The Impact of National Cultural Values on Retail Structure: Evidence from the World Values Survey

Introduction

Retail internationalization, which refers to a retailer's store presence in foreign markets, has become especially important in recent years because a larger number of retailers have sought to expand beyond their national borders in a desire to grow (Alexander & Myers, 2000; Alexander, Rhodes, & Myers, 2011; Reinartz, Dellaert, Krafft, Kumar, & Varadarajan, 2011; Vida, Reardon, & Fairhurst, 2000). According to the 2014 Global Powers of Retailing Report published annually by Deloitte Touche Tohmatsu Limited, the top 250 global retailers have annual aggregate sales of $4.3 trillion, their average size, as measured by annual sales volume, is $17.2 billion, and they operate in 10 countries, on average. Moreover, almost 25 percent of these retailers' revenue is generated by their foreign operations.

It has long been recognized that the macro-environment influences international retail decisions because international retailers become embedded in the environment within which retailing activities take place and have to consider the host market culture, business practices, the regulatory environment as well as the nature of retail competition in the host market (Cardinali & Bellini, 2014; Douglas & Craig, 2011; Griffith, Chandra, & Fealey, 2005; Hoppner & Griffith, 2015). The retail internationalization process is thus a complex task and in order to devise effective retail strategies for each host country, international retail managers responsible for coordinating retail operations in multiple countries around the world, need to have an understanding of the factors driving retail structure, which refers to the number, size (i.e., the average area of retail stores), and type of retailers (e.g., supermarkets, hypermarkets, discounters, independent stores) within a geographic area (Dholakia, Dholakia, & Chattopadhyay, 2012;

Forbes, 1972; Hall, Knapp, & Winsten, 1961). For example, many retail chains in India have had to size-down their stores, essentially imitating the traditional kirana stores which are so prevalent in the country that consumers have become accustomed to shopping in small stores where they have established close relationships and trust with store owners. In other countries such as the USA, on the other hand, retail chains thrive due to the fast-paced lifestyle and the need for one-stop shopping convenience. In still other countries, especially in Central and Eastern Europe which are still undergoing cultural and economic transitions, there is still a blend of modern retail chains and independent stores which used to be the main (and often only) shopping destination for consumers during the early post-communist era, with the caveat that each of these two types of stores have had to make modifications to accommodate changing consumer trends. It thus becomes evident that, invariably, the existing retail structure in a country, along with the macro-environmental factors affecting it, shape retail strategies as international retailers are required to make adjustments in order to become embedded and succeed in a given market.

Although the focus of more than a third of scholarly international channel structure articles has been on how to transfer formats internationally (Hoppner & Griffith, 2015; Swoboda, Berg, & Dabija, 2014), none of these studies examines the antecedents of retail structure and, ultimately, how the existing retail structure in a country affects the operations of international retailers. But even global retail super powers such as Carrefour, Target, Wal-Mart, Tesco, and Royal Ahold have suffered significant losses in foreign markets because they failed to adjust their retail operations to different foreign environments (Aoyama, 2007; Christopherson, 2007; Wrigley & Currah, 2003).

Investigations of retail structure to date offer only a limited perspective on this topic because the focus has been almost exclusively on the impact of demographic and competitive

factors on retail structure (Rosenbloom, 1975; Rosenbloom, Larsen, & Mehta, 1997; Takeuchi & Bucklin, 1977). However, national culture is a fundamental aspect of the macro-environment retailers operate in (Evans, Mavondo, & Bridson, 2008; Hoppner & Griffith, 2015). A substantial body of anecdotal evidence thus suggests that national culture, which reflects societal norms and values, may also be a particularly important determinant of retail structure because retail institutions are culturally-embedded in the societies in which they operate (Dimitrova & Rosenbloom, 2010; Griffith, 1998). The purpose of this study is thus to empirically investigate the relationship between national cultural values and retail structure. Our main research questions are:

1. Do national cultural values affect retail structure above and beyond the effect of demographic and competitive factors?
2. Do different national cultural values have different effects on retail structure?

To test our hypotheses, we use a panel dataset comprised of 67 countries during the period 1999-2012. We focus on grocery retailing because grocery retail stores comprise between 20 and 40 percent of all retail stores in most countries (Pilat, 1997). Moreover, it has been suggested that "grocery retailing…has been the shape of the so-called retail revolution, becoming the paradigm on which other retail sectors…are taking shape" (Pellegrini, 2000, p. 124). Therefore, by examining the impact of national cultural values on grocery retail structure we might be able to gain important insights into the impact of national culture on retail structure in general. We would like to note that, since most countries do not provide data on types of retailers and the classification of different types of retailers is not consistent across the countries that make such data available, we do not include this retail structure component in our analysis.

In the next section we provide an overview of the relevant literature and develop our hypotheses. We then discuss our methodology, results, and the implications of our research. We conclude with the limitations of our study and suggestions for future research.

Background Literature

Retail structure determinants

As mentioned, retail structure comprises the number, size, or area, and type of retailers such as supermarkets, hypermarkets, discounters, and independent stores in a given town, city, or country (Dholakia et al., 2012; Forbes, 1972; Hall et al., 1961). The focus in this study is on two of the three retail structure components – number and size of retailer, due to lack of consistent and reliable retailer type data across countries.

Demographic and competitive factors

It has been shown that demographic factors such as population, income per capita, population density, urbanization, education, and age as well as certain competitive factors affect retail structure (Flath, 2003; Ingene, 1982, 1983, 1984; Ingene & Brown, 1987; Ingene & Lusch, 1981; Ingene & Yu, 1981).

Population and income per capita

In more populated areas, the number of retail stores tends to increase because retailers can benefit from economies of scale (Good, 1984; Moir, 2005). Further, when a large number of

people live in a given area, consumption goes up, which necessitates the existence of more retail stores in order to adequately satisfy consumer demand (Bucklin, 1972). Income per capita also affects retail structure through consumers' purchasing power (Bucklin, 1978; Hall et al., 1961; Takeuchi & Bucklin, 1977). Consumers who enjoy high incomes are able to purchase more and different products, which leads to an increase in the number of goods moving through distribution channels, the overall sales level, and the number of retail stores in a given area (Bucklin, 1978; Ingene, 1982; Takeuchi & Bucklin, 1977).

Population density and urbanization

In densely populated, urban markets, a larger number of people live in a geographic area, which provides greater sales potential for store owners because population density and urbanization lead to an increase in retail sales and allow for the achievement of economies of scale and scope (Bucklin, 1978; Cox, Goodman, & Fichandler, 1965; Takeuchi & Bucklin, 1977). The competitive intensity in densely populated, urban areas is high because numerous retail outlets operate on the market and, hence, consumers can more easily switch stores (Bucklin, 1972; Takeuchi & Bucklin, 1977). As competition becomes more intense, small retail stores are often forced out of the market because they lack the skills and resources necessary to serve a larger market (Mallen, 1973). Thus, population density and urbanization tend to reduce the number of retail stores because the retail structure in densely populated and urbanized areas is comprised of a smaller number of large-scale, concentrated retailers as opposed to numerous small, dispersed retailers.

Age

Age is also an important retail structure determinant (Ingene, 1984; Ingene & Brown, 1987; Miller, Reardon, & McCorkle, 1999). Working age people, due to their fast-pace lifestyle, tend to shop in modern retail stores and look for one-stop shopping convenience (Messinger & Narasimhan, 1997; Uncles, 2010). Additionally, working age people tend to generate a substantial portion of retail sales, which in turn makes possible the expansion of larger retailers (D'Andrea, 2010; Dries, Reardon, & Swinnen, 2004; Ingene & Brown, 1987; Karasiewicz & Nowak, 2010; Uncles, 2010). Older consumers in many countries, however, prefer to shop in small stores not only because these stores tend to be closely located to their homes but also because consumers receive more personal service in small stores (Ingene & Brown, 1987; Moschis, Curasi, & Bellenger, 2004). Moreover, senior citizens in developing countries tend to turn primarily to small stores because they often lack the resources necessary to travel long distances and purchase large quantities of products (Diaz, Lacayo, & Salcedo, 2007; Kaynak & Cavusgil, 1982). Therefore, the number of retail stores in areas with older populations is usually higher than the number of retail stores in areas with younger populations while total retail sales are usually lower (Ingene & Brown, 1987).

Education

Education is another variable that can affect retail structure. Highly educated people have more sophisticated needs, are knowledgeable about more products and brands available on the market, and seek more variety when shopping (Hung, Gu, & Yim, 2007; Ustuner & Holt, 2010). Educated people are also more affluent and, thus, are able to shop less frequently, but purchase large quantities of products. Therefore, better educated people prefer shopping in chained stores

as these stores offer a wide product assortment, thus helping considerably reduce the amount of time spent shopping (Fox, Montgomery, & Lodish, 2004; Messinger & Narasimhan, 1997).

Competitive intensity

When the retail competition is more intense, there are fewer but larger retailers in a given retail trade line (Ingene, 1983).

In Table 1 we provide a summary of the retail structure determinants examined to date by marketing scholars.

Although studies of demographic and competitive factors have provided valuable insights into how retail structure emerges and evolves, this research ignores other factors, which may also play a key role in retail structure development. As mentioned earlier, one of these "other" factors which a substantial body of anecdotal evidence and case studies have pointed to is national culture.

Insert Table 1 about here

National culture

National culture is "learned by people as the result of belonging to a particular group, and is that part of learned behavior that is shared by others…" (Kluckhohn 1962, p. 25). Cultural values comprise a society's implicitly or explicitly shared abstract ideas about what is good, right, and

desirable (Kluckhohn, 1962; Williams, 1970) and serve as the basis for the specific norms that guide human behavior in various situations (Schwartz, 1999).

National cultural values lead to different lifestyles and consumption patterns (Alden, Steenkamp, & Batra, 2006; Craig, Douglas, & Greene, 2005; Steenkamp, 2001). For example, national cultural values can affect consumer attitudes toward foreign and domestic goods as well as consumer purchase behavior (Craig et al., 2005; Laroche, Zhiyong, Chankon, & Richard, 2007; Steenkamp & de Jong, 2010). Moreover, there has been anecdotal evidence that national culture has implications for retail structure because retail institutions are culturally-embedded (Griffith, 1998; Rosenbloom & Larsen, 1991; Samiee, 1993). Specifically, national culture can affect consumer shopping habits, which in turn affect the retail institutions existing and evolving to accommodate consumer preferences (Goldman, 1981; Hino, 2010; Samiee, 1993). National cultural values also influence retail modernization, or the replacement of small stores with large, modern stores such as hypermarkets, supermarkets, discounters, and shopping malls, which has further implications for retail structure development (D'Andrea, 2010; Goldman, Krider, & Ramaswami, 1999; Goldman, Ramaswami, & Krider, 2002).

In many countries, retail stores are more than just a place to shop; they provide consumers with the opportunity to socialize and provide a means for self-expression (Goldman & Hino, 2005; Griffith, 1998; Tauber, 1972; Zinkhan, Fontenelle, & Balazs, 1999). Moreover, "a shared set of rituals or deep-rooted traditions are key factors determining…consumption patterns" (Hino 2010, p. 65) and consumers in many societies observe traditional cultural values associated with the nature of shopping activities (Goldman & Hino, 2005). In fact, traditional retail stores tend to be embedded into local cultures, which can make consumers resistant to adopting new retail institutions (Goldman & Hino, 2005; Goldman et al., 1999; Griffith, 1998). Therefore, national culture is likely to influence store choice behavior, which largely determines

the nature of retail structure in any given society (Goldman et al., 1999; Hino, 2010). In cultures where consumers are willing to try new store formats rather than shop only in small, traditional retailers they are familiar with, retail modernization is fostered (D'Andrea, 2010). However, in cultures where consumers are not willing to change their shopping behavior, traditional retailers remain viable because consumers trust them and perceive them as an integral part of the cultural fabric of the society, which hampers retail modernization (Goldman & Hino, 2005; Goldman et al., 1999; Hino, 2010). India is a case in point. Specifically, the Indian retail sector is very fragmented and dominated by small kirana stores. The Indian people have been resistant to shopping in modern retailers because these stores have not been able to cater to Indian tastes. Consumers in the country continue to shop in curbside stalls and kirana stores. This consumption pattern has forced modern retailers to rethink their strategies and design small store formats to better meet local consumers' needs and wants (Economist, 2014). So clearly, retail modernization in a country can be influenced by national cultural values (D'Andrea, 2010; Goldman et al., 1999; Goldman et al., 2002).

National cultural value frameworks

Some of the most popular frameworks of national cultural value systems are those developed by Hofstede, Inglehart, Schwartz, Triandis, and the Global Leadership and Organizational Effectiveness (GLOBE) project (Hofstede 2001; House, Hanges, Ruiz Quintanilla, Dorfman, Javidan, Dickson, and Gupta 2010; Inglehart and Baker 2000; Schwartz and Bilsky 1990; Triandis, Bontempo, and Villareal 1988). In the current study, we use Inglehart's framework, the largest cultural values study conducted in the world, which is grounded in materialism (Belk, 1984, 1985) and modernization theory (Inglehart, 1977; Inglehart & Baker, 2000; Inglehart &

Welzel, 2005) and identifies two dimensions of national-cultural values: (1) the traditional/secular-rational dimension and (2) the survival/self-expression dimension. Essentially, these dimensions are made up of two polar opposites such that societies that score low on the traditional/secular-rational dimension tend to embrace traditional values while societies that score high on the traditional/secular-rational dimension tend to embrace secular-rational values (discussed below). Similarly, societies that score low on the survival/self-expression dimension embrace survival values and societies that score high on the survival/self-expression dimension embrace self-expressive values (also discussed below).

Inglehart's main proposition is that when a country advances economically, systematic social changes take place (Inglehart, 1977; Inglehart & Baker, 2000; Inglehart & Welzel, 2005). Inglehart further argues that two "inflection points" are associated with the process of socioeconomic development in a given society: (1) the transition from an agrarian to an industrial society and (2) the rise of post-industrial societies, each of which produces a certain set of changes in people's values (Inglehart & Baker, 2000; Inglehart & Welzel, 2010). The traditional/secular-rational dimension reflects changes associated with the transition from an agrarian to an industrial society while the survival/self-expression dimension reflects changes associated with the rise of post-industrial societies (Inglehart & Baker, 2000; Inglehart & Welzel, 2010). The Islamic countries of the Middle East exhibit the strongest emphasis on traditional values and survival values while the Protestant societies of Northern Europe emphasize secular-rational values and self-expressive values.

The traditional/secular-rational and the survival/self-expression dimensions are particularly relevant in the context of the current study because they reflect the impact of socioeconomic development on cultural value change. That is, when a country advances economically, systematic cultural changes take place (Inglehart, 1977; Inglehart & Baker, 2000;

Inglehart & Welzel, 2005). At the same time, changes in retail structure are possible not only due to improvements in the economic development of a given country, but also due to the cultural changes that take place as a result of improvements in economic development (Reinartz et al., 2011; Wadinambiaratchi, 1965). Cultural changes in turn affect consumption patterns, which are an important retail structure determinant (Goldman, 1981; Ho, 2005). Moreover, a country's level of economic development and the ensuing cultural changes are largely determined by the degree of industrialization of a given nation (Inglehart & Welzel, 2010; Reinartz et al., 2011). When countries are classified along the traditional/secular-rational and the survival/self-expression dimensions, their industrialization level, among other factors, is taken into account (Inglehart & Baker, 2000; Inglehart & Welzel, 2005).

Hypotheses

Modernization Theory and Materialism

The main tenet of modernization theory is that economic development produces systematic societal changes, and ultimately cultural value changes, in any given country (Inglehart, 1997; Inglehart & Baker, 2000; Inglehart & Welzel, 2005). In particular, economic development is driven by industrialization, which stimulates the "modernization" of a society (Inglehart & Welzel, 2009). Modernization helps transform social life by bringing occupational specialization and economic security, urbanization, rising educational levels, and rising life expectancy (Inglehart & Welzel, 2009, 2010). Modernization has two major phases with each phase leading to distinctive changes in people's worldviews (Inglehart & Baker, 2000; Inglehart & Welzel, 2009). The first phase is associated with the transition from an agrarian to an industrial society while the second phase is associated with the transition from an industrial to a post-industrial

(i.e., knowledge) society (Inglehart, 1977, 1997; Inglehart & Baker, 2000; Inglehart & Welzel, 2010).

The transition from an agrarian to an industrial society is associated with bureaucratization, rationalization, and secularization (Inglehart & Baker, 2000). In agrarian societies, or societies that score low on the traditional/secular-rational dimension, traditional family values and national pride are of utmost importance (Inglehart & Baker, 2001; Inglehart & Welzel, 2010). These societies tend to take protectionist and nationalist attitudes and emphasize social conformity rather than individual achievements. Industrialized societies, or societies that score high on the traditional/secular-rational dimension, in contrast, tend to be open to foreign influences, focus on personal achievement, and emphasize secularism, rationality, autonomy, and cosmopolitanism (Inglehart & Baker, 2001; Inglehart & Welzel, 2010).

The transition from an industrial to a post-industrial society gives rise to post-materialist values. Thus, the main difference between societies that score low on the survival/self-expression dimension and societies that score high on the survival/self-expression dimension is that the former emphasize materialist values while the latter emphasize post-materialist values (Inglehart & Baker, 2001; Inglehart & Welzel, 2005). Belk (1984) defines materialism as:

> The importance a consumer attaches to worldly possessions. At the highest levels of materialism, such possessions assume a central place in a person's life and are believed to provide the greatest sources of satisfaction and dissatisfaction. (p. 291)

As individuals in a society satisfy lower order physiological needs and are socialized into more affluent and economically secure societies, their value priorities shift from an emphasis on economic and physical security, and worldly possessions, to an emphasis on higher-order, noneconomic concerns such as subjective well-being, freedom of expression, happiness, and

quality of life (Inglehart, 1977). Thus, societies that score low on the survival/self-expression dimension embrace economic and physical security and economic well-being while for societies that score high on the survival/self-expression dimension, quality of life and self-expression are more important because "the 'quality of experience' replaces the quantity of commodities as the prime criterion of making a good living" (Inglehart and Welzel 2005, p.25; Inglehart 1997; Inglehart and Welzel 2009).

As mentioned, countries that score high on the traditional/secular-rational dimension are industrializing. With industrialization and economic development, there are also more opportunities for retailers seeking to satisfy changing consumer needs. In particular, consumers might turn to large retailers because these stores offer a wider variety of imported goods, thus appealing to consumers' openness to foreign cultures. In addition, consumers in countries that score high on the traditional/secular-rational dimension would seek to reduce the amount of time spent shopping because they would thus have more time for personal development, a primary focus of people in these nations. The one-stop shopping convenience offered by large stores should thus be an important store attribute drawing consumers to these stores. At the same time, small stores were an integral part of the life of consumers in countries that score high on the traditional/secular-rational dimension prior to industrialization and would thus not become extinct. Due to their extensive knowledge of the market, these stores would be able to evolve as consumers' tastes and preferences are evolving due to cultural changes. We thus predict that retailer intensity will increase in these nations because small and large stores would be able to complement each other by satisfying different consumer needs. Moreover, large stores will find opportunities to start new or expand their existing operations to take advantage of changing consumption behavior, a direct result of changing cultural values in countries that score high on

the traditional/secular-rational dimension. Therefore, retailer size should also increase in countries that score high on the traditional/secular-rational dimension.

> H_1: Retailer intensity increases in countries that score high on the traditional/secular-rational dimension.
> H_2: Retailer size increases in countries that score high on the traditional/secular-rational dimension.

People in societies that score higher on the survival/self-expression dimension tend to value the quality of life to a greater extent, and so tend to put less emphasis on worldly possessions (Inglehart & Baker, 2000; Steenkamp & de Jong, 2010). They do not view consumption of products as a way to bring meaning to life (Steenkamp & de Jong, 2010) and value innovative goods, services, and experiences (Reinartz et al., 2011). We argue that this trend would lead to a decrease in retailer intensity and an increase in retailer size. That is, the retail sector in societies that score high on the survival/self-expression dimension should be dominated by large retailers, which tend to offer more innovative products, services, and experiences than small stores. Because large, modern stores have more resources and better capabilities than small stores, they can better understand the needs and shopping experience expectations of consumers in countries that score high on the survival/self-expression dimension and offer the type of experiences these consumers look for. Moreover, the convenience to shop for a variety of goods under one roof offered by large stores would leave people in countries that score high on the survival/self-expression dimension with more time for self-development. Finally, large retailers offer opportunities for socialization and, ultimately, self-expression, which is another reason why these stores might be the preferred shopping destination for consumers in countries that score high on the survival/self-expression dimension. Thus:

H_3: Retailer intensity decreases in countries that score high on the survival/self-expression dimension.

H_4: Retailer size increases in countries that score high on the survival/self-expression dimension.

Methodology

Sample

The sample for the study consists of 67 countries, which are listed in Table 2. The data covers the period 1999-2012. The number of observations (i.e., years) per country for each dependent and independent variable are listed in Table 3. The sources used to obtain each variable included in our empirical model are detailed below. The total sample size is 384 because data for one of our control variables (the percentage of paved roads in a country) is not available for all years for each country.

We believe that the fact that the sample is comprised of countries at different levels of economic development as well as countries from almost all geographic regions can help improve the generalizability of our results.

Insert Table 2-3 about here

Measurement

Retail structure

We examine two retail structure components: (1) the number of grocery stores per 1000 people, which we refer to here as *grocery retailer intensity (Retailer intensity)* and (2) average grocery store size, referred to as *grocery retailer size (Retailer size).* As mentioned, we focus on grocery retailing because it is one of the major retail trade lines in any economy. Moreover, it has been suggested that grocery retailing has helped shape the so-called retail revolution (Pellegrini, 2000; Pilat, 1997).

Data on total number of grocery retail stores as well as average grocery store size (in square meters) for each sampled country were obtained from Euromonitor International. Euromonitor International is an independent market research company and the world's leading provider of strategic market research. Euromonitor International has an extensive network of in-country analysts who help compile data on thousands of products and services around the world. The company's global industry specialist teams ensure the international consistency of the research.

Grocery retailers, as defined by Euromonitor International, are comprised of large grocery retailers such as hypermarkets, supermarkets, convenience stores, discounters, and forecourt retailers as well as traditional grocery stores such as independent grocery retailers and food/drink/tobacco specialists.

National cultural values

We obtained data for the two dimensions of national cultural values: (1) traditional/secular-rational (Secular-rational) and (2) survival/self-expression (Self-expression), from the official website of the World Values Survey (WVS). The purpose of the WVS is to examine sociocultural and political change in countries around the world. It is organized as a network of social scientists and is coordinated by the World Values Survey Association. The WVS questionnaire has more than 200 questions. Similarly to prior research (Steenkamp & de Jong, 2010), we use the aggregate dimensions rather than individual questions from each wave because cultural dimensions characterize groups of people that embrace the same cultural norms and values (Hall, 1973; Martin, 2001). The methodology used to compute the score for the traditional/secular-rational and survival/self-expression dimension is described in detail in Inglehart and Baker (2000).

Since 1981, there have been six WVS waves (1981, 1990, 1995, 2000, 2005, and 2010). In order to capture cultural change over time, with the caveat that such change does occur slowly (Inglehart & Baker, 2000), the subsequent procedure is followed. We use data from four (1995, 2000, 2005, and 2010) of the six WVS waves. For example, all four waves have been conducted in Argentina. Therefore, for the year 1999, we use the 1995 wave score, for the period 2000-2004, we use the 2000 wave score, for the period 2005-2010, we use the 2005 wave score, and for the period 2010-2012, we use the 2010 wave score. Each of the two WVS dimensions varies between -2.5 and 2.5 with higher values indicating more secular-rational and more self-expressive societies.

Control Variables

Climate

Although not previously examined by marketing scholars studying retail structure, climate is another factor than can affect retail structure. In particular, food freshness is crucial for grocery retailers. In hot climates, large air-conditioned stores may be advantageous to shoppers because theses stores will ensure food freshness. We thus control for a country's climate by including a country's geographic latitude as an independent variable (Parker, 1997). Data were obtained from Portland State University's Country Physical Geography database.

Demographics

Here, we control for the following demographic variables that have been shown to affect retail structure: population density (Population density – people per square meter), urbanization (Urbanization – urban population as a percentage of total population), enrollment in higher education (Education), and the percentage of population between 15 and 64 years (Age). We obtained the data for each variable from World Bank's World Development Indicators (WDI) database. The WDI is the primary World Bank collection of development indicators, compiled from officially recognized international sources. It presents the most current and accurate global development data available.

Competitive intensity

We control for the degree of competitive intensity in the retail sector with the market share of the top five retailers (Competitive intensity). The data were obtained from Euromonitor International.

Physical infrastructure

Because physical infrastructure factors also have implications for retail structure (Au-Yeung & Henley, 2003; Douglas & Craig, 2011; Reinartz et al., 2011), we control for the degree of physical infrastructure development in a country with paved roads as percentage of all roads (Paved roads) and the total length of rail lines per 100 sq.m. (Railline density). Data were obtained from the WDI database.

Foreign direct investment (FDI) restrictions

FDI restrictions in the retail sector are regulations that restrict foreign retailers from entering a country's retail sector or restrict the operations of foreign retailers in a given country (Dholakia et al., 2012; Lapoule, 2010; Mishra, 2008; Reinartz et al., 2011; Uncles & Kwok, 2009).The purpose of retail FDI regulations is to restrict foreign competition in an effort to protect indigenous retail stores (Coe & Wrigley, 2007; Moreno, 2008; Nguyen, Wood, & Wrigley, 2013; Sternquist & Jin, 1998; Viviano, 2008) and such regulations can thus affect retail structure. We control for FDI restrictions in the retail sector (FDI restrictions) with an indicator variable. A value of 1 for this variable indicates that there are FDI restrictions in the country while a value of 0 indicates that there are not any. We obtained the data from Planet Retail, a U.K. company that specializes in retail analysis, news and data covering more than 9,000 retail operations across 211 markets. We used the Regulatory Framework section of the Country Reports provided by

Planet Retail. Three independent researchers recorded the retail FDI restrictions for each country included in the sample. Results were then compared and necessary adjustments made to properly account for retail FDI restriction(s) (or lack thereof) present in the sampled countries.

As suggested by Hair et al. (2009), we mean center (i.e., standardize) the data because the variables in our dataset have different units and scales as we use multiple databases to compile our dataset. By standardizing the data, we can more easily interpret the results. We provide a list of the independent variables included in the study along with their operationalization and source in Table 4. The correlations and descriptive statistics of the independent variables are shown in Table 5 and Table 6, respectively. We also examined the variance inflation factors (VIFs) of the independent variables included in each regression model. The VIFs of all independent variables are below the accepted threshold of 10, which means that multicollinearity is not an issue (Hair, Black, Babin, & Anderson, 2009).

Insert Tables 4-6 about here

Empirical Model

Since panel data models are prone to autcorrelation, heteroskedasticity, and cross-sectional dependence (Cameron & Trivedi, 2005; Greene, 2008; Pesaran, 2004; Wooldridge, 2002), we tested our data for autocorrelation using the test developed by Wooldridge (2002) and heteroskedasticity using a likelihood-ratio test (Cameron & Trivedi, 2005; Cameron & Trivedi, 2009; Drukker, 2003). Our tests showed that both autocorrelation and heteroskedasticity are present in our panel data. In addition, when cross-sectional dependence is present, the residuals are correlated both within groups as well as between groups (Hoechle, 2007). In a panel data

comprising a large number of countries over multiple years, cross-sectional dependence may arise from the ever-growing interdependence of countries as a result of economic and financial integration (DeHoyos & Sarafidis, 2006). We performed Pesaran's (2004) cross-sectional dependence test and found the presence of cross-sectional dependence in our data. We thus estimated the standard errors employing a non-parametric covariance matrix estimation procedure (Driscoll & Kraay, 1998) using the xtscc command with fixed effects option in STATA 13 to compute spatial correlation consistent Driscoll-Kraay standard errors (Hoechle, 2007). The fixed effects control for unobservable or observable country-specific characteristics and business cycle effects (Cameron & Trivedi, 2005; Greene, 2008; Wooldridge, 2002).

A final econometric challenge is the potential for endogeneity due to unobserved correlation between grocery retail structure and national cultural values. We believe that the endogeneity issue is mitigated in our setting for the following reasons. First, we use the first lag of each independent variable in the final econometric model to remove any simultaneity. We also attempt to mitigate endogeneity concerns by controlling for all possible country-specific characteristics as well as business cycle effects. Thus, much of the unobserved correlation between national cultural values and grocery retail structure in our model is already absorbed and controlled for by the structure of our econometric specification.

Results

The results of the study are presented in Table 7 and Table 8. In Table 7 we present the results of the regression models in which grocery retailer intensity is the dependent variable while in Table 8 we present the results of the regression models in which grocery retailer size is the dependent variable. In Model 1 and Model 5, the base models, we include only the control variables. In

Model 2 and Model 6 we include one of the national cultural value dimensions – traditional vs. secular-rational. In Model 3 and Model 7 we include the second national cultural value dimension – survival vs. self-expression while in Model 4 and Model 8 we include both national cultural value dimensions.

As can be seen from Model 1, Latitude ($\beta = 0.139$, $p < 0.05$), Urbanization ($\beta = -0.034$, $p < 0.001$), Education ($\beta = -0.006$, $p < 0.001$), and Competitive intensity ($\beta = -0.012$, $p < 0.001$) are statistically significant. In addition, as can be seen from Model 2 and Model 3, respectively, both Secular-rational ($\beta = 0.398$, $p < 0.001$) and Self-expression ($\beta = -0.220$, $p < 0.01$) are statistically significant when they are added to the base model. Moreover, both variables have the expected sign – positive for Secular-rational and negative for Self-expression. In Model 4, when we add both national cultural value dimensions to the base model, Secular-rational ($\beta = 0.359$, $p < 0.01$) and Self-expression ($\beta = -0.083$, $p < 0.05$) are once again statistically significant and, as hypothesized, positive and negative, respectively. Thus, grocery retailer intensity increases as a society becomes more secular-rational and decreases as a society becomes more self-expressive, which provides support for H_1 and H_3. In addition, as can be seen from Model 4, the control variables Urbanization ($\beta = -0.048$, $p < 0.001$), Education ($\beta = -0.005$, $p < 0.001$), and Competitive intensity ($\beta = -0.013$, $p < 0.001$) are statistically significant. It seems that in countries with higher urbanization level, more educated population, and more intense competition in the retail sector, grocery retailer intensity decreases.

Further, in Model 5 of Table 8, Latitude ($\beta = 0.188$, $p < 0.001$), Population density ($\beta = -0.739$, $p < 0.001$), Urbanization ($\beta = 0.012$, $p < 0.001$), Education ($\beta = 0.006$, $p < 0.001$), Competitive intensity ($\beta = 0.007$, $p < 0.001$), and Paved roads ($\beta = 0.006$, $p < 0.001$) are statistically significant. In Model 6, where Secular-rational ($\beta = -0.113$, $p < 0.001$) is added, this national cultural value dimension is, contrary to expected, negative and statistically significant.

In Model 7, Self-expression ($\beta = 0.082$, $p < 0.001$) is, as hypothesized, positive and statistically significant. In Model 8, where both national cultural value dimensions are added to the base model, Secular-rational ($\beta = -0.090$, $p < 0.01$) is, once again contrary to hypothesized, negative and statistically significant. However, Self-expression ($\beta = 0.047$, $p < 0.001$) is, as hypothesized, positive and statistically significant. Therefore, grocery retailer size decreases as a society becomes more secular-rational, hence H_2 is not supported, and increases as it becomes more self-expressive, which provides support for H_4. Finally, as can de seen from Model 8, the control variables Latitude ($\beta = 0.173$, $p < 0.001$), Population density ($\beta = -0.691$, $p < 0.001$), Urbanization ($\beta = 0.015$, $p < 0.001$), Education ($\beta = 0.006$, $p < 0.001$), Competitive intensity ($\beta = 0.007$, $p < 0.001$), and Paved roads ($\beta = 0.007$, $p < 0.001$) are statistically significant. These findings show that in countries located in higher latitudes, that are more densely populated and more urbanized, have more educated population, more intense competition in the retail sector, and a higher percentage of paved roads, grocery retailer size increases.

Insert Tables 7-8 about here

Discussion

The results of this study demonstrate that national cultural values, measured with the World Values Survey's traditional vs. secular rational and survival vs. self-expression dimensions, are related to retail structure development. Our findings provide implications for marketing scholars and international retail managers.

Implications for Scholars

An aim of this study was to advance the literature by empirically examining the relationship between national cultural values and retail structure. This is important because, to date, scholars have studied only the influence of demographic and competitive factors on retail structure (Bucklin, 1972; Hall et al., 1961; Rosenbloom, 1975; Rosenbloom et al., 1997). However, national culture plays a crucial role in shaping consumers' shopping habits, which influence consumer store choice, the retail institutions evolving and emerging in a given country (Goldman & Hino, 2005; Griffith, 1998; Hino, 2010; Rosenbloom & Larsen, 1991; Samiee, 1993) and, ultimately, retail strategy formulation. Our results demonstrate that national cultural values indeed affect retail structure development and that different national cultural values have different effects on retail structure. This means that, going forward, marketing scholars studying retail structure should account for cultural variables in their research. Moreover, the current study shows that the national cultural dimensions identified by the World Values Survey are relevant for the study of marketing phenomena because changes in socio-economic development tend to also be associated with retail structural changes in any given country.

Consistent with our argument, we found that retailer intensity increases in countries that score high on the traditional/secular-rational dimension. We further found that, as expected, retailer intensity decreases while retailer size increases in countries that score high on the survival/self-expression dimension. However, our results show that retailer size decreases in countries that score high on the traditional/secular-rational dimension. A possible explanation for this surprising finding might be that small stores still thrive in these markets. In addition, these nations are characterized by high levels of urbanization as a result of changing cultural values (i.e., there are more opportunities for self-actualization in urban areas), which might make the operations of large stores particularly challenging due to limited retail space in most cities.

Because urban areas in countries that score high on the traditional/secular-rational dimension also attract more affluent consumers, large, modern retailers might have to devise new, small store formats in order to reach those consumers. In the future, it would be interesting to thoroughly examine what the mechanism behind the decrease in retailer size in countries that score high on the traditional/secular-rational dimension is.

Implications for Managers

In this study, we found evidence that national cultural values are related to grocery retail structure. Our results suggest that large retailers in countries that score high on the traditional/secular-rational dimension should devise small store formats or even pop-up stores as well as explore the store-within-a store model whereby they offer space to more specialized stores. For example, large stores could mimic open-air markets with individual stalls and sellers in the store, similarly to what you would find in many emerging markets. Such a strategy would also make it possible for consumers in countries that score high on the traditional/secular-rational dimension to experience foreign shopping behavior. Because people in these nations are open to foreign influences, they might be particularly receptive of the store-within-a store model.

In countries that score high on the survival/self-expression dimension, large stores should offer a unique shopping experience to consumers. Retailers would have to emphasize how shopping in a given store is not just another consumption experience, but rather an experience that is memorable. Large stores might also have to offer multiple store formats in countries that score high on the survival/self-expression dimension in order to better serve the needs of consumers. As mentioned, consumers in these nations might turn to large stores because these stores offer one-stop shopping convenience. A "brick-and-click" strategy might further

contribute to perceptions of convenience provided by large stores. So, large stores operating in countries that score high on the survival/self-expression dimension should emphasize their one-stop shopping convenience and offer a "brick-and-click" shopping option for consumers.

Limitations and future research

Although providing new insights into the relationship between national culture and retail structure, this study is not without its limitations. In particular, we examine the impact of national culture on aggregate grocery retailer intensity and size. In the future, it will be interesting to find out how national culture affects retailer intensity of different types of retail stores such as supermarkets, hypermarkets, discounters, and independent stores and to examine the impact of national culture on retailer intensity and size in retail trade lines other than grocery retailing. In addition, it has been shown that cosmopolitanism, defined as a person's ability and desire to get acquainted with other cultures (Nijssen & Douglas, 2008; Riefler & Diamantopoulos, 2009; Riefler, Diamantopoulos, & Siguaw, 2012) and consumer ethnocentrism, which refers to the beliefs held by people about the appropriateness, indeed morality, of purchasing foreign products (Shimp & Sharma, 1987), affect consumption behavior. Hence, it would be interesting to examine whether these two variables moderate the relationship between national cultural values and consumer store choice and, ultimately, retail structure

Finally, we use secondary data to examine our hypotheses and although we recognize the limitations of such data, the databases used to compile our dataset are highly reliable, which makes us believe that our findings are also reliable. We have initiated research into the role of national culture on retail structure, opening the way for future studies in this area.

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Table 1 Summary of determinants examined in retail structure studies

Author(s)	Retail structure determinant(s) examined	Retail structure components examined
Hall, Knapp, & Winsten (1961)	Income per capita, mobility, ratio of urban to rural population density, town size, population growth, total population	Total number of retail stores Food stores per capita Independent food stores per capita Clothing stores per 10,000 people Independent clothing stores per 10,000 people
Bucklin (1972)	Total population, income per capita, urban population density, weekly retail wage, number of manufacturing establishments per 1000 people, degree-day (a measure of coldness), number of automobiles per capita, farms per capita, days of sunshine	Retail stores per capita
Forbes (1972)	Total population, income	Number of specialty and general stores per capita
Takeuchi & Bucklin (1977)	Income per capita, automobile ownership, population density, urban population density, population change, department store sales, price of labor	Retail stores per 1000 people
Ingene & Lusch (1981)	Income, household size, automobiles per household, congestion in statistical metropolitan areas, population growth rate, competition	Stores per household
Ingene & Yu (1981)	Income per capita, household size, consumer mobility, local unemployment rate, population density, total population, urban population density	Retail sales per capita
Ingene (1983)	Income, household size, consumer mobility, percentage of young men, percentage of white population, retail concentration ratio	Number of grocery stores per 1000 households
Ingene (1984)	Income, age, household head age, percentage of males, household size, total population, percentage of nonwhite population, consumer mobility, retail assortment, retail service quality, retail service quantity, store density, percentage of "mom-and-pop" stores	Retail store size

Ingene & Brown (1987)	Household income, age, age of household head, household size, total population, number of manufacturing employees, number of retail employees, population density, urban population density, percentage of employment in blue and white collar manufacturing jobs, unemployment rate, number of automobiles per household, state and local gasoline taxes, annual wage rate	Number of retail stores per household
Miller, Reardon, & McCorkle (1999)	Age, income, household size, population density, consumer mobility	Retail store size

Table 2 List of sampled countries

Algeria	Latvia
Argentina	Lithuania
Australia	Macedonia
Austria	Malaysia
Belarus	Mexico
Belgium	Morocco
Bosnia and Herzegovina	Netherlands
Brazil	New Zealand
Bulgaria	Nigeria
Canada	Norway
Chile	Pakistan
China	Peru
Colombia	Philippines
Croatia	Poland
Czech Republic	Portugal
Denmark	Romania
Egypt	Russia
Estonia	Saudi Arabia
Finland	Serbia
France	Singapore
Georgia	Slovakia
Germany	Slovenia
Greece	South Africa
Guatemala	South Korea
Hong Kong	Spain
Hungary	Sweden
India	Switzerland
Indonesia	Thailand
Iran	Turkey
Ireland	United Kingdom
Israel	Uruguay
Latvia	USA
Italy	Vietnam

Table 3 Number of observations (years) per country

Variable	Algeria	Argentina	Australia	Austria	Belarus	Belgium	Brazil	Bosnia-Herzegovina	Bulgaria
Retailer intensity	13	13	13	13	13	13	13	13	13
Retailer size	14	14	14	14	14	14	14	14	14
Secular-rational	14	14	14	14	14	14	14	14	14
Self-expression	14	14	14	14	14	14	14	14	14
Latitude	14	14	14	14	14	14	14	14	14
Population density	12	12	12	12	12	11	12	12	12
Urbanization	13	13	13	13	13	13	13	13	13
Education	11	11	12	12	13	12	7	5	12
Age	13	13	13	13	13	13	13	13	13
Competitive intensity	9	9	9	9	9	9	9	9	9
Paved roads	5	3	4	10	3	11	2	2	1
Railline density	14	14	14	14	14	14	14	14	14
FDI restrictions	0	14	14	14	12	14	6	14	10

Variable	Canada	Chile	China	Colombia	Croatia	Czech Republic	Denmark	Ecuador
Retailer intensity	13	13	13	13	13	13	13	13
Retailer size	14	14	14	14	14	14	14	14
Secular-rational	14	14	14	14	14	14	14	3
Self-expression	14	14	14	14	14	14	14	3
Latitude	14	14	14	14	14	14	14	14
Population density	12	12	12	12	12	12	12	12
Urbanization	13	13	13	13	13	13	13	13
Education	3	11	12	13	11	12	11	1
Age	13	13	13	13	13	13	13	13
Competitive intensity	9	9	9	9	9	9	9	9
Paved roads	1	9	4	1	6	6	11	8
Railline density	14	14	14	14	14	14	14	14
FDI restrictions	14	10	6	14	2	2	14	14

Table 3 (Continued)

Variable	Egypt	Estonia	Finland	France	Georgia	Germany	Greece	Guatemala	Hong Kong	Hungary
Retailer intensity	13	13	13	13	13	13	13	13	13	13
Retailer size	14	14	14	14	14	14	14	14	14	14
Secular-rational	14	14	14	14	14	14	14	14	14	14
Self-expression	14	14	14	14	14	14	14	14	14	14
Latitude	14	14	14	14	14	14	14	14	14	14
Population density	12	12	12	12	12	12	12	12	12	12
Urbanization	13	13	13	13	13	13	13	13	13	13
Education	8	12	12	12	13	0	9	2	9	12
Age	13	13	13	13	13	13	13	13	13	13
Competitive intensity	9	9	9	9	9	9	9	9	9	9
Paved roads	5	8	10	11	2	1	2	3	8	7
Railline density	14	14	14	14	14	14	14	14	14	14
FDI restrictions	4	12	14	14	6	14	14	2	14	14

Variable	India	Indonesia	Iran	Ireland	Israel	Italy	Japan	Latvia	Lithuania	Macedonia
Retailer intensity	13	13	13	13	13	13	13	13	13	13
Retailer size	14	14	14	14	14	14	14	14	14	14
Secular-rational	14	14	14	14	14	14	14	14	14	14
Self-expression	14	14	14	14	14	14	14	14	14	14
Latitude	14	14	14	14	14	14	14	14	14	14
Population density	12	12	12	12	12	12	12	12	12	12
Urbanization	13	13	13	13	13	13	13	13	13	13
Education	11	11	13	12	11	12	12	12	12	12
Age	13	13	13	13	13	13	13	13	13	13
Competitive intensity	9	9	9	9	9	9	9	9	9	0
Paved roads	9	11	5	7	10	3	10	4	5	8
Railline density	14	14	14	14	14	14	14	14	14	14
FDI restrictions	14	14	10	14	12	14	14	14	14	10

Table 3 (Continued)

Variable	Malaysia	Mexico	Morocco	Netherlands	New Zealand	Nigeria	Norway	Pakistan	Peru	Philippines
Retailer intensity	13	13	13	13	13	13	13	13	13	13
Retailer size	14	14	14	14	14	14	14	14	14	14
Secular-rational	14	14	14	14	14	14	14	14	14	14
Self-expression	14	14	14	14	14	14	14	14	14	14
Latitude	14	14	14	14	14	14	14	14	14	14
Population density	12	12	12	12	12	12	12	12	12	12
Urbanization	13	13	13	13	13	13	13	13	13	13
Education	11	12	11	12	12	4	12	9	7	9
Age	13	13	13	13	13	13	13	13	13	13
Competitive intensity	9	9	9	9	9	0	9	9	9	9
Paved roads	5	9	11	2	11	1	7	6	7	3
Railline density	14	14	14	14	14	14	14	14	14	14
FDI restrictions	6	14	14	14	14	14	14	14	14	14

Variable	Poland	Portugal	Romania	Russia	Saudi Arabia	Serbia	Singapore	Slovakia	Slovenia	South Africa
Retailer intensity	13	13	13	13	13	13	13	13	13	13
Retailer size	14	14	14	14	14	14	14	14	14	14
Secular-rational	14	14	14	14	14	14	14	14	14	14
Self-expression	14	14	14	14	14	14	14	14	14	14
Latitude	14	14	14	14	14	14	14	14	14	14
Population density	12	12	12	12	12	12	12	12	12	12
Urbanization	13	13	13	13	13	13	13	13	13	13
Education	12	12	12	11	12	5	0	12	12	0
Age	13	13	13	13	13	13	13	13	13	13
Competitive intensity	9	9	9	9	9	9	9	9	9	9
Paved roads	9	3	6	4	2	3	11	9	10	3
Railline density	14	14	14	13	14	14	14	14	14	14
FDI restrictions	14	14	14	14	14	14	14	14	14	6

Table 3 (Continued)

Variable	South Korea	Spain	Sweden	Switzerland	Thailand	Turkey	USA	UK	Uruguay	Vietnam
Retailer intensity	13	13	13	13	13	13	13	13	13	13
Retailer size	14	14	14	14	14	14	14	14	14	14
Secular-rational	14	14	14	14	14	14	14	14	14	14
Self-expression	14	14	14	14	14	14	14	14	14	14
Latitude	14	14	14	14	14	14	14	14	14	14
Population density	12	12	12	12	12	12	12	12	12	12
Urbanization	13	13	13	13	13	13	13	13	13	13
Education	0	12	12	12	13	12	12	12	11	11
Age	13	13	13	13	13	13	13	13	13	13
Competitive intensity	9	9	9	9	9	9	9	9	9	9
Paved roads	3	4	7	7	2	3	5	11	1	3
Railline density	14	14	14	14	14	14	14	14	14	14
FDI restrictions	14	2	2	10	14	14	14	14	14	14

Table 4 List of independent variables

Variable	Operationalization	Source
National cultural values	Traditional vs. Secular-rational and Survival vs. Self-expression dimensions	World Values Survey[1]
Climate	A country's geographic latitude	Portland State University country geography data[2]
Population density	Number of people per square meter	World Development Indicators[3]
Urbanization	Urban population % total population	World Development Indicators
Education	Higher education enrollment (% gross)	World Development Indicators
Age	% Population between 15 and 64 years	World Development Indicators
Competitive Intensity	Market share by top five retailers	Euromonitor International[4]
Paved roads	Paved roads as percentage of total roads	World Development Indicators
Railline density	Total length of rail lines per 100 sq.m.	World Development Indicators
FDI restrictions	Indicator variable for FDI restrictions in the retail sector	Planet Retail[5]

[1] Available at: http://www.worldvaluessurvey.org/WVSContents.jsp; Accessed April 5, 2012
[2] Available at: https://www.pdx.edu/econ/country-geography-data; Accessed March 27, 2015
[3] Available at: http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators; Accessed April 5, 2013
[4] Available at: http://www.euromonitor.com/grocery-retailers; Accessed April 5, 2013
[5] Available at: http://www.planetretail.net/security/showlogin; Accessed September 21, 2015

Table 5 Correlation Table

Variable	Retailer intensity	Retailer size	Secular-rational	Self-expression	Latitude	Population density	Urbanization	Education	Age	Competitive intensity	Paved roads	Railline density	FDI restrictions
Retailer intensity	1												
Retailer size	-.731**	1											
Secular-rational	-.371**	.425**	1										
Self-expression	-.234**	.560**	.079*	1									
Latitude	-.329**	.328**	.528**	-0.062	1								
Population density	0.032	-.187**	.160**	-.188**	.159**	1							
Urbanization	-.362**	.521**	.246**	.451**	-.114**	-.133**	1						
Education	-.400**	.600**	.542**	.393**	.269**	-.240**	.528**	1					
Age	-.238**	.280**	.525**	-.106**	.341**	.116**	.184**	.368**	1				
Competitive intensity	-.417**	.587**	.409**	.512**	.144**	-0.086	.292**	.606**	.098*	1			
Paved roads	-.414**	.389**	.329**	.241**	.401**	.441**	.191**	.234**	.406**	0.127	1		
Railline density	-.279**	.282**	.408**	.141**	.395**	.280**	.092**	.271**	.249**	.244**	.438**	1	
FDI restrictions	.302**	-.196**	-0.047	.089*	-.247**	0.049	-.261**	-.187**	-0.005	-.237**	-0.067	-.196**	1
VIF	NA	NA	2.55	3.64	2.39	2.63	2.79	3.93	1.64	2.94	2.31	2.05	2.3

*Correlation is significant at the 0.05 level (2-tailed); ** Correlation is significant at the 0.01 level (2-tailed)

Table 6 Descriptive Statistics

Variable	Mean	S.D.
Retailer intensity	4.37	3.26
Retailer size	4.53	0.93
Secular-rational	-0.07	0.98
Self-expression	0.08	1.01
Latitude	30.45	26.96
Population density	4.34	1.31
Urbanization	67.69	17.09
Education	48.27	21.22
Age	66.26	3.85
Competitive intensity	19.77	13.52
Paved roads	68.09	29.27
Railline density	2.40	3.40
FDI restrictions	0.18	0.39

Table 7 Grocery retailer intensity: Results

VARIABLES	Model 1		Model 2		Model 3		Model 4	
Secular-rational			0.398	***			0.359	**
			(0.094)				(0.106)	
Self-expression					-0.220	***	-0.083	**
					(0.020)		(0.033)	
Latitude	0.139	*	0.220	***	0.125		0.207	***
	(0.067)		(0.037)		(0.063)		(0.039)	
Population density	0.920		0.670		0.958		0.709	
	(0.517)		(0.439)		(0.486)		(0.428)	
Urbanization	-0.034	***	-0.049	***	-0.034	***	-0.048	***
	(0.007)		(0.009)		(0.006)		(0.009)	
Education	-0.006	***	-0.005	***	-0.007	***	-0.005	***
	(0.001)		(0.001)		(0.001)		(0.001)	
Age	-0.043	**	-0.057	**	-0.037	**	-0.053	*
	(0.014)		(0.020)		(0.013)		(0.021)	
Competitive intensity	-0.012	***	-0.012	***	-0.013	***	-0.013	***
	(0.002)		(0.002)		(0.002)		(0.002)	
Paved roads	0.001		0.001		0.001		0.001	
	(0.004)		(0.003)		(0.004)		(0.003)	
Railline density	-0.013		0.013		0.022		0.024	*
	(0.030)		(0.016)		(0.014)		(0.012)	
FDI restrictions	0.017		-0.003		0.013		-0.003	
	(0.017)		(0.018)		(0.016)		(0.017)	
Constant	0.000		0.000		0.000		0.000	
	(0.000)		(0.000)		(0.000)		(0.000)	
R^2	0.35		0.40		0.37		0.40	
ΔR^2			0.05	***	0.02	***	0.05	***
N	384		384		384		384	

Notes: Dependent variable: Grocery retailer intensity (number of grocery retail stores per 1000 people). Driscoll-Kraay spatial correlation consistent standard errors are in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, † $p < 0.10$.. The variables Latitude (a country's geographic latitude), Population density (population density), Urbanization (percentage of urban population), Education (higher education enrollment), Age (percentage of population between 15 and 64 years), Competitive intensity (market share by top five retailers), Paved roads (paved roads as percentage of total roads), Railline density (total length of rail lines per 100 sq.m), and FDI restrictions (indicator variable for FDI restrictions in the retail sector) are included as control variables. Secular-rational (traditional vs. secular-rational cultural dimension) and Self-expression (survival vs. self-expression cultural dimension). A higher value for secular-rational and self-expression implies a more secular-rational and a more self-expressive society, respectively.

Table 8 Grocery retailer size: Results

VARIABLES	Model 5		Model 6		Model 7		Model 8	
Secular-rational			-0.113	***			-0.090	**
			(0.029)				(0.029)	
Self-expression					0.082	***	0.047	***
					(0.012)		(0.004)	
Latitude	0.188	***	0.165	***	0.193	***	0.173	***
	(0.020)		(0.014)		(0.018)		(0.013)	
Population density	-0.739	***	-0.669	***	-0.753	***	-0.691	***
	(0.104)		(0.073)		(0.087)		(0.073)	
Urbanization	0.012	***	0.016	***	0.012	***	0.015	***
	(0.002)		(0.003)		(0.002)		(0.003)	
Education	0.006	***	0.005	***	0.006	***	0.006	***
	(0.001)		(0.001)		(0.001)		(0.001)	
Age	0.009		0.013	*	0.007	†	0.011	
	(0.008)		(0.007)		(0.009)		(0.007)	
Competitive intensity	0.007	***	0.007	***	0.007	***	0.007	***
	(0.000)		(0.000)		(0.000)		(0.000)	
Paved roads	0.006	***	0.006	***	0.007	***	0.007	***
	(0.002)		(0.002)		(0.002)		(0.002)	
Railline density	0.004		-0.004		-0.009	*	-0.010	*
	(0.008)		(0.005)		(0.005)		(0.005)	
FDI restrictions	0.007		0.013		0.008		0.012	
	(0.009)		(0.009)		(0.009)		(0.009)	
Constant	0.000		0.000		0.000		0.000	
	(0.000)		(0.000)		(0.000)		(0.000)	
R^2	0.43		0.44		0.44		0.44	
ΔR^2			0.01	***	0.01	***	0.01	***
N	384		384		384		384	

Notes: Dependent variable: Grocery retailer size (average grocery retail store size in sq.m.). Driscoll-Kraay spatial correlation consistent standard errors are in parentheses.
*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, † $p < 0.10$.. The variables Latitude (a country's geographic latitude), Population density (population density), Urbanization (percentage of urban population), Education (higher education enrollment), Age (percentage of population between 15 and 64 years), Competitive intensity (market share by top five retailers), Paved roads (paved roads as percentage of total roads), Railline density (total length of rail lines per 100 sq.m), and FDI restrictions (indicator variable for FDI restrictions in the retail sector) are included as control variables. Secular-rational (traditional vs. secular-rational cultural dimension) and Self-expression (survival vs. self-expression cultural dimension). A higher value for secular-rational and self-expression implies a more secular-rational and a more self-expressive society, respectively.