59	-0.199 (0.1456)	0.2252** (0.1094)	0.4737*** (0.0393)
	Q2 = > 60	0.1196 (0.1481)	0.3285*** (0.1033)	0.3185*** (0.0780)
	Q3 = College Certificate or diploma	-0.034 (0.1502)	0.2556* (0.1473)	-0.3062* (0.1798)
	Q3 = Bachelor degree	0.3010** (0.1285)	0.4033*** (0.1289)	-0.3877** (0.1568)
	Q3 = Master degree	0.1826 (0.1259)	0.2214* (0.1344)	-0.3813** (0.1619)
	Q3 = Doctoral degree	0.2629** (0.1084)	0.0378 (0.1676)	-0.4759*** (0.1243)
x_2	Q4 = Judaism		-0.0418 (0.3192)	0.1127 (0.2484)
	Q4 = Christian	-0.3155** (0.1230)	-0.4157*** (0.1061)	-0.0699 (0.1032)
	Q4 = Muslim	-0.9998*** (0.0002)	-0.5208*** (0.1462)	0.0023 (0.2333)
	Q4 = Buddhist		-0.3823*** (0.0939)	
	Q4 = Hindu			
	Q4 = Other	-0.4207*** (0.1505)		-0.4854*** (0.0830)
	Q5 = Always	-0.0085 (0.1035)		-0.2395** (0.1037)
	Q5 = Most of the time	0.5273*** (0.0887)	0.4581*** (0.1171)	-0.4668*** (0.1039)
	Q5 = Sometimes	0.4357*** (0.0830)	0.4915*** (0.0928)	-0.1637 (0.1192)
	Q5 = Rarely		0.5496*** (0.0786)	-0.3832*** (0.0997)
x_3	Q6 Your faith require you to eat food prepared in a specific way	0.8833*** (0.0294)	-0.2591 (0.1919)	-0.3438** (0.1569)
	Q9 Your religion requires to eat meat ritually slaughtered	0.8139*** (0.0226)	0.1936 (0.1845)	-0.2174 (0.1669)

Notes: standard deviations in parentheses, significance levels:

*10%;

**5%;

***1%.

TABLE 3 Cross-tabulation of age over gender

Age	Gender Male	Female	Total
18–29	68	104	172
30–39	69	47	116
40–49	57	52	109
50–59	12	34	46
>60	22	15	37
Total	228	252	480

model is adopted following the empirical literature (Jamal & Goode, 2001; Honkanen, Svein, & Oystein, 2004; Hsu and Han-Peng, 2008; Veloutsou & Bian, 2008; Wang, Malhotra, & Wei, 2014). Intuitively, the model assumes that the choice variable is a nonlinear function of the determinant variables, but within the nonlinear function, there is a linear relationship among the variables:

$$\Pr(y_i = 1 | x_i) = \Phi(x_i \beta + \varepsilon_i)$$
$$= \Phi(\beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \cdots + \beta_K x_{Ki} + \varepsilon_i). \quad (2)$$

In particular, for PROBIT model, the nonlinear function $\Phi(\blacksquare)$ is the cumulative probability distribution of a standard normal distribution:

$$\Phi(z) \equiv \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{z} e^{-t^2/2} dt. \quad (3)$$

In this study, the variables in the questionnaire are classified into the following categories.

- Choice Variables (the "y"):
- Conformity Behaviour: Q7, Q10, and Q14;

- Nonconformity Behaviour: Q8, Q12, and Q15;
- Determinant Variables (the "x"):

- Nonreligious Factors (the "x1"): gender (Q1), age (Q2), and education (Q3);

- Religious Factors:
- General Principles (the "x2"): Q4 and Q5;

- Specific Principles (the "x3"): Q6, Q9, and Q11.

In particular, the choice variables are distinguished by the "conformity behaviour" and the "nonconformity behaviour." The former stresses the degree of compliance with the religious rules, and the latter stresses the degree of flexibility. Table 1 on the correlation coefficients between two types of choice variables can be verified by the Pearson's χ^2 test. The null hypothesis of the test is that the observed frequency table (cross-tabulation) is by chance, that is, the two variables are independent. The computed statistics under this null for the three pairs of correlations are respectively.

Therefore, the negative correlation coefficients between the nonconformity and conformity behaviour are significant and not by chance.

Due to missing values in conformity behaviour variables (i.e., Q7, Q10, Q14), the regressions return poor results. The nonconformity bias is focused upon in the analysis and use the conclusion based on nonconformity to indirectly infer the conformity behaviour. Fortunately, the nonconformity behaviour variables are much better observed. Given the negative correlations between the two sets of variables, it makes sense to only focus on the nonconformity behaviour in regression analysis. It is easy to infer that the conformity behaviour is reversely determined compared to its nonconformity counterpart.

The determinant variables are next divided into two subcategories. The first subcategory includes the nonreligious factors such as gender, age, and education. These factors are to control for the nonreligious effects on consumer's choices. For example, a higher education is expected to be associated with a higher chance to object to animal slaughter (nonconforming). The second subcategory is the core of this study, but some religious beliefs are general rules, and others are more specific to the food preparation. Both are distinguished and identified.

5.3 The pooled regressions

Note that the coefficient β_k is not the marginal effects of the corresponding factor x_k on the probability for nonconforming choice. The formula for calculating the marginal effects for a particular factor x_k is

$$\frac{\partial \Pr(y_i = 1)}{\partial x_k} = \Phi(x_{x_k=1}\beta) - \Phi(x_{x_k=0}\beta). \qquad (4)$$

The following Table 2 summarises the marginal effects of the determinant variables on the three choice variables on nonconformity behaviour. The estimated marginal effects can be interpreted as the effects on the marginal propensity for nonconformity choices. For example, in the last column (the nonconforming choice on slaughter method), a typical male is 23.64% less likely (compared to a typical female) to prefer that the animal is not awake at the moment of slaughter.

6. FINDINGS

6.1 Descriptive analysis

Table 3 shows that the sample is broadly representative of society, comprising equal proportions of male and female respondents (48% and 53%, respectively) and a range of age categories. The use of an electronic survey may account for the slightly lower number of responses from older persons (aged 50 and above) but sufficient responses were received from these groups to enable meaningful analyses to be conducted.

Table 4 indicates that the sample comprises persons with a range of educational achievements. Male and female achievements are broadly similar, with the greater number of respondents having obtained a university degree (81%). Very few respondents (5%) had only received a basic education. The proportion of graduate respondents is somewhat higher than that which has been reported by the Office for National Statistics for the UK in 2011 and states that 27% of the population possesses a university degree or higher (ONS, 2011). This can be explained, in part, by the use of the authors' own academic networks and contacts for the distribution of the electronic survey. However, the survey was also distributed among nonacademic institutions and groups in order to gain a more representative sample of the population.

Table 5 indicates the religious persuasion of the survey sample. The majority of the sample comprised Christian, Muslim, and nonreligious persons (36%, 21%, and 36%, respectively). Similar proportions of male and female respondents were represented within each religious group.

TABLE 4 Cross-tabulation of education over gender

| Education | Gender | | Total |
	Male	Female	
Basic education	13	11	24
College Certificate	18	48	66
Bachelor	97	106	203
Master	70	75	145
Doctoral	28	12	40
Total	226	252	478

TABLE 5 Cross-tabulation of religion over gender

| Religion | Gender | | Total |
	Male	Female	
Judaism	3	5	8
Christian	70	103	173
Muslim	62	38	100
Buddhist	0	5	5
Hindu	0	3	3
Other	8	10	18
No religion	86	88	174
Total	229	252	481

7 ANALYSIS AND DISCUSSION

7.1 Gender

There is some suggestion that preferences for the methods of slaughter are influenced by gender (RH1). Males were found to prefer that an animal is stunned prior to slaughter whereas females generally did not (23.64% less likely). Mellor et al. (2009) and Peek, Dunham, and Dietz (1997) explore the stronger links that females have with animal rights issues than males, and Nell (2006) identifies that young males are more likely to engage in acts of animal cruelty than females. However, one must be careful not to interpret acts of cruelty with preferences for methods of animal slaughter, the literature serves merely to identify the gender-influenced relationships that exist between people and animals. Gender does not appear to have an influence upon the likelihood of one person to eat food or meat that has been prepared in accordance with the requirements of another faith.

7.2 Age

There is a strong suggestion that preferences for the methods of slaughter are influenced by age (RH1). The analysis shows that the 0–59 and 60+ age groups prefer that an animal is stunned prior to slaughter compared to younger generations. Apart from the 40–49 age category, the older age groups were significantly more likely to eat meat that had been slaughtered in accordance with other belief systems than were those under 30. The analysis shows that all the middle age categories are less inclined to eat food that has been prepared in accordance with religious requirements than the younger generations (<30 years) and those that are over 60. In particular, age category 40–49 years exhibit a tendency to avoid foods that had been prepared in alternative ways (44.01%). They also prefer to not eat meat that has been prepared for other faiths (38%), than any other age group.

7.3 Education

There is some suggestion that preferences for the methods of slaughter are influenced by education (RH3). Somewhat surprisingly, higher education was not found to lead to an increase in the requirement for animals to be unconscious prior to slaughter. In fact, there is some suggestion that those with higher levels of educational achievement are likely to prefer that an animal is awake during slaughter. For example, respondents with doctoral degrees did not require that an animal be stunned prior to slaughter (47.59%) and those with a college education did not require that an animal be stunned (30.62%). Respondents with bachelor and master degrees also did not require that an animal be stunned prior to slaughter (38%).

Those with degree-level education were found to be generally more likely to eat foods that have been prepared in accordance with other faiths compared to those with only a basic education or a college education. Similarly, respondents with bachelor degrees were more accepting of meat that had been slaughtered in accordance with another belief system (40.33%) than those with a basic education. Those with college educations or master degrees were also prepared to eat meat that had been prepared in accordance with other belief systems (25.56% and 22.14%, respectively).

7.4 Religion

There is a strong indication that consumers' tolerance of foods that have been prepared in accordance with the requirements of another faith are influenced by their own religion (RH4). Both Christian and Muslim respondents were unlikely to eat foods that have been prepared in accordance with other belief systems (31.55% and 99.98%, respectively) than nonreligious people. Christian, Muslim, and Buddhist respondents were also unlikely to eat meat that had been prepared in accordance with another belief system (41.57%, 52.08%, and 38.23%, respectively) compared to nonreligious people. This is an important finding because it indicates that religious consumer groups are highly intolerant of meat products that have been prepared in accordance with the requirements of other faiths. It is also important to find that nonreligious people are relatively tolerant of foods that have been prepared in accordance with the requirements of faith systems.

An individual's religion was not found to have any bearing upon their preferences for an animal to be stunned prior to slaughter despite the Christian, Muslim, and Buddhist faiths having very different requirements for the preparation of meat products. Unsurprisingly, if a person's faith required them to eat meat that had been slaughtered in accordance with religious convention, then they are unlikely to require that an animal is stunned prior to slaughter (34.38%).

7.5 Religiosity

There is a strong suggestion that consumers' degree of religiosity influences their tolerance of foods that have been prepared in accordance with the requirements of another faith (RH5). Those that resolutely follow the requirements of their religion exhibit no significant tendency, but those that often

follow the requirements of their religion are likely to avoid foods that have been prepared for other faith groups (52.73% and 43.57%, respectively). The degree of respondents' religiosity provides strong indication that the most religious persons are much less likely to eat meat that has been prepared in accordance with another belief system than are those possessing a lower degree of religiosity. Those that rarely follow all aspects of their religion find alternatively prepared meat products more acceptable than are those that are not religious (54.96%). However, those that follow their religion more closely are more likely to eat alternatively produced meat products (49.15% and 45.81%, respectively) whereas those that resolutely follow the requirements of their religion will rarely eat meat that has been prepared in accordance with another belief system (4.45%). This is an important finding because it bolsters the observation that religious consumers cannot be treated as homogenous groups. Interfaith differences are important, but often overlooked, but intrafaith differences, or religious polydoxity, also exists, which complicates the provision of religiously prepared meat products even further than has been previously realised.

There appears to be no clear relationship between the respondents' degree of religiosity and their likelihood to prefer that an animal is stunned prior to slaughter. Although most categories of religiosity exhibit less likelihood to prefer that an animal is stunned prior to slaughter than those that never follow the requirements of their religion, this propensity does not increase in relation to increasing religiosity.

8.	DISCUSSION

Gender is known to be related to religiosity (Bjorck & Maslim, 2011; Hanzaee, Mina, & Alikhan, 2011), and this study also finds that female consumers are more sensitive to the issue of stunning animals prior to slaughter than are males. Consumer age also appears to have influence over behaviour but not in a uniform manner. Younger generations appeared to be more liberal in their behaviour and accepting of food products that had been prepared in accordance with the requirements of faiths other than their own, but the older generations appeared to be more sensitive towards the issue of stunning animals prior to slaughter. The level of education that has been attained influences attitude towards religiously prepared food as well. Higher educated respondents were generally more liberal in their attitude towards foodstuffs of a religion other than their own, while contrary to expectations. They were also less sensitive to issues over stunning of animals prior to slaughter.

What these findings conspire to tell us is that the relationship between consumer demographic data and their attitude towards religiously prepared foodstuffs is one that requires careful attention. One may recognise that persons of different faiths may have differing views towards foods that have been prepared in accordance with another person's faith. What this research has also shown is that persons of a single faith may also have widely differing attitudes towards their own foodstuffs. Gender, age, and education are all important factors that are interrelated and influence consumer behaviour. The degree of religiosity of consumers is also something that requires consideration. The degree of religiosity, or what may be termed adherence to faith, also determines attitudes. Persons with a higher degree of religiosity exhibited more markedly differentiated attitudes than those of a moderate degree of religious adherence.

Furthermore, individuals that identified with a specific faith were found to be far less tolerant of religiously prepared foodstuffs than nonreligious people, and this has two significant implications. First, just as Henley et al. (2009) found that misplaced religious messages can be highly damaging to persons of the targeted faith group, so can those messages be even more significant to persons of other faiths. This may at first seem obvious, however, as the topical literature discussed in the introductory section has indicated, some organisations have made an incorrect assumption that Halal meat, for example, would be acceptable to non-Muslim consumers. Second, the extant research appears to have focussed on the attitudes and behaviours of religious consumers, whereas this study has suggested that there also exists a marked difference between religious and nonreligious consumers. As exemplified in the previous point, organisations should also make efforts to accommodate the reactions of nonreligious persons to religiously prepared foodstuffs.

In addition to exploring consumer attitude towards religiously prepared foodstuffs, this research also indicates that the details of the method of preparation are also of great importance. It would appear to be insufficient to simply claim that a particular food item was suitable for a specific religious group. The method of slaughter of animals, for example, is one aspect of food preparation that is highly emotive. Consumers appear concerned with the detailed characteristics of food preparation, and this has implications for the process technologies that organizations employ. For example, different consumer groups may exist within the same religious demographic. More liberal persons may be satisfied with methods of slaughter that employed stunning and mechanised slaughter, whereas more conservative consumers may expressly desire the manual slaughter of conscious animals. These methods would require very different process technologies and working practices to be employed.

9.   CONCLUSION

Religiosity is a revealing dimension of consumer behaviour. This study explores the attitudes of consumers of one faith towards foodstuffs that have been prepared in accordance with the requirements of another faith. It also investigates the significance of the method of slaughter upon consumer attitudes towards ritually prepared meat products.

In accord with much of the literature, it finds that gender, age, and education levels are important determinants of consumer behaviour. However, it finds that those demographics are not always consistent with expectations. It also finds that the degree of religiosity is an important dimension of consumer behaviour that requires further study, particularly when concerned with attitudes towards food that has been prepared in accordance with religious requirements. Furthermore, the attitude of nonreligious consumers appears to be important but has received little attention as yet.

This study makes two important contributions to religious marketing research. First, it advances our understanding of the role of religiosity upon consumer behaviour. It also makes a unique investigation of attitudes towards food that has been prepared in accordance with religious requirements. The findings subsequently highlight that consumer religion is an important demographic but that the degree of religiosity and other attitudes, such as those towards animal husbandry, are also important factors that need to be taken into account.

Providers of food to employees and to the public must take note of the reactions of consumers of one faith towards foods that have been prepared for another. The assumption that such foods are acceptable to nonreligious people is flawed. Furthermore, the degree of consumer religiosity and their concern for the methods of food production are significant determinants of their expectations and acceptance of such foods. This may be an issue of particular concern to large-scale food producing "hubs" that aim to serve a wide range of populations that may exhibit a high degree of religious heterogeneity (Othman, Sungkar, & Hussin, 2009).

They must, for example, be equipped with appropriate process technology to undertake the specific methods of slaughter that the target consumer group expects. Food producers that endeavour to serve a heterogeneous global market need to adopt process technologies that generate a product that is acceptable for the community, for example, by utilizing only manual slaughtering methods for one market and potentially using automated slaughtering methods for less conservative markets. Not only this, but they must also be capable of communicating the methods of production that are employed clearly and unambiguously to the customer group, and this in itself is known to be a highly problematic undertaking (White & Samuel, 2016).

The study faces some limitations that future research could address. It is based upon a reasonable sample size, but, given that our findings suggest the highly heterogeneous nature of religious groups, larger samples of specific religious consumer demographics, such as nationality, should be examined more closely. Furthermore, the study is based upon a sample of 481 consumers, and the findings of consumers from other religious and cultural backgrounds, for example, should be confirmed. The study has also made use of a single instrument for measuring religiosity. Other, religion-specific instruments exist and may be used to elicit further insight into the aspects of each religion that drive particular behaviours.

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APPENDIX

Appendix A | —Survey instrument

Q1   Gender

○ Male (1)

○ Female (2)

Q2   Age

○ 18 to 29 (1)

○ 30 to 39 (2)

○ 40 to 49 (3)

○ 50 to 59 (4)

○ 60 (5)

Q3   Education

○ Basic Education (1)

○ College Certificate or Diploma (2)

○ Bachelor Degree (3)

○ Master Degree (4)

○ Doctoral Degree (5)

Q4   What is your faith?

○   Judaism (1)

○   Christian (2)

○   Muslim (3)

○   Buddhist (4)

○   Hindu (5)

○   Sikh (6)

○   Other (7)

○ No religion / Not religious (8)

Q5   Religious Devotion

	Always (1)	Most of the Time (2)	Sometimes (3)	Rarely (4)	Never (5)
I follow all aspects of my religion. (1)	○	○	○	○	○

Q6 Does your faith/belief system require you to eat food that has been prepared in a specific way?

○ Yes (1)

○ No (2)

   If No Is Selected, Then Skip To Q8 Do you try to avoid fo…

Q7 Do you try to only eat food that has been prepared in accordance with your own belief system?

○ Yes (1)

○ No (2)

Q8 Do you try to avoid food that has been prepared in accordance with other belief systems?

○ Yes (1)

○ No (2)

Q9 Does your belief system require you to eat meat that has been ritually slaughtered?

○ Yes (1)

○ No (2)

   If No Is Selected, Then Skip Q12 To Would you eat meat t…

Q10   Do you try to only eat meat that has been ritually slaughtered?

○ Yes (1)
○ No (2)

Q11   Does your belief system forbid you to eat meat?

○ Yes (1)

○ No (2)

   If Yes Is Selected, Then Skip To End of Survey

Q12 Would you eat meat that has been ritually slaughtered in accordance with the requirements of another belief system?

○ Yes (1)

○ No (2)

Q13 If the ritual slaughter of meat required that the animal was awake at the moment of slaughter, please answer the following:

Q14 Do you accept that the animal must be awake at the moment of slaughter?

○ Yes (1)

❍ No (2)

Q15 Would you prefer to eat meat if the animal was not awake at the moment of slaughter?

❍ Yes (1)

❍ No (2)